《Learning Map of Key Roles at Enterprise White Paper》
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I'M Team Leader

I'M Team Leader
Job Role: Technical Team Manager
The Technical Team Manager who leads R&D, testing and other team responsibilities in daily work or key members who assume project management responsibilities in the team.
Classification of Scenario 1

R&D Process Management
Scenario Theme:
Introduce agile development and lean management concept into R & D management.

Description of Work Scenario:
Facing the rapidly changing market environment, how to introduce agile development and lean management ideas into R&D management to create a new way of working to adapt to the digital area.

Job Responsibilities and Tasks:
Establishing a new R&D management method more suitable for the digital area.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to use Cythefin model to distinguish simple, complex, complicated or chaotic scenarios.
2. Be able to understand and apply agile values and principles.
3. Be able to understand the origin of lean, understand and use lean thinking to identify the improvement direction of the current R&D management model, and set improvement goals and plans.
Scenario Theme:
Improve IT demand management capabilities to support rapid and low-cost verification of innovative business assumptions.

Description of Work Scenario:
Facing the high uncertainty brought about by market changes, how to verify business assumptions quickly and at low cost, and how to manage IT demand lightly and efficiently, so as to enhance innovation capabilities in the fierce market competition.

Job Responsibilities and Tasks:
Managing IT needs, collaborating with products and businesses for demand exploration and product innovation.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to use the key points of design thinking and lean entrepreneurship.
2. Be able to perform demand estimation, sorting, decomposition and layered management.
3. Be able to guide agile project planning and Quickstart.
Scenario Theme:
Use Scrum for reference to establish an adaptive working framework.

Description of Work Scenario:
When the traditional project management thinking based on "plan-control" can no longer cope with uncertain scenarios, how to learn from the agile thinking of the Scrum framework and continue to monitor and adjust through adaptive methods.

Job Responsibilities and Tasks:
Establishing a flexible, adaptable, and fast-adjustable iterative work framework.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to use Scrum agile project management framework.
2. Be able to set 3 roles: person in charge of the product, Scrum Master and agile team.
3. Be able to master 3 artifacts: Product Backlog, Sprint Backlog, PSPi.
4. Be able to organize the iterative process practices: planning meetings, daily stand-up meetings, demonstration meetings, and retrospective meetings.
**Scenario Theme:**
Establish a visual "pulling" work system that helps the team, eliminate waste, and manage bottlenecks.

**Description of Work Scenario:**
For each function in product development, how to establish a “pull-type” work system that visualizes, eliminates waste, and manages bottlenecks to help the team eliminate waste and manage bottlenecks, so as to achieve a smooth flow of user value.

**Job Responsibilities and Tasks:**
Identifying bottlenecks in the R&D process and improve overall R&D efficiency.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to grasp the process and principle of Kanban development management.
2. Be able to understand and apply lean product development principles.
3. Be able to master the six core practices of Kanban.
**Scenario Theme:**
Experience and build efficient practical practices for sorting out the demands.

**Description of Work Scenario:**
Requirement sorting is one of the most basic activities in Agile Development. By learning a set of practical practices that have been verified by many large enterprises, we can build our own practices to quickly bring Agile Development to life.

**Job Responsibilities and Tasks:**
Quickly and effectively sorting out requirements, and establishing efficient collaboration between business, development, and testing.

**Requirements of Job Competency, Technology and Knowledge:**
1. Able to use impact maps.
2. Able to use users' story maps.
3. Able to sort out the canvas by demand.
4. Able to guide the Demand Sorting Workshop.
**Scenario Theme:**
Experience and build efficient practical practices for iterative retrospectives.

**Description of Work Scenario:**
Iterative retrospection is also one of the most fundamental activities in Agile Development. How to gain practical experience from practical practices that have been validated by several large organizations in order to help teams bring Agile Development to life quickly.

**Job Responsibilities and Tasks:**
Efficiently and creatively guiding the team to review and continuously improve.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to follow the highest guidelines for retrospective meetings.
2. Be able to guide retrospective meetings with more than 60 points.
3. Be able to use the team review enhancement toolkit.
Classification of Scenario 2

Engineering Culture Management
**Scenario Theme:**

Build an automated deployment assembly line.

**Description of Work Scenario:**

Improving the engineering efficiency of R&D is a hot topic at the moment. This course focuses on how to build an automated deployment assembly line based on continuous integration, automated testing, and gray scale launch to achieve one-click launch, thereby improving the engineering efficiency of R&D.

**Job Responsibilities and Tasks:**

Building a fast and reliable automated deployment assembly line.

**Requirements of Job Competency, Technology and Knowledge:**

1. Be able to build an automated deployment assembly line.
2. Be able to guide automated testing.
3. Be able to implement continuous integration.
4. Be able to implement low-risk launches.
Scenario Theme:
Implement valuable feedback based on the entire value stream process.

Description of Work Scenario:
Based on the whole process of the value stream, how to provide valuable feedback to the previous nodes at each node of the DevOps assembly line so as to control the quality of the project and verify the product direction.

Job Responsibilities and Tasks:
Establishing business feedback mechanisms such as A/B testing and technical feedback mechanisms such as monitoring.

Requirements of Job Competency, Technology and Knowledge:
1. Able to implement telemetry.
2. Able to establish effective deployment feedback.
3. Able to use assumptions to drive development.
4. Able to organize efficient review and coordination.
Scenario Theme:
Establish a culture of continuous learning and experimentation within the organization.

Description of Work Scenario:
DevOps is a new collaborative perspective. How to build a culture of continuous learning and experimentation in the organization to provide the soil for the creative play of teams and individuals.

Job Responsibilities and Tasks:
Creating an innovative culture of continuous learning and experimentation.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to create an atmosphere of continuous learning.
2. Be able to build a mechanism that encourages continuous discovery.
**Scenario Theme:**
Simulate the collaboration of various functional personnel saving a traditional enterprise in survival crisis through sand table simulation.

**Description of Work Scenario:**
Phoenix Project Sandbox is a worldwide popular Devops simulation sandbox (R & D direction). How to save a traditional enterprise in survival crisis through the cooperation of all functional personnel creates a sandbox in which experiential learning can be carried out.

**Job Responsibilities and Tasks:**
Promoting close collaboration between various functional departments that have little to no communication between each other.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to understand DevOps principles and master related practices through a large sand table.
Scenario Theme:
Through sand table simulation, the simulation allows the lander to successfully land on Mars and meet customer needs through the collaboration of various functional personnel.

Description of Work Scenario:
Mars Lander Sand Table 2.0 is a DevOps and ITIL4 simulation sand table (operation and maintenance direction) that is popular all over the world. How to make the lander land on Mars successfully and meet the needs of customers through the cooperation of various functional personnel creates a sandbox in which to carry out experiential learning.

Job Responsibilities and Tasks:
Improving the operation and maintenance management system and connecting with the adaptive development process.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand agile service management principles and master related practices through large sand table.
Scenario Theme:
Create an engineer culture that pursues technological excellence.

Description of Work Scenario:
For traditional enterprises, how to break the old "management orientation" and create an engineer culture that pursues technological excellence so that the development of professional and technical personnel is not restricted by the "ceiling".

Job Responsibilities and Tasks:
Establishing practice community or professional talent development channel, and create a people-oriented R & D environment.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to promote the construction of engineer culture.
2. Be able to establish CoP practice community and development channel for professional talents.
Classification of Scenario 3

Team Collaboration Management
**Scenario Theme:**
Establish working principles that extend small team agility to a larger scale.

**Description of Work Scenario:**
SAFe is the most popular large-scale agile framework in the world. How to establish the working principle of agile expansion of small teams to a larger scope, so that we can control the agile operation mode of 100 people, 1,000 people or even the entire enterprise.

**Job Responsibilities and Tasks:**
Establishing an agile operation model for large teams.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to adopt an economic perspective.
2. Be able to apply systematic thinking.
3. Be able to assume variability and reserve the right to choose.
4. Be able to build products incrementally, combined with fast and integrated learning loops.
5. Be able to set milestones based on objective evaluation of working systems.
6. Be able to establish visualization, constrain work in progress, reduce
batch size, and manage queue length.

7. Be able to implement rhythm and synchronization through cross-domain planning.

8. Be able to release the inner motivation of knowledge workers.

9. Be able to decentralize decision-making.
**Scenario Theme:**

Build teams that operate independently and work closely with other teams and public functions.

**Description of Work Scenario:**

For a small team in a large team developing the same product/IT system, how to operate independently to a certain extent, but also work closely with other teams and public functions to achieve the overall goal.

**Job Responsibilities and Tasks:**

Establish cross-team coordination and synchronization mechanism and dependency management mechanism.

**Requirements of Job Competency, Technology and Knowledge:**

1. Be able to organize and design by centering on value.
2. Be able to form a cross-functional agile team.
3. Be able to organize agile release of trains (ARTs) around the value stream.
Scenario Theme:
Effectively manage large teams composed of multiple small agile teams.

Description of Work Scenario:
When the research and development of a product /IT system involves 50 ~ 125 people, how to design the organizational structure and effectively manage the entire program, so as to not only support the agility and speed of small teams, but also ensure the overall coordination and strength, meanwhile bending their efforts in a single direction.

Job Responsibilities and Tasks:
Manage large teams serving the same product/IT system.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to guide multi-team joint planning of product increments.
2. Be able to implement continuous exploration, continuous integration and continuous deployment.
3. Be able to release value on demand.
Scenario Theme:
Effectively connect corporate strategy, portfolio management, financial accounting, lean agile COE with each R&D team.

Description of Work Scenario:
From an enterprise-level management perspective, how to effectively link corporate strategy, portfolio management, financial accounting, lean and agile COE with each program and team in order to realize the corporate strategy.

Job Responsibilities and Tasks:
Optimizing the governance and operation mechanism of enterprise investment portfolio management.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to define a portfolio.
2. Be able to link portfolio to corporate strategy.
3. Be able to maintain portfolio vision.
4. Be able to establish portfolio flow.
5. Be able to fund the value stream.
6. Be able to support agile portfolio operation.
7. Be able to implement lean governance.
Classification of Scenario 4

Team Member Management
Scenario Theme:
Upgrade the cognitive model and innovative management methods in the face of complex systems.

Description of Work Scenario:
Most of the software, teams, organizations, and markets we face today are complex systems. How can we upgrade the cognitive models and management tools of technology managers so that they can evolve and innovate even when "command control" fails.

Job Responsibilities and Tasks:

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand that modern organizations are complex systems.
2. Be able to master agile methods and complexity theory.
3. Be able to master 8 principles for dealing with complex problems.
**Scenario Theme:**
Stimulate the intrinsic motivation of each individual and establish reasonable authorization rules.

**Description of Work Scenario:**
In the era of knowledge work (especially in the post-90s and post-00s), "carrot and stick" has been unable to be effectively managed. How to truly arouse the intrinsic motivation of each individual and establish reasonable authorization rules, so as to improve the investment and commitment of employees and teams.

**Job Responsibilities and Tasks:**
Identifying employees' internal motivation, being transparent and evolving authorization rules.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to understand why and how to motivate employees.
2. Be able to recognize internal driving forces.
3. Be able to use 12 ways to get to know your employees.
4. Be able to understand why and how to empower the team.
5. Be able to establish reasonable authorization level.
Scenario Theme:
Effectively align team goals and cultivate employee capabilities.

Description of Work Scenario:
Goals, challenges and motivation are equally important. How to effectively align team goals and cultivate employees' abilities so as to form a team with real fighting capacity.

Job Responsibilities and Tasks:
Aligning team goals and develop employee competencies.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master why and how to align goals.
2. Be able to use the seven ways of capacity building.
Scenario Theme:
Design organizational structure and consider change strategies and paths.

Description of Work Scenario:
Nowadays, many enterprises are facing organizational transformation or change. How to learn from the mature change methodology and successful cases in the industry to develop organizational structure and design their own organizational change strategies and paths.

Job Responsibilities and Tasks:
Designing the organizational structure and transformation path of large teams.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to expand the organization while ensuring communication.
2. Be able to build agile organizational architecture in different scenarios.
3. Be able to master the Model of Change Management.
**Scenario Theme:**
Establish an atmosphere and mechanism that encourages team innovation.

**Description of Work Scenario:**
In the fierce market competition, how to establish an atmosphere and mechanism that encourages team innovation in order to improve user experience and capture business opportunities at the second and third levels.

**Job Responsibilities and Tasks:**
Leading internal team innovation.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to establish innovation culture and mechanism.
2. Be able to carry out hackathons and other activities that encourage innovation.
Scenario Theme:
Use OKR to set team goals and create synergy.

Description of Work Scenario:
Traditional KPI performance methods have encountered great challenges in the management of knowledge work. How to use the OKR system with advanced concepts to set team goals so as to create synergy among the whole organization.

Job Responsibilities and Tasks:
Using OKR for target management.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to grasp the essentials of goal setting.
2. Be able to design agility metrics.
3. Be able to promote the OKR target collaboration system.
Scenario Theme:
Master coaching skills and integrate with managers’ work.

Description of Work Scenario:
Building coaching leadership is of great benefit to managers. By learning what coaching skills are and how to combine with managers’ work, managers can improve team performance more easily.

Job Responsibilities and Tasks:
Growing into a coaching leader to improve team performance.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand what a professional coach is.
2. Be able to understand the core principles of coaching.
3. Be able to use planning and measurement questions.
4. Be able to combine coaching skills with leadership.
Scenario Theme:
Build trust with employees and listen at a higher level.

Description of Work Scenario:
Traditional managers' listening mode is self-listening and selective listening. How to build trust and affinity with employees and listen in a higher dimension determines the effectiveness of every communication.

Job Responsibilities and Tasks:
Use high-level listening to build trust with your employees.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to build affinity and trust.
2. Be able to listen at three levels.
3. Be able to use VAK mode.
**Scenario Theme:**
Stimulate employees' potential and generate internal action through strong questions and results-oriented approach.

**Description of Work Scenario:**
Traditional managers' habit is to Tell more than Ask and pay more attention to problems than solutions. How to motivate employees' potential, compensate for their blind spots and generate internal motivation through strong questions and results-oriented approach.

**Job Responsibilities and Tasks:**
Using powerful questions to motivate employees.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to ask strong questions.
2. Be able to use open question lines.
3. Be able to use If frame.
**Scenario Theme:**
Co-create and shape the team’s common vision and values based on respect for individual differences.

**Description of Work Scenario:**
Vision and values are the soul of a team. How to co-create and shape the common cognition of a team on the basis of respecting individual differences, so as to generate strong centripetal force and cohesion.

**Job Responsibilities and Tasks:**
Shaping the common values of the team.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to use logical hierarchy of values.
2. Be able to respect and connect individual values.
3. Be able to create team values and vision.
**Scenario Theme:**
How to carry out one-on-one communication?

**Description of Work Scenario:**
When talking to each team member, how to master the conversation skills and reach an agreement with the person being communicated.

**Job Responsibilities and Tasks:**
Communicating effectively with superiors and subordinates.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to use communication skills to communicate effectively with superiors.
2. Be able to use communication skills to communicate effectively with subordinates.
Scenario Theme:
How to organize internal meetings?

Description of Work Scenario:
For different types of meetings, how to effectively preside, and how to deal with the problems raised during the meeting.

Job Responsibilities and Tasks:
Be able to effectively organize and host various types of meetings, lectures and reports.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to organize various types of team meetings effectively.
2. Be able to host meetings with convergent and divergent thinking.
3. Be able to master management modes such as brainstorming and Six Thinking Hats in meetings.
Scenario Theme:
How to solve the problem effectively?

Description of Work Scenario:
When encountering a new job, being able to figure out which link to proceed with can grasp the essence of the problem quickly, and can find out the way to solve the problem.

Job Responsibilities and Tasks:
Analyzing and solving problems systematically and scientifically.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to use the six-step problem-solving method to analyze problems;
2. Be able to follow up important steps in the process of problem solving in time;
Scenario Theme:
Remote management?

Description of Work Scenario:
Some team members are not local. How to ensure the synchronization of management and let them feel the care and consideration of the managers?

Job Responsibilities and Tasks:
Effectively managing the work of employees in different regions.

Requirements of Job Competency, Technology and Knowledge:
1. Have a clear grasp of common challenges in a remote working environment.
2. Be able to use effective communication channels and means to solve remote management issues.
Scenario Theme:
How to clearly state the goal and direction?

Description of Work Scenario:
At the beginning and end of each year, the objectives and directions of the organization and departments should be publicized and implemented to all personnel.

Job Responsibilities and Tasks:
Be able to correctly understand and master the long-term strategy and short-term goals of the organization; And be able to effectively communicate and implement the strategy and objectives.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to set the department's annual, quarterly and monthly goals;
2. Be able to track the process and evaluate the results for specific goals;
**Scenario Theme:**
How to analyze the efficiency of technology R & D team?

**Description of Work Scenario:**
There are a lot of people in the department and everyone seems to be busy. How do I know how effective everyone is and manage them accordingly?

**Job Responsibilities and Tasks:**
Cost management is one aspect that every manager must pay attention to. In the process of software development, the most important cost is human resource cost. Managers should master certain methods to collect, track and analyze the work efficiency of developers.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to understand how to measure the efficiency of software developers.
2. Be able to collect, analyze and rectify the efficiency of personnel within the department.
3. Be able to evaluate the competency of the staff in the department.
Scenario Theme:
How to plan resources reasonably in the technical team?

Description of Work Scenario:
How many people should be assigned to each area of expertise in the department? What is the skill level required?

Job Responsibilities and Tasks:
Managers should formulate corresponding human resource management according to the annual strategic planning to match the requirements of business development.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to make annual or project resource plans.
2. Be able to reasonably deploy and allocate team resources.
Scenario Theme:
The system is about to be launched. What are the responsibilities of a manager?

Description of Work Scenario:
Before the launch of each major product, the project team is very busy. As a manager, how should I participate in it?

Job Responsibilities and Tasks:
Be able to organize and preside over technical review meetings, and make correct decisions.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to define and control key milestones in the project and system development process.
2. Be able to effectively manage the risks in the development process.
Scenario Theme:
How do you influence your superiors, your peers, your subordinates?

Description of Work Scenario:
If you persuade your superiors to accept your proposal, how do you expect your subordinates to happily comply with your request.

Job Responsibilities and Tasks:
Be able to get along well with superiors, peers and subordinates in the daily work process, and jointly complete the annual plans and goals of the department and organization.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand the four stages of situational leadership.
2. Be able to coach and manage different employees with different management modes.
Scenario Theme:
Use coaching techniques to support the team in effectively executing strategies, taking inventory of capacity risks, and making rational decisions.

Description of Work Scenario:
Managers’ hands-on everything and making decisions themselves cannot build a high-performance team. How can coaching techniques be used to support teams to effectively execute strategies, take inventory of capacity risks, and make reasonable decisions, so as to build a strong team that is willing and focused.

Job Responsibilities and Tasks:
Supporting the team to implement strategy effectively, check capability risk and make reasonable decision.

Requirements of Job Competency, Technology and Knowledge:
1. Understand the difference between a coach and a manager.
2. Capable of coaching one or two employees with coaching skills.
Classification of Scenario

Person in-charge Self-management
**Scenario Theme:**
Just promoted to manager, how should I manage my time effectively?

**Description of Work Scenario:**
From technical personnel to management personnel, individuals should self-assess whether they are qualified to assume management positions. Many things will converge on managers. Managers should arrange their own time rationally to improve their work efficiency.

**Job Responsibilities and Tasks:**
Arrange personal working time effectively, so that urgent, non-urgent, important, non-important matters can be arranged effectively.

**Requirements of Job Competency, Technology and Knowledge:**
1. Mastering a set of time management models that you use.
2. Evaluating and analyzing your own work efficiency.
3. Understanding the process of transformation from technical personnel to management personnel.
Scenario Theme:
Recently there is a lot of pressure coming from business performance, how should I manage the pressure?

Description of Work Scenario:
Department performance, teamwork, and temporary work assigned by superiors will all bring tangible and intangible pressure to managers. Managers should learn to manage stress effectively, including emotional management.

Job Responsibilities and Tasks:
Adjusting to challenges in an environment of performance pressure and team pressure.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to correctly understand the nature of pressure.
2. Be able to analyze the source of pressure.
3. Be able to establish their own pressure management system.
**Scenario Theme:**
When the boss gives you work arrangements that you have never done before, how do you start?

**Description of Work Scenario:**
There are things that you've never experienced before when you were still a technical personnel, and when it comes to these kinds of things, where do managers start, what steps do they take to make these things work.

**Job Responsibilities and Tasks:**
Coming up methods for scientific projects and operation affairs.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to use the knowledge system of project management to start one-off affairs.
2. Be able to use the knowledge system of process management to start repetitive affairs.
**Scenario Theme:**
From technical personnel to management personnel, what adjustments do I make in terms of ideas and behaviors?

**Description of Work Scenario:**
New managers should conduct self-assessment in which areas, identify the areas that they need to change and improve, and formulate corresponding action plans to ultimately achieve our desired results.

**Job Responsibilities and Tasks:**
As a manager, it is not only about self-achievement, but more importantly, changing roles and leading the team to achieve goals and success. Be able to decompose goals, pass them to team members, and supervise and manage their execution.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to fully recognize the various differences from technical personnel to managerial personnel.
2. Be able to use the situational leadership model to complete the transition from technical personnel to management personnel.
Scenario Theme:
How to get to know everyone in my team?

Description of Work Scenario:
The responsibility of the manager is to create a good environment and atmosphere to stimulate the potential of each team member. The manager needs to quickly and accurately analyze and grasp the personality characteristics, advantages and disadvantages of each team member, and manage it according to local conditions and different individuals.

Job Responsibilities and Tasks:
Personalized management for individuals, including professional work and ideological work.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master the characteristics and coping methods of each stage of a team's life cycle.
2. Be able to master five conflict management modes.
Scenario Theme:
How to motivate everyone in the team?

Description of Work Scenario:
How to encourage and stimulate their potential, overcome difficulties and achieve goals for new employees or those who encounter pressure and fear difficulties in their work.

Job Responsibilities and Tasks:
Personalized management for individuals, including professional work and ideological work.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to effectively motivate employees with different personality characteristics.
2. Be able to establish dynamic incentive measures and mechanisms within the department.
Scenario Theme:
How to manage business performance of the team?

Description of Work Scenario:
Whether to evaluate the performance of team members every quarter, half a year and a year? How to evaluate.

Job Responsibilities and Tasks:
Give objective and fair evaluation and feedback on the work results of team members.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand and master the current commonly used performance management methods.
2. Be able to try different performance management methods used in the current organization to manage team members.
**Scenario Theme:**
Coaching and guidance

**Description of Work Scenario:**
Some team members have potential development capabilities and become future leaders. How to conduct targeted and focused training.

**Job Responsibilities and Tasks:**
Coach specific members of the team.

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding the difference between coaching and management.
2. Be able to use coaching methods to guide employees.
Scenario Theme:
Building trust

Description of Work Scenario:
For new leaders or new team members, how to quickly and effectively establish mutual trust and understanding with them.

Job Responsibilities and Tasks:
Quickly establishing trust relationship with superiors and subordinates.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand the concept of situational leadership to establish trust management with subordinates.
2. Be able to communicate with empathy.
Scenario Theme:
How should I deal with tough problems?

Description of Work Scenario:
If you need to lay off employees, or the internal organization needs to deal with negative information from external media, how should you operate as a department head?

Job Responsibilities and Tasks:
For tricky problems, quickly finding a method and skill to proceed.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to handle staff management in distress.
2. Be able to communicate effectively with employees upon resignation.
Scenario Theme:
How do I make decisions?

Description of Work Scenario:
As a manager, how to make decisions and judgments on certain things when the information is not fully obtained.

Job Responsibilities and Tasks:
The ability to make effective decisions in difficult situations.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand general decision-making models.
2. Be able to make fast and accurate decisions based on analyzing and solving problems.
**Scenario Theme:**
Where is my next career development? What abilities do I need to improve?

**Description of Work Scenario:**
A good plan for personal career development will match the organization's opportunities.

**Job Responsibilities and Tasks:**
Formulating an annual personal development plan according to the requirements of the HR Department.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to independently formulate career development paths.
2. Be able to comprehensively evaluate their own abilities in terms of strategic understanding, daily management, organizational personnel, team growth, etc..
Scenario Theme:
How to become a qualified middle-level manager?

Description of Work Scenario:
After three years of basic leadership experience, what areas should I continue to learn and improve to become a middle-level manager.

Job Responsibilities and Tasks:
The development path from grassroots manager to middle-level manager.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to manage the business development of the department through the construction of systems and procedures.
2. Be able to use soft power such as corporate culture to strengthen organizational capabilities.
**Scenario Theme:**
How to manage individual team members?

**Description of Work Scenario:**
There are some individuals (stab heads) with more public personalities in the team. As managers, how should they respond so as to let him produce positive results.

**Job Responsibilities and Tasks:**
Providing effective coaching and management to team members with distinct personalities.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to master various incentive theories.
2. Be able to analyze the personality of different employees.
3. Be able to manage different employees according to local conditions.
Classification of Scenario 6

Business Landing-Related Management
Scenario Theme:
How to decompose goals from top to bottom?

Description of Work Scenario:
How to break down the big goals of the department into small goals for everyone in the team.

Job Responsibilities and Tasks:
Formulating the sub-goals of the subordinates according to the business development goals and requirements of the upper level.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to set departmental goals and personal goals.
2. Be able to use OKR method to formulate goals and key results.
3. Be able to check and implement the implementation of OKR.
Scenario Theme:
How to participate in the pre-sales work of large projects?

Description of Work Scenario:
Understand the whole process system of market, sales and development?

Job Responsibilities and Tasks:
Understanding, mastering and operating the product or project management system of the whole life cycle according to the characteristics of the organization's business development.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to effectively identify the relevant people of the project.
2. Be able to identify and develop the explicit and invisible needs of customers.
3. Be able to compile and display the project.
Scenario Theme:
How to lead the delivery of large projects?

Description of Work Scenario:
Project management and operations management?

Job Responsibilities and Tasks:
Planning, organization, execution and control over temporary, emergency key events and projects.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to grasp the life cycle of large-scale projects and the output of each stage.
2. Be able to carry out effective project management for large projects in the delivery process.
Scenario Theme:
How to carry out daily management?

Description of Work Scenario:
How to manage daily work through process formulation and optimization?

Job Responsibilities and Tasks:
According to the organization plan, making the department’s management procedure and ensure the compliance.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand and master the annual strategy of the company.
2. Be able to divide the company level goals into departments and individuals.
3. Be able to develop department management process to supervise and control the daily work of the department.
**Scenario Theme:**
Help multiple teams collaborate with each other through team coaching.

**Description of Work Scenario:**
In the face of market changes, the traditional planning collaboration model is increasingly challenged. This course focuses on identifying and formulating team collaboration plans through the team coaching model to improve the collaboration capabilities of large teams and improve their overall performance.

**Job Responsibilities and Tasks:**
Multi-team collaborative planning, organization, execution and control.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to master the team coaching process of multi-team collaboration.
2. Be able to coach multiple teams in collaborative goal confirmation and consensus, and preparation and confirmation of collaborative plans.
3. Be able to transparently track and feedback on multi-team
collaborative plans.

4. Be able to organize multi-team collaborative retrospective meetings.
I'M Product Manager

Job Role: Product Manager

The practitioners who assume the product-related positions in daily work and participate in the management, design and strategy with respect to the products as well as project management etc...
Classification of Scenario1

Analysis of basic data

Scenario Theme:
Acquisition of the Data

**Description of Work Scenario:**
Quick acquisition of the data needed for analysis. Primary data can be acquired by means of collection, investigation and others, and second-hand public data of high quality can be acquired from the market and institutions.

**Job Responsibilities and Tasks:**
Acquisition of primary data through collection and investigation, and obtaining second-hand data through the third-party institutions and public market information.

**Requirements of Job Competency, Technology and Knowledge:**
1. Mastering and being familiar with the first-hand important sources of the public data in the market.
2. Having the knowledge of the effective life cycle of data.
3. Mastering how to judge the matching and professional level of the data.
4. Having the knowledge of the basic principles of web crawlers.
5. Mastering how to design data acquisition plan.

**Scenario Theme:**
Definition of Data Analysis Issues

**Description of Work Scenario:**
Having a quick and clear definition of the issues, and then disassembling the issues into specific and operational tasks, thus making feasible work plans.

**Job Responsibilities and Tasks:**
Understanding the intention of the analysis tasks and implementing a matching analysis plan.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to define the issues to be analyzed clearly and disassemble the issues into specific and operable tasks.
2. Be able to arrange data analysis tasks reasonably
3. Be able to possess data analysis thinking and master its corresponding thinking methods.

**Scenario Theme:**
Structured Data Analysis

**Description of Work Scenario:**
Analyzing industry, management, operation, user and other data subjects systematically.

**Job Responsibilities and Tasks:**
Building a framework for data analysis of different subjects.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to master the typical structured data analysis framework and tools.
2. Be able to enter the scene analysis and organize data analysis in line with the subjects of data analysis.
3. Be able to choose the appropriate data analysis framework tools based on the analysis subjects.
4. Be able to adjust the analysis framework according upon the needs of the projects.
Classification of Scenario 2

Project Management

Scenario Theme:
Project Advancement

**Description of Work Scenario:**
Following up the process of product project regularly during development, and coordinating resources in time to resolve quickly the issues founded, so as to ensure that the project advances in an orderly manner as planned.

**Job Responsibilities and Tasks:**
Working with project team members, using project management tools and methods, tracking project schedule, driving project advances as expected, and synchronizing project advances with project team members and stakeholders.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to work with R&D and other project members to refine the development plan into a schedule.
2. Be able to track projects through daily reports, regular meetings and other achievement verification and find issues in time.
3. Be able to use classic project management tools correctly for project management such as spectactulars.
4. Be able to judge the deviations in progress and risks timely, and
formulate a coping plan.

5. Be able to identify resource requirements that guarantee schedule and quality.

6. Be able to anticipate the risks of the issues and take measures in advance to avoid or make corresponding plans.

7. Be able to exert personal influence, mobilize internal and external resources to support the project.

8. Be able to inspire the team members.

Scenario Theme:
Organization of Requirements Review

**Description of Work Scenario:**
Determining the set of requirements for the product version, organizing the relevant personnel of the department to conduct requirements review, and verify the integrity, value and rationality of the solution during the iteration of product development.

**Job Responsibilities and Tasks:**
Arranging product iteration requirements, writing requirements documents, and organizing requirements reviews.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to identify the target audience, the materials and tools to be prepared, and design the review agenda according to the needs of the review.
2. During the review, analyzing the opinions put forward by the team members from different aspects, proposing professional solutions and explanations of the reasons, and finally selecting the optimal demand realization plan.
3. Be able to choose the proper methods of review organization according to the actual situation so as to avoid situations where
opinion leaders decide the results, and argue more than discuss.
4. Be able to anticipate what all the people may propose during the needs review, and prepare in advance.
5. Be able to mobilize team members to support their own planning needs and invest resources.
6. Be able to use external resources to solve problems to meet demand.
Classification of Scenario 3

Product Design

Scenario Theme:
Product Interaction Design

**Description of Work Scenario:**
Identifying different types of page elements such as input, output and control, defining the page flow, determining the presentation form of page elements, and verifying their matching and usability according to the product functions defined previously.

**Job Responsibilities and Tasks:**
Conducting product interaction design, using prototype tools to draw product line block diagrams and interactive prototypes that meet project requirements.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to describe the page flow, page elements, and user operation flow required by the product's specific functions through text description, paper prototype, sketch prototype and other methods.
2. Be able to discuss interaction design schemes and make corresponding drawings with interaction designers and other colleagues.
3. Be able to state the core interface design principles of common
devices such as PCs, mobile phones, and tablets.

4. Be able to provide usability opinions on functional layout, information presentation, interactive experience from the perspective of users.

5. Be able to discover usability issues from the perspective of cognitive psychology principles, and then offer recommendations.

6. Be able to grasp the product interaction design grid from a global perspective to ensure overall consistency.

7. Be able to make constructive recommendations from the perspective of emotional design, and then deliver design methods.

Scenario Theme:
Defining Product Functions

**Description of Work Scenario:**
Summarizing or designing specific steps and operation paths for specific user scenarios in the product, and defining specific functions that the product should deliver in combination with user difficulties in the process.

**Job Responsibilities and Tasks:**
Determining the functions of the product and designing them.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to summarize and extract clearly the specific steps or operation paths of user scenarios.
2. Be able to consider from the product side, and supplement the abnormal paths caused by products and systems to the scene.
3. Be able to find the potential obstacles, inefficiencies and negative emotions of users according to the specific steps and operation paths of the scene, and then figure out the corresponding product functional solutions.
4. Be able to deliver a clear definition of the product functions by using user's stories.
5. Designing procedures or operation paths acceptable to the users.

6. Be able to find the obstacles, inefficiencies and negative emotions that the users may encounter in specific steps, and also the underlying causes, and then work with the team to explore possible solutions from multiple dimensions such as cost and value.
Classification of Scenario4

Product Design

Scenario Theme:
Sorting out User Scenario

Description of Work Scenario:
Screening the user-obtained scenarios by observing users, analyzing competitive products, discussing collection scenarios, and defining the combined dimensions according to the target users targeted by the product and the core needs (pain points or excitement points) to be solved,

Job Responsibilities and Tasks:
Experiencing industry products and writing corresponding reports. Collecting and collating relevant product data in the industry, and conducting competitive product analysis report

Requirements of Job Competency, Technology and Knowledge:
1. Be able to collect and collate the usage scenarios of potential users.
2. Be able to experience competing products and restore valuable user scenarios through functions realized by competing products.
3. Be able to define the filter dimensions of the scene based on the target user and core requirements of the product, and make a list of user scenarios that the product should deliver.
4. Be able to combine the dimensions of intention, time, place and
periphery to find out the valuable user scenarios brought by the variations of multiple factors.

5. Be able to combine product operating plan, further thinking about the value of each user scene, and define user scenarios to realize the optimal order.

6. Be able to match user scenarios with different target users, find out common scenarios of all users and scenarios unique to different target users.

Scenario Theme:
Requirements Collecting and Collating

**Description of Work Scenario:**
Collecting and collating daily product feedbacks, opinions and demands of users, market, operation and partners.

**Job Responsibilities and Tasks:**
Connecting with users, customers and internal colleagues to collect and organize the feedback on products.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to accurately restore users' requirements and the issues to be solved.
2. Be able to moderately supplement the requirements to ensure the completeness of the requirements.
3. Be able to anticipate a portion of demand coming in the future.
4. Be able to select the appropriate evaluation dimension to evaluate the value of requirements so as to facilitate scheduling.
5. Be able to judge the demand of users coverage, typicalness and representativeness.
6. Be able to analyze human needs such as their motivation and appeal.
7. Be able to analyze the requirements from users and relevant personnel to ensure that they are considered comprehensively.
8. Be able to define and combine requirements assessment dimension rules according to the actual situation of the products.
Classification of Scenario 5

User Research and Understanding

Scenario Theme:
Communication With Respect to Product Prototype

**Description of Work Scenario:**
Stimulating user thinking through prototypes such as fidelity and wireframe diagrams, evaluating the suitability of product solutions, and collecting user habits and interface usability.

**Job Responsibilities and Tasks:**
Using product prototypes, conducting product demonstrations and user interviews, collecting and analyzing user feedback, and sorting out suggestions on product improvement.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to design appropriate product prototype presentation process for different communication objects.
2. Be able to motivate users to try out and state their feelings through effective questions and reasonable task requirements during prototype demonstration.
3. Be able to collect more functional and useful feedback through prototype communication, rather than simple aesthetic interface feedback.
4. Be able to pre-design the user "trial task", and observe the user's
operation process from the user's perspective, and then find out the lack of usability and potential needs.

5. Be able to collect feedback and sort out deep information such as the response way and the internal motivation of the user.

Scenario Theme:
User Observation

**Description of Work Scenario:**
Selecting effective forms of user observation, identifying observation clues, and performing user observations according to the information collected during product positioning, planning, and operation, and then sorting valuable information out.

**Job Responsibilities and Tasks:**
Inviting sample users for internal testing, product demonstrations, focus groups to observe the user’s product usage behaviors, and collect and analyze user’s feedback.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to state the typical observation methods, their applicability as well as the advantages and disadvantages.
2. Be able to select the appropriate observation methods based on the information to be collected.
3. Be able to complete the corresponding user observation as required, and sort out the observation results as well as relevant recommendations for product optimization.
4. Be able to perform user observation without bothering the user,
and avoid the distortion of the observation in most cases.

5. Be able to observe as a bystander and record the observed information objectively.

6. Be able to observe from multiple points of view at different points of time and varied environment etc..

7. Be able to observe thoroughly and analyze users' psychological demands and personality characteristics through their behaviors and verbal expression.

Scenario Theme:
User Questionnaire

**Description of Work Scenario:**
Analyzing the samples to be investigated, designing the questionnaire, organizing the survey and statistically analyzing the survey results based on the hypothesis to be tested and the information to be collected,

**Job Responsibilities and Tasks:**
Designing questionnaires, publishing, collecting, and participating in user feedback analysis.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to state the role of the questionnaire and its limitations.
2. Be able to judge whether a questionnaire should be used to verify the hypothesis for collecting potential information.
3. Be able to define the sample of users to be surveyed according to the purpose of questionnaires.
4. Be able to design user-oriented questionnaires with a logic where the users are willing to answer with ease.
5. Be able to conduct statistics and analysis on the recovered questionnaires, and make attribution for the differences revealed in
the questionnaires, so as to guide the subsequent work.

6. Be able to state typical errors on design that affect the survey results, and optimize the question type to design open questions with "positive user feedback".

7. Be able to select how the questionnaires are distributed and plan how the survey is performed according to the sample of users to be surveyed, so as to enhance the authenticity of the questionnaire.

8. Be able to analyze the survey results from multiple dimensions and dig up their future values.

Scenario Theme:
Interviewing the Users

**Description of Work Scenario:**
How to have a face-to-face communication with the representatives of users or to communicate with them by instant messaging software according to product positioning, planning, and operating needs? To obtain user-related background information and potential needs.

**Job Responsibilities and Tasks:**
Writing user interview scripts, organizing the interviews, and sorting out the interview contents.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to make an interview outline beforehand to ensure the integrity of the interview content.
2. Be able to select appropriate interview objects according to the purpose of the interviews.
3. Be able to put yourself in the perspective of the user during the interview.
4. Be able to ask questions from the user’s perspective during the interview and use questioning techniques to guide users on the way to explore the in-depth information.
5. Be able to collect users' behavioral tendencies and potential demands.
6. Be able to reconstruct the information through fragments when the user is unwilling to speak up.
7. Be able to have an insight into the behavioral tendencies and the psychological demands behind their needs through users' description.
8. Be able to cope with all the unusual situations during the interview.
9. Be able to remain modest and accept users' feedback of different values and behavioral tendencies.
Classification of Scenario 6

Analysis & Implementation of Product Data

Scenario Theme:
Formulating Matching users and Product Growth Strategies

**Description of Work Scenario:**
Formulating systematic growth strategies and targets and designing growth models for specific product flow channels and user paths.

**Job Responsibilities and Tasks:**
Designing the growth strategy solutions and promote the implementation iteration based on the product strategy.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to fully understand the growth method and master the common usage of using tools.
2. Be able to choose a suitable growth method based on actual needs and resources, and then formulate a complete plan.
3. Be able to mobilize and integrate resources across departments to promote completion of growth targets.
4. Be able to analyze the growth status with the team members and adjust the plan in time according to the actual situation.
5. Be able to make full use of technology and resources to implement iteration efficiently.
6. Be able to provide feedback and recommendations for growth
during the implementation.

**Scenario Theme:**
Visualization of Data Analysis

Description of Work Scenario:
Displaying the data of product data analysis in the form of charts

Job Responsibilities and Tasks:
Conducting data collation and statistical mapping for the purposes of the distribution, change, comparison and prediction of business data.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master the principle of statistical drawing and correctly express the significance of statistical data.
2. Be able to adopt visualization technology to realize the effect of data analysis according to the desired effect of the report and the actual situation of the project.

Scenario Theme:
Report of Data Analysis

**Description of Work Scenario:**
Formulating a matching data analysis report according to the data analysis results combined with the usage scenarios of the final report and the target audience.

**Job Responsibilities and Tasks:**
Delivering data analysis reports by centering on data analysis targets and report usage scenarios.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to select suitable analysis data to make reports according to different application scenarios.
2. Be able to draw basic conclusions from data and present concluding descriptions in the report.
3. Be able to analyze the causes behind data phenomena in reports based on basic conclusions.
4. Be able to present conclusion logic completely in the report.

**Scenario Theme:**
Implementation of Data Strategy

**Description of Work Scenario:**
Organizing and designing the methods to collect data to the point according to the specific flow channel of the product and the data index system of the user access path. Organizing a systematic and multi-dimensional data system based on the product's data strategy and operation plan.

**Job Responsibilities and Tasks:**
Designing a plan of data collection based on product strategy and promoting the completion of the plan through cross-departmental collaboration.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to understand data collection strategies fully and master common tools and methods to collect data.
2. Be able to select suitable data collection methods based on actual needs and resources, and develop a complete data collection plan.
3. Be able to mobilize and integrate resources across departments to promote the completion of data collection and data analysis aims.
4. Be able to analyze the data collection status with team members
according to the actual situation, and adjust the data collection plan in time.

5. Be able to make full use of technology and resources to implement data collection.

6. Be able to provide feedback and recommendations on the data strategy during the process of implementation.

Scenario Theme:
Development of Date Strategy

**Description of Work Scenario:**
Analyzing and identifying the data scope that should be included in the product according to the product positioning, and analyzing the relationship among these data, defining the data composition, and generating the corresponding domain model, which is validated and optimized in line with the potential demand in the future.

**Job Responsibilities and Tasks:**
Formulating targeted, executable and validated data strategies based on product positioning and product data collected.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to identify the data items that should be included in the product and clarify their relationship for the product business.
2. Be able to state the relationship between the domain model and the database tables, and verify and evaluate their mapping relationship.
3. Be able to combine the image segments of each main business in the product, and combine them into a whole.
4. Be able to guide the team to automatic lashing of the
reasonableness of the domain model and have a specific optimization plan for it in line with the team’s needs and assumptions.

5. Be able to take charge of modeling in the product field.

Scenario Theme:
Data Analysis of User and Product

**Description of Work Scenario:**
Analyzing and evaluating the effect of product operations based on the data indicator system and targeted collected data. According to the product's operation strategy and operation plan, organizing more systematic data operations and conducting systematic analysis on user characteristics, behaviors, and user churn, and being more supportive in making decisions.

**Job Responsibilities and Tasks:**
Collecting and analyzing product data, and using it as a basis for formulating product strategies.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to design data indicators for product functions to evaluate product characteristics.
2. Be able to design data indicators for customer acquisition channels, operational activities to evaluate the effect.
3. Be able to select the most suitable form of visualization to present data for improving analysis efficiency according to the needs of data analysis and presentation.
4. Be able to optimize the dimensions and ways of presentation of data analysis to meet a variety of needs.

5. Be able to design data indicators, collect and analyze data, and summarize the core needs of the use scenarios of various user groups of the product.

6. Be able to formulate effective strategies to improve user retention rate through data analysis.

7. Be able to summarize various data models for early warning.
Classification of Scenario 7

Systematic Product Planning and Design

Scenario Theme:
Formulation of Product Operation System

**Description of Work Scenario:**
Formulating an effective operation strategy based on the product user path in combination with its own product characteristics, and forming a specific plan for customer acquisition, activation, retention, and realization in order to plan a product.

**Job Responsibilities and Tasks:**
Formulating product operation plans based on product targets.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to use the case to explain the "acquisition, activation, storage, and realization" user path, as well as typical difficulties and obstacles.
2. Be able to clarify the customer acquisition channel cooperation strategy and design the marketing plan according to the product positioning.
3. Be able to find the most important "gateway" when the product is activated and thus to formulate the corresponding strategies to activate.
4. Be able to identify the main obstacles to the storage of your own
products, and clarify the corresponding countermeasures.
5. Be able to present the potential profit model of the product.
6. Be able to sort out the obstacles at the key points of the product and the appropriate countermeasures according to the product situation.
7. Be able to adjust the overall strategy dynamically according to the operating conditions.
8. Be able to formulate effective operation plans and improve operational results in a targeted manner based on the operational difficulties.
9. Be able to design a data analysis system that guides operational decisions and adjustments.

Scenario Theme:
Design of Product Pattern

**Description of Work Scenario:**
Clarifying the rules of the game between products and users on one hand, products and partners on the other hand. Clarifying what the product encourages, what it opposes, and what the ecosystem is.

**Job Responsibilities and Tasks:**
Designing the product pattern that meets the needs through the understanding of commercial models and business models.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to list various partners such as producers, consumers, developers according to the product theme, and to give a clear description of their demands.
2. Be able to extract classic product patterns from competing products and other related products, and learn from and apply them to their own products.
3. Be able to clarify what users should be encouraged to do, and design corresponding rules and constraints based on the target users of the product and the core problems solved.
4. Be able to build an ecological system suitable for product
development and satisfying the demands of partners while considering the industry.

5. Be able to balance the demands and shields among different users and partners, and design a multi-faceted game rule.

6. Be able to anticipate the potential risks of the game rules and respond in advance.

Scenario Theme:
Point Analysis of User Needs

**Description of Work Scenario:**
Locating the core needs of users and defining the product value proposition when planning a product. Locating users' potential pain points.

**Job Responsibilities and Tasks:**
Conducting demand analysis, finding users' pain points, digging up users' motivations, and making product plans.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to find potential pain points of users by investigation.
2. Be able to verify the pain points by frequency and substitutability etc..
3. Be able to identify key stakeholders for core requirements, analyze their concerns and obstacles, and propose corresponding countermeasures.
4. Be able to use stories to encapsulate pain points and propose product value propositions.
5. Be able to integrate Maslow's hierarchy of needs and other reference frameworks to reflect and verify potential pain points from
the level of appeal and motivation to ensure their accuracy.

6. Be able to analyze the pain points by demand trends and user groups change trends etc. to verify their sustainability.

7. Be able to inspire users' resonance, refine and upgrade the story, and promote the product value proposition to be accepted by the users.

Scenario Theme:
Identifying and Defining Target Users

**Description of Work Scenario:**
When planning a product, determining the target users of the product and formulating the user strategy of your own product based on the analysis of competitor products and other related products.

**Job Responsibilities and Tasks:**
Adopting mature methods of research and analysis to analyze competitor products and target users.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to clarify the core user's behavior that should be studied according to the product theme, and collect user samples with the team through interviews, questionnaires, data analysis and other methods.
2. Be able to classify and name user samples for different users and generate user classification models.
3. Be able to evaluate the classification of the same users from the perspective of capacity, competitive situation, and select target users, seed users.
4. Be able to use empathy analysis to complete user portraits.
6. Be able to analyze and discuss the reasons behind different users.
7. Be able to combine multiple factors such as the product’s own characteristics and industry competition to weigh in a variety of user tactics.
8. Be able to adjust product user tactics dynamically based on product development and changes in the competitive landscape.
Classification of Scenario

Team Building and Management

Scenario Theme:
Building of Product Team, Leading the Team and People

**Description of Work Scenario:**
Organizing and leading team members to complete the product, and seeking constant improvement in team product capabilities.

**Job Responsibilities and Tasks:**
Building a product team, improving team capabilities, helping team members grow, and leading the team to complete the product.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to find suitable team members through recruitment according to the needs of team work, and improve team building.
2. Be able to discover the strengths and weaknesses of the team's overall capabilities and make reinforcements.
3. Be able to have everyone's work target clear and unified.
4. Be able to put each member in a suitable position, blend them and realize their own value.
5. Be able to build mutual trust among the team members and be willing to work together with cohesion force.
6. Becoming a learning organization to improve the job capabilities of team members.
Scenario Theme:
Product Workflow Management

**Description of Work Scenario:**
and iterating efficient and appropriate product workflow.

**Job Responsibilities and Tasks:**
an efficient collaboration process and communication mechanism for all aspects of the product team.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to establish a product workflow within the team and cross-department collaboration.
2. Be able to find problems in the coordination mechanism at work, and adjust the work flow for smoother coordination.
3. Be able to improve the tacit understanding of team members' collaboration and improve everyone's work efficiency.
4. Be able to solve the contradictions and issues encountered by team members in communication and collaboration.
5. Be able to find and form a working method and process suitable for the team.
Classification of Scenario 9

Opportunity Insight and Strategy Formulation

Scenario Theme:
Analysis and Formulation of Product Business Model

Description of Work Scenario:
Analyzing and formulating verifiable product business models to drive product development to meet expectations.

Job Responsibilities and Tasks:
Formulating the matching product business model and carry out verification and promotion based on the company's business development needs, industry and resources.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand the difference between business models, commercial models and product function models.
2. Be able to formulate the business model to meet the needs of business and growth, satisfying needs of the users and the market.
3. Be able to deeply comprehend the company's business and industry, and gain insights into the development of business models.
4. Be able to innovate in business models and formulate business models with forward-looking and verifiable products.
5. Be able to verify the business model in the product iteration, and adjust the problems in time.
6. Be able to discover the essence of business models and capture the differences from peers and across industries.

Scenario Theme:
Competitor Product Analysis

**Description of Work Scenario:**
Make a comprehensive analysis of the competitor products in the industry according to the product demands, and drawing a conclusion that is helpful for the development of product strategies.

**Job Responsibilities and Tasks:**
Listing some samples of the competitor products in the industry and make a comprehensive analysis of the product issues.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be familiar with commonly used competitor products analysis and data methodology tools, be able to choose suitable analysis methods according to needs so as to independently conduct competitor product analysis, and write systematic analysis reports on competitor products.
2. To have a certain understanding of product form and each link of the industrial chain, and be able to deliver a systematical description of the products.
3. Be able to make conclusive recommendations during the analysis of competitor products.
4. Be able to conduct a comprehensive analysis of competitor products from more perspectives such as product users, markets and business models.

5. To start with the thoughts about why a report should be written, and for whom it is written and what it is about, and to write competitor product analysis reports from different points of view according to audience demands.

6. Be able to find product opportunities through competitor product analysis, and formulate verifiable product and user strategies suitable for themselves.

Scenario Theme:
Industry Insights and Product Strategy Formulation

**Description of Work Scenario:**
Formulating product strategies that align with the development of the company, external industries and market conditions, and maintaining flexibility to keep pace with the times to meet business growth demands and adapt to changes in the market environment.

**Job Responsibilities and Tasks:**
Formulating product strategies that meet the needs of the company’s development, promoting business growth, and determining a clear development direction for product projects.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to interpret the company's strategy, understand the development of the industry, gain insight into product market opportunities, and consider overall product strategy formulation.
2. Be able to position your own products and users, and make the right choices in product strategy.
3. Be able to combine internal and external resources to plan an executable product development roadmap.
4. Be able to predict the development of the company's business and
industry, and formulate forward-looking product strategies.

5. Be able to formulate matching product strategies according to the different stages of the product life cycle.

6. Be able to clarify the role each product plays in the product strategy layout and what kind of support it provides for the company's development.
I'M Architect

Job Role: Architect
The practitioners who assume the positions related to system architecture in daily work and participates in system architecture design, planning, and formulation of technical architecture strategies.
Classification of Scenario 1

M1 The Abilities of Architect at Basic Level

Scenario Theme:
System Scenarios of High Availability

**Description of Work Scenario:**
Distributed system and microservice system become the mainstream. How to build a highly available distributed architecture.

**Job Responsibilities and Tasks:**
Completing system design of high availability independently.

**Requirements of Job Competency, Technology and Knowledge:**
Mastering the common methods of high-availability system design, and being proficient in applying techniques such as service level expansion.

**Scenario Theme:**
System Scenarios of High Performance

**Description of Work Scenario:**
How to design a high-performance system when the business is developing rapidly and the number of users, data and concurrency is soaring.

**Job Responsibilities and Tasks:**
Completing system design of high performance independently.

**Requirements of Job Competency, Technology and Knowledge:**
Mastering the common technology of high-performance system design, and grasping multi-threading, network, asynchrony and other technologies to a certain extent.

**Scenario Theme:**
Architecture Evolution & Selection and Iteration

Description of Work Scenario:
System architecture is diverse with different business scenarios and different business scales. How to choose a more suitable architecture for business development.

Job Responsibilities and Tasks:
Designing the architecture that fits the business without over-design according to the characteristics of the business, knowing the issues faced by different architectures, and have corresponding solutions.

Requirements of Job Competency, Technology and Knowledge:
Be familiar with the advantages and disadvantages of monoliths, MVC, RPC, SOA, microservices, and service grids, understanding the technical cost of the architecture and the evolution of the architecture with a certain technical breadth.

Scenario Theme:
Core components of microservice architecture and core components technology selection considerations

**Description of Work Scenario:**
What are the core components of microservices and how to select the technology.

**Job Responsibilities and Tasks:**
Gaining an in-depth understanding of the core components of open source microservices and be able to lead the team to complete the construction of microservices.

**Requirements of Job Competency, Technology and Knowledge:**
Be familiar with the open source microservice framework, and be proficient in the application of registration center, gateway, configuration center, load balancer, circuit break, current limiting and downgrading technology, with knowledge of their principles.

**Scenario Theme:**
RPC Framework for Microservices Architecture

**Description of Work Scenario:**
How to call teleservice as invoke local service.

**Job Responsibilities and Tasks:**
Be familiar with the underlying principles of the RPC framework and be able to solve the common issues.

**Requirements of Job Competency, Technology and Knowledge:**
Be familiar with the underlying principles of RPC framework, and having a good command of network communication, multi-threading model, serialization and other technologies.
Classification of Scenario 2

M2 The Abilities of Skilled Architect
The Way Service Governance Platform Manages Microservices

**Description of Work Scenario:**
How to manage service issues after servicization through the service governance platform.

**Job Responsibilities and Tasks:**
Conducting an overall architecture and detailed design of the service governance platform.

**Requirements of Job Competency, Technology and Knowledge:**
Grasping the overall architecture design details of the service governance platform, and being familiar with technologies such as service grouping management, strong and weak dependency management, prevention of request accumulation, prevention of service avalanches, and instruction issuance.

**Scenario Theme:**
Principles and Practice of Microservice Splitting

Description of Work Scenario:
With the development of business, business modules are on the increase, logic becomes increasingly complex, system engineering becomes larger in size, the number of team members is rising, and thus the management of system needs more care. How to split the system.

Job Responsibilities and Tasks:
Splitting vertically according to the business, splitting horizontally according to the function.

Requirements of Job Competency, Technology and Knowledge:
Mastering the related technologies of vertical and horizontal split of services and the precautions for splitting.

Scenario Theme:
Troubleshooting and Resolution of Difficult Problems

Description of Work Scenario:
When an issue occurs in the system, how to quickly locate and solve the issue, and how to evaluate its impact.

Job Responsibilities and Tasks:
Solving various incurable issues online and offline quickly.

Requirements of Job Competency, Technology and Knowledge:
Be familiar with troubleshooting ideas, mastering common commands of network, memory, CPU and JVM.

Scenario Theme:
Storage Design of Database with Traditional Relations

Description of Work Scenario:
How can databases of traditional relations cope with mass data, complex business scenarios, high availability, smooth expansion, and data migration.

Job Responsibilities and Tasks:
Solving the design of relational databases in high-concurrency of mass data and complex business scenarios, as well as smooth data expansion and data migration.

Requirements of Job Competency, Technology and Knowledge:
Mastering the sub-database and sub-table, and the way improve performance, horizontal data expansion and complex scene design.

Scenario Theme:
Consistency of Data Storage in Microservices

**Description of Work Scenario:**

Principal issue facing distributed redundant data is the guarantee of data consistency. Considering under which scenario to synchronize asynchronously and under which scenario to double-write synchronously is a test for the architect.

**Job Responsibilities and Tasks:**

Solving the issues of high availability and consistency of traditional database.

**Requirements of Job Competency, Technology and Knowledge:**

How to solve data redundancy, backup technology, high availability and consistency.

**Scenario Theme:**
Distributed Transaction

**Description of Work Scenario:**
After microservices are split, how can different data sources or heterogeneous data sources of different services ensure the consistency of data after a business process is completed.

**Job Responsibilities and Tasks:**
Solving distributed transaction issues required by specific business scenarios.

**Requirements of Job Competency, Technology and Knowledge:**
Distributed transaction theory, models, optimal practices.

**Scenario Theme:**
Distributed Non-relational Data Storage

Description of Work Scenario:
How to use document-oriented NoSQL database to solve issues on the scalability of traditional database.

Job Responsibilities and Tasks:
Mastering NoSQL technology, understanding NoSQL usage scenarios, and being able to use them flexibly.

Requirements of Job Competency, Technology and Knowledge:
NoSQL knowledge, MongoDB principle, database table design and solutions to the common issues.

Scenario Theme:
Data Storage of Big Data Platform

Description of Work Scenario:
How to store unstructured data in big data business scenarios.

Job Responsibilities and Tasks:
Mastering distributed and column storage technology, understanding its usage scenarios, and solving the issues of big data storage under the rapid development of business.

Requirements of Job Competency, Technology and Knowledge:
Big data storage technology, focusing on HBase principle and table design.

Scenario Theme:
Distributed Message Middleware

**Description of Work Scenario:**
How to decouple services? How to control peak shaving and asynchronous processing in order to improve system throughput under high concurrency scenario.

**Job Responsibilities and Tasks:**
Mastering the principle and overall architecture of open source distributed message middleware.

**Requirements of Job Competency, Technology and Knowledge:**
Distributed message queue usage scenarios, basic concepts, overall architecture, and technical points.

**Scenario Theme:**
Distributed Caching

**Description of Work Scenario:**
How to reduce database pressure through caching and improve system read performance. How to improve cache hit ratio and better ensure data consistency.

**Job Responsibilities and Tasks:**
Mastering distributed caching technology and its design.

**Requirements of Job Competency, Technology and Knowledge:**
Redis, Memcached distributed caching technology, consistency of Hash, caching penetration, multilevel caching, caching refresh mechanism.

**Scenario Theme:**
Distributed Lock

**Description of Work Scenario:**
Solving the issue of preemptioning shared resources under concurrent scenarios to ensure data consistency.

**Job Responsibilities and Tasks:**
Using distributed locks to solve the issue of mutual exclusion and serialization of business.

**Requirements of Job Competency, Technology and Knowledge:**
Distributed lock scenarios, principles, methods of implementation, precautions.

**Scenario Theme:**
Three-dimensional Monitoring

Description of Work Scenario:
How to identify issues before the business and locate them quickly.

Job Responsibilities and Tasks:
Completing the architecture design of the three-dimensional monitoring platform independently.

Requirements of Job Competency, Technology and Knowledge:
Monitoring of the overall architecture, the collection and reporting, visualization of data as well as others.
Classification of Scenario3

M3 The Abilities of Senior Architect
Agile Development Issues for Microservice Architectures

Description of Work Scenario:
How to realize quick delivery and make quick trial-and-error attempts, and improve team efficiency under the era of agility and microservices.

Job Responsibilities and Tasks:
Be familiar with the rapid delivery process and automated deployment platform architecture, so as to help the team improve efficiency and quality.

Requirements of Job Competency, Technology and Knowledge:
Project management platform, automated deployment platform and gray release etc.

Scenario Theme:
Mobile Message Push

**Description of Work Scenario:**
How to solve the issues of potential message loss, low arrival rate and high delay rate of pushing message.

**Job Responsibilities and Tasks:**
Able to design a high-performance, real-time, and universal message channel system architecture.

**Requirements of Job Competency, Technology and Knowledge:**
Push technology with long connection, half-push-and-half-pull push mode, based on Netty service design points.

**Scenario Theme:**
IM Technology

**Description of Work Scenario:**
IM scene design of instant messaging.

**Job Responsibilities and Tasks:**
Completing the architecture design, development and optimization of real-time online communication system independently for millions of users.

**Requirements of Job Competency, Technology and Knowledge:**
Load balancing, binary protocol design, asynchronous processing, group message design.

**Scenario Theme:**
Online Pressure Measurement of Mass Flow

**Description of Work Scenario:**
How to carry out system stress test and discover system performance issues in time.

**Job Responsibilities and Tasks:**
Mastering common methods of pressure measurement and full link pressure measurement technology.

**Requirements of Job Competency, Technology and Knowledge:**
Pressure measuring scheme and related tools.

**Scenario Theme:**
Containerization Technology and Service Grid

**Description of Work Scenario:**
How to better complete service resource isolation and lightweight virtualization after microservices.

**Job Responsibilities and Tasks:**
Containerization technology, service grid.

**Requirements of Job Competency, Technology and Knowledge:**
Docker container, Kubernetes, ServiceMesh.
I'M Test Manager

Job Role: Testing Manager

The practitioners who assume the test-related positions in daily work, and participate in testing and development of software and hardware, process improvement and quality assurance as well.
Classification of Scenario 1

Handling of Various Bug Situations

Scenario Theme:
The Quality of Bug itself

**Description of Work Scenario:**
Sometimes Bugs are complained by developers, which are either unrepeatable, misreported or unclearly described. As a quality team, we should ensure our own quality first. How to improve the quality of bugs?

**Job Responsibilities and Tasks:**
Improve the quality of the daily Bug creating, and avoid the waste of efficiency caused by a large number of invalid Bugs and lowering the reputation of the test team.

**Requirements of Job Competency, Technology and Knowledge:**
It is necessary to master how to create high-quality bugs, including the rigorous thinking and the standardized description.

**Scenario Theme:**
Templates and Specifications of Bug

**Description of Work Scenario:**
Are there better Bug templates for reference? Let everyone know which information in a Bug is required to fill in and which is optional. What does the information mean?

**Job Responsibilities and Tasks:**
Define and optimize Bug templates, the fields in the templates, and which items are required to fill, so as to lay a good foundation for the collection and statistics of subsequent project data; The test engineer is required to understand and master the meaning and requirements of each field in the templates, and ensure the compliance of the input information in practical work.

**Requirements of Job Competency, Technology and Knowledge:**
It is necessary to deeply understand the meanings represented by each information items of Bug templates and their supporting roles in management.

**Scenario Theme:**
Bug Rebound and Bug Effectiveness

**Description of Work Scenario:**
Sometimes, the developer said the correction had been done, but the verification test found that it had not been corrected, and it bounced back repeatedly, resulting in high communication cost. Is there any good practice to share?

What is the difference between an effective Bug and a valuable Bug?
Which bugs are invalid bugs? What attention should we pay to invalid bugs?

**Job Responsibilities and Tasks:**
Deal with Bugs in a standard way, find out what needs to be improved in the test work and improve the test accuracy.

**Requirements of Job Competency, Technology and Knowledge:**
Deal with the Bugs with timeliness, rigor and compliance, monitor the emergence of invalid bugs, analyze the reasons, and lower the noise effect of invalid bugs on the whole project.

**Scenario Theme:**
Bug Locating

**Description of Work Scenario:**
Causes of bugs can be effectively analyzed through tests, which can save the time for the developers to relocate bugs according to bug description every time, and improve efficiency.

**Job Responsibilities and Tasks:**
Communicate with developers efficiently to improve bug solving efficiency.

**Requirements of Job Competency, Technology and Knowledge:**
Need to master all kinds of development skills.

**Scenario Theme:**
Bug Handling

**Description of Work Scenario:**
Some developers have a lot of bugs with them. If they create more newly and keep them with themselves, they will accumulate more and more. Are there any practical methods to solve them in the process?

**Job Responsibilities and Tasks:**
The workload shall be balanced, and the existing bugs shall be processed in the fastest time.

**Requirements of Job Competency, Technology and Knowledge:**
Bug handling process, principle of bug assignment and the best practices.
Classification of Scenario 2

Test Cases

Scenario Theme:
Reuse and Stratification of Test Cases

**Description of Work Scenario:**
There are many test cases and their maintenance cost is very high. Is there any effective way to ensure the coverage of test cases and scientifically reduce the maintenance workload?

**Job Responsibilities and Tasks:**
Coverage check and abstract layering shall be carried out on the test cases to improve the reuse of the test cases and reduce the maintenance workload.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the layering and extraction technology of test cases.

**Scenario Theme:**
Test Case Design Method

Description of Work Scenario:
There are some well-known test case design methods, such as Equivalence Class Method, Boundary Value Method and so on. The work fellows seem to understand these concepts. However, the application in actual practices is not ideal. How to make the work fellows design test cases quickly and comprehensively? Is there any targeted training?

Job Responsibilities and Tasks:
Using the mature test case design methods in the industry, high-quality test cases can be designed quickly and comprehensively.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the common test case design methods such as Equivalence Class Method and Boundary Value Method, which is the basic skill of test engineers.

Scenario Theme:
Test Case Granularity

**Description of Work Scenario:**
What is the appropriate granularity of test cases to be determined? When the granularity is too large, the accuracy of the case is not enough; When the granularity is too small, it will make the maintenance too cumbersome.

**Job Responsibilities and Tasks:**
Ensure that so many test cases have uniform granularity, and some test cases shall not be too coarse and some too fine. At the same time, each test case has a clear test purpose.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the granularity division principle and merger principle of manual test cases and automatic test cases respectively.

**Scenario Theme:**
Test Case Template

**Description of Work Scenario:**
Are there good test case design templates for reference? Make everyone know which information is required and which is optional in a test case. What does this information mean?

**Job Responsibilities and Tasks:**
Define and optimize the test case templates, the fields in the templates, and which are required to fill in; The test engineers are required to understand and master the meaning and requirements of each field in the templates, and can independently finish the preparation of test cases and ensure the compliance of the input information in practical work.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the information components of test cases, the significance of each information item and its role in management.
Classification of Scenario 3

Testing plan

Scenario Theme:
Testing Plan

Description of Work Scenario:
How to improve the planning ability of each colleague in the tests?

Job Responsibilities and Tasks:
Strengthen the team’s self-management ability and time management ability.

Requirements of Job Competency, Technology and Knowledge:
Every tester is required to master ability of his own test plan, and can decompose and make his own test plan according to the project goal.
Classification of Scenario 4

Automatic test

Scenario Theme:
Starting Point of Automatic Test

**Description of Work Scenario:**
Where to start automatic testing? What are the traps there? Avoiding investing too much costs in trial and error and taking too many detours, it is required to share some specific experiences of people who have actually done it.

**Job Responsibilities and Tasks:**
Show the team the idea, direction and overall plan of automation construction.

**Requirements of Job Competency, Technology and Knowledge:**
Difficulty Assessment and Risk Control of automatic testing.

**Scenario Theme:**
Automation of Function Testing

**Description of Work Scenario:**
How to realize automatic test of function test. How to deal with the unstable automatic testing of functions depending on the environment and the verification depth of automation?

**Job Responsibilities and Tasks:**
Write about and realize the automation of function test.

**Requirements of Job Competency, Technology and Knowledge:**
Realizing the automation of function test.

**Scenario Theme:**
Automatic Test of UI

**Description of Work Scenario:**
UI-based automatic testing is unstable. For example, the covered control, the resolution change, position change of the scroll bar and the intermediate state of the progress bar and so on, all may cause the failure of automatic test of UI. How to resolve it? Moreover, how to make automation recognize the controls on UI? And how to drive these controls?

**Job Responsibilities and Tasks:**
Write about and realize the automation of UI test.

**Requirements of Job Competency, Technology and Knowledge:**
How to test drive interface controls and control properties through automatic test.

**Scenario Theme:**
Requirements of automatic test

Description of Work Scenario:
Many workfellows in the test team have no programming background, then how to do automation?

Job Responsibilities and Tasks:
Be clear about the test target and the targeted effects of automatic testing. Decompose the huge and complex automation construction into specific responsibilities, assign them to specific persons, clarify responsibilities, taking respective responsibly while cooperating with each other.

Requirements of Job Competency, Technology and Knowledge:
Automatic test is a systematic project, requiring determining the roles of the personnel in the testing team and respective assignment.

Scenario Theme:
Unit Testing

Description of Work Scenario:
It seems that unit testing should be done by developers, but developers really have no time to do unit testing. What to do? Then should it be abandoned? Or just talk about who should do it forever? Also, to what extend should the unit test be done?

Job Responsibilities and Tasks:
Develop the test framework of unit test and reduce the implementation cost of unit test.

Requirements of Job Competency, Technology and Knowledge:
Developing unit tests and the organization and framework among many unit tests.

Scenario Theme:
Automation of Stress Testing

**Description of Work Scenario:**
How to do automation of stress testing?

**Job Responsibilities and Tasks:**
Write about and realize automation of stress test.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the stress testing method and realization method of automation.

**Scenario Theme:**
Automation of Performance Testing

**Description of Work Scenario:**
How to do automation of performance testing?

**Job Responsibilities and Tasks:**
Write about and realize automation of performance testing.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the performance testing method and realization method of automation.

**Scenario Theme:**
Automation of Safety Testing

**Description of Work Scenario:**
How to do automation of safety testing?

**Job Responsibilities and Tasks:**
Write about and realize automation of safety testing.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the safety testing method and realization method of automation.

**Scenario Theme:**
Automation of Interactivity Testing

Description of Work Scenario:
How to do automation of interactivity testing?

Job Responsibilities and Tasks:
Write about and realize automation of interactivity testing.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the interactivity testing method and realization method of automation.

Scenario Theme:
Automation of Localization Testing

Description of Work Scenario:
The developed product shall support multiple languages. If each language runs a test, the implementation cost will increase many times. Can multilingual or localization testing be automated? How to do it? Similarly, even if it is not multilingual, can the project having customized development be automated?

Job Responsibilities and Tasks:
Write about and realize automation of localization testing.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the localization testing method and realization method of automation.

Scenario Theme:
Testability

**Description of Work Scenario:**
Obviously, for similar functions, some programs written by some programmers are easier to automate, while some by others are very laborious. How to solve it?

**Job Responsibilities and Tasks:**
Improve the testability of the tested object and improve the efficiency of both R&D team and testing team.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the influence of development programming design on testability, especially the cost of automation implementation.

**Scenario Theme:**
System Testing

Description of Work Scenario:

Should automation be used in system testing?

Job Responsibilities and Tasks:

Perform system test.

Requirements of Job Competency, Technology and Knowledge:

It is required to master the core concerns and implementation efficiency of system testing.
Classification of Scenario 5

Continuous Integration

Scenario Theme:
Continuous Integration

**Description of Work Scenario:**
How to do continuous integration? How is the continuity of continuous integration reflected?

**Job Responsibilities and Tasks:**
Design the technical route and implementation plan of continuous integration.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master how to design and build a continuous integration system.

**Scenario Theme:**
Code Review

Description of Work Scenario:

Job Responsibilities and Tasks:
Master the core points of Code Review and strengthen quality control from the source.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the key points and core values of Code Review.
Classification of Scenario 6

Quality System

Scenario Theme:
Defect Prevention

**Description of Work Scenario:**
Defect prevention is a hot concept about testing. Is there any practical example of how to do defect prevention?

**Job Responsibilities and Tasks:**
Specific implementation of defect prevention.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the specific implementation mode of defect prevention.

**Scenario Theme:**
TDD (Test Driven Development)

Description of Work Scenario:
TDD, DevOps and so on are all introduced and implemented by advanced IT companies. How to do it?

Job Responsibilities and Tasks:
Establish development method of TDD to improve overall efficiency.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the theory and practice of TDD, teamwork, responsibilities and outputs of each role and each stage.

Scenario Theme:
Quality of Demand

Description of Work Scenario:
The demand always changes, and the test has to be constantly changed. How can it be solved?

Job Responsibilities and Tasks:
Control the quality of demands to avoid wasting a lot of people and time on the developing and testing ends.

Requirements of Job Competency, Technology and Knowledge:
It is required to understand what aspects of the quality of demand are and how to control the quality of demand.

Scenario Theme:
Test Coverage

**Description of Work Scenario:**
How to ensure test coverage?

**Job Responsibilities and Tasks:**
Ensure high test coverage to the demand.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the measurement indicators of test coverage and how to measure it.
Classification of Scenario 7

Test Work Management

Scenario Theme:
Standard for Test Completion

**Description of Work Scenario:**

What has the final say about the product being released? Or is there a standard for test exit?

**Job Responsibilities and Tasks:**

Formulate and improve the release guideline.

**Requirements of Job Competency, Technology and Knowledge:**

It is required to have the ability to formulate, adjust, and monitor test completion standards.

**Scenario Theme:**
Collection and Monitoring of Log

**Description of Work Scenario:**
Under multiple sets of environment and through multi person operation, operation problems can be quickly located by the standard logs.

**Job Responsibilities and Tasks:**
Establish a perfect operation record log system.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to understand the principle of Log Tool Library, have the knowledge of the middlewares of data acquisition development.

**Scenario Theme:**
Test Pass Rate

Description of Work Scenario:
How is the test pass rate calculated? Which dimensions are used?

Job Responsibilities and Tasks:
Define a perfect measurement dimension and measurement method of test pass rate, and strengthen the scientific measurement and scientific management of quality control.

Requirements of Job Competency, Technology and Knowledge:
It is required to master how to define and measure the test pass rate, and define and deal with various situations.

Scenario Theme:
Code Coverage

Description of Work Scenario:
How to stipulate the test coverage? In particular, how to scientifically verify the code coverage standard?

Job Responsibilities and Tasks:
Technical realization and management standard of measuring code coverage.

Requirements of Job Competency, Technology and Knowledge:
It is required to master the technical evaluation methods and management standards of code coverage.

Scenario Theme:
Defect Tracking

**Description of Work Scenario:**
How to do defect tracking? The developers hope that if there are bugs, the testers can find them as soon as possible. But when the testers send bugs to them in time, the developers can't correct them in time. Then, what's the significance of finding bugs in time? What are the good practices in technology and management?

**Job Responsibilities and Tasks:**
Speed up bug handling process and shorten bug life cycle.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to master the process control and management standards for defect tracking.

**Scenario Theme:**
Digitalized Management

**Description of Work Scenario:**
Do you want to know where the most bugs are in the project at any time? Which area is under tested? And adjust the focus of work at any time.

**Job Responsibilities and Tasks:**
Design and build the project data dashboard to improve the scientificity and real-time of project management in a visual way.

**Requirements of Job Competency, Technology and Knowledge:**
It is required to be able to define various project data dimensions and statistical methods, and design project data dashboards. Enhance the real-time monitoring ability of the whole project quality.
I'M Data Scientist

Job Role: Data Scientist

The practitioners who assume the positions related to big data technology in daily work and participates in big data platform management, data center, data governance, planning architecture design and application development.
Classification of Scenario 1

Foundation of Big Data Technology, Distributed File System, Programming Framework and Resource Scheduling Framework

Scenario Theme:
Analyzing how the state of each node in the distributed system can reach agreement

**Description of Work Scenario:**
Carrying out the corresponding task on each node in the distributed computing with coordinated state in the distributed system.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management and optimization;
2. Big data application development.

**Requirements of Job Competency, Technology and Knowledge:**
1. Java/Scala basic programming language and object-oriented programming ideas;
2. Understanding of the basic principles of CAP.

**Scenario Theme:**
Building a distributed file system with mass data storage

**Description of Work Scenario:**
Utilizing and combining distributed architecture to design a file system that stores mass data.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Performance optimization of big data platform;
3. Big data application development.

**Requirements of Job Competency, Technology and Knowledge:**
1. Basic knowledge of file system;
2. Be familiar with Linux basic commands and understanding Linux shell programming;
3. Java programming language, serialization/deserialization knowledge;
4. Basic principles of Zookeeper.

**Scenario Theme:**
Simplifying the threshold of distributed programming with distributed programming framework.

**Description of Work Scenario:**
Combining the HDFS file system and using the corresponding distributed programming framework to help realize big data development applications quickly.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Hadoop distributed program development;

**Requirements of Job Competency, Technology and Knowledge:**
1. Java programming language, the basis of serialization/deserialization;
2. Understanding of the principle of HDFS file system.

**Scenario Theme:**
Designing a resource scheduling framework for distributed applications.

**Description of Work Scenario:**
Designing a corresponding distributed resource scheduling framework to realize easy management and application of distributed applications.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Big data platform planning and scheme design;
3. Distributed applications writing (MR/Spark, etc.).

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding of basic Linux operating commands and linux shell programming;
2. Understanding of the Hadoop MapReduce programming framework and HDFS file system;
Classification of Scenario 2

Big Data Offline Query, Analysis and Underlying Principles

Scenario Theme:
Solving high concurrency requirements under mass data

**Description of Work Scenario:**
Under the distributed system, realizing high concurrency and random access requirements under mass data.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Big data platform planning and scheme design;
3. Distributed database optimization.

**Requirements of Job Competency, Technology and Knowledge:**
1. Be able to understand traditional relational databases;
2. Be able to understand the basic ecology of Hadoop, including Zookeeper, HDFS, MapReduce programming framework.

**Scenario Theme:**
Solving the needs of SQL-like analysis under mass data

**Description of Work Scenario:**
When faced with mass data processing, using SQL-like languages to build data analysis applications, data warehouses, data marts quickly.

**Job Responsibilities and Tasks:**
1. Big data platform planning, application, scheme design;
2. Big data analysis application development;

**Requirements of Job Competency, Technology and Knowledge:**
1. Be familiar with Linux basic command operation and Linux shell programming;
2. Understanding of SQL and related data warehouse concepts;

**Scenario Theme:**
Solving some issues in the MR programming model through efficient use of memory;

**Description of Work Scenario:**
Writing memory-based, faster iterative big data analysis applications based on the MR model.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Big data platform planning and scheme design;
3. Spark application development and design;

**Requirements of Job Competency, Technology and Knowledge:**
1. Be familiar with Linux basic command operation and Linux shell programming;
2. Java/Scala language foundation;
3. MR programming model;

**Scenario Theme:**
Building your own search engine system

**Description of Work Scenario:**
Building your own "search engine" system quickly based on big data infrastructure like Lucence;

**Job Responsibilities and Tasks:**
1. Distributed application development;
2. Elastic search cluster management, optimization, scheme design;

**Requirements of Job Competency, Technology and Knowledge:**
1. Lucene basic principles;
2. Java object-oriented programming ideas, multi-threaded programming;

**Scenario Theme:**
Solving the need of OLAP analysis under mass data;

**Description of Work Scenario:**
Realizing multi-dimensional cross-exploratory analysis and giving analysis results quickly based on mass data;

**Job Responsibilities and Tasks:**
1. OLAP query system architecture design, maintenance and optimization;
2. Design of visual analysis system;

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding of the principle of OLAP analysis;
2. Java object-oriented programming ideas and multi-threaded programming;
Classification of Scenario 3

Real-time Stream Processing Technology, Big Data Case Practice, Platform and Application Planning

Scenario Theme:
How to use stream processing technology to develop real-time analysis applications quickly

**Description of Work Scenario:**
Developing real-time analysis applications of big data through existing stream processing engines, such as flink.

**Job Responsibilities and Tasks:**
1. Platform optimization of stream processing;
2. Application development of stream processing;

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding of distributed principle;
2. Java programming foundation;

**Scenario Theme:**
How to understand the working mechanism and principles of distributed message queue.

**Description of Work Scenario:**
principles of distributed message queue, Having an in-depth understanding of the application scenario and architecture design of message queue.

**Job Responsibilities and Tasks:**
1. Management and construction of Kafka message cluster;

**Requirements of Job Competency, Technology and Knowledge:**
1. Linux basic command operation, and Linux shell programming.
2. Java object-oriented programming, multi-threaded programming principle.
3. Understanding of the subscription model.

**Scenario Theme:**
Building a historical data query platform quickly

**Description of Work Scenario:**
Realizing a historical data platform with high concurrency and low latency under the circumstance of mass data, and making corresponding query optimization.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Distributed application development;
3. Construction of historical data platform.

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding of the NoSql database system under the big data ecosystem;
2. Be familiar with Hbase application development;

**Scenario Theme:**
Building a real-time monitoring platform quickly

**Description of Work Scenario:**
Building a set of real-time monitoring platform in combination with kafka, a distributed message queue, Flink, a stream processing engine and Kuisu.

**Job Responsibilities and Tasks:**
1. Big data platform operation and maintenance management;
2. Stream processing application development;
3. Real-time data processing.

**Requirements of Job Competency, Technology and Knowledge:**
1. Understanding of stream processing under the big data ecosystem;
2. Be familiar with the basic principles and application development of Flink;
3. Understanding of the corresponding technology of message queue.

**Scenario Theme:**
Building a log analysis platform quickly

**Description of Work Scenario:**

Building a set of log analysis system quickly under big data technology based on ELK technology.

**Job Responsibilities and Tasks:**

1. IT system operation and maintenance management;
2. Big data platform operation and maintenance;
3. Big data application development;

**Requirements of Job Competency, Technology and Knowledge:**

1. Understanding of the big data ecology, and Kafka and Elastic Search in the field of big data technology with certain practical operation capabilities.
2. Be familiar with the basic principles of ELK and understanding the basic process of log processing.
Classification of Scenario 4

The Application of Machine Learning Algorithms

Scenario Theme:
Face recognition and tracking
Description of Work Scenario:
Detecting and tracking the target face by means of face recognition, target detection, target tracking and other technologies from the massive face (or other target) database.

Job Responsibilities and Tasks:
1. Dealing with image quality issues in the actual working environment, such as illumination, blur, angle, and distortion.
2. Algorithm realization for face detection, face key point recognition, face matching.
3. Realization of algorithms such as face target tracking.
4. Facilitating the application of related algorithms.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of image processing.
2. Technical knowledge of deep learning algorithms in tasks such as face recognition and target detection.
3. Evaluation of model effect and optimization capabilities.

Scenario Theme:
Customer Service Robot
Description of Work Scenario:
Implementing and applying NLP technology to customer services to answer the user's questions, and make the users feel satisfied with the interaction.

Job Responsibilities and Tasks:
1. Researching and understanding the current intelligent customer service work to ensure the interactive experience of the robot.
2. Be responsible for the establishment, optimization and long-term maintenance of the robot knowledge base to ensure that the knowledge base aligns with the needs of the customer service scene.
3. Training and model optimization of dialogue models.
4. Facilitating the construction and implementation of the customer service robot system.

Requirements of Job Competency, Technology and Knowledge:
1. The ability to carry out the research into needs and analysis.
2. Theoretical knowledge of NLP and conversational robot.
3. Robot dialogue effect and optimization ability.

Scenario Theme:
Voice dialogue robot
Description of Work Scenario:
Voice recognition converts the voice request sent by the user into a text language understandable by the computer, and communicates with the machine voice, which is widely used in scenarios such as voice dialogue robots, voice assistants, and interactive tools.

Job Responsibilities and Tasks:
1. Be responsible for the research of voice recognition related algorithms, including voice front-end processing, acoustic model training, language model training.
2. Be responsible for the optimization of voice recognition algorithms in complex scenarios such as high noise and heavy accents.
4. Optimizing the algorithm and customizing the solution according to the actual scenario.

Requirements of Job Competency, Technology and Knowledge:
1. Possessing theoretical knowledge of voice recognition related.
2. Be familiar with language signal processing, including noise reduction, VAD, audio feature extraction, etc.
3. Be familiar with voice recognition technology, including common technologies such as GMM, HMM, DNN, etc.
4. Be familiar with voice synthesis technology.
Scenario Theme:

Construction and Application of Domain Knowledge Graph
Description of Work Scenario:
Understanding the business, constructing domain knowledge graph according to the business scenario and business purpose, and applying the map mining results to the business to improve the business effect.

Job Responsibilities and Tasks:
1. Knowledge graph construction and optimization (based on the extraction and construction of business entities and relationships).
2. Graph query, graph algorithm application and performance optimization.
3. Integration of knowledge graphs and other models into business applications.

Requirements of Job Competency, Technology and Knowledge:
1. Understanding the business with the ability to apply abstract business entities and available relationships.
2. Be skilled in using the graph query, graph algorithm and other techniques involved in the knowledge graph.
3. The ability to integrate and apply knowledge graphs, machine learning, and business rules.
I'M AI & ML Engineer

Job Role: AI & Natural Language Engineer
Relevant person who assumes AI-related job, engages in researches into AI algorithm, in-depth learning, machine learning and other fields, and carries out natural language-related R&D and application in daily work.
Classification of Scenario 1

Natural Language Processing

Scenario Theme:
Text Retrieval
Description of Work Scenario:
Retrieving, classifying and filtering text collection in accordance with text contents, requiring a profound understanding of massive data mining technology based on text retrieval technology, and conduct application development of text retrieval system.

Job Responsibilities and Tasks:
1. Retrieving, classifying and filtering text collection
2. Mining and analyzing data based on text retrieval.

Requirements of Job Competency, Technology and Knowledge:
1. Text retrieval technology based on keyword.
2. Text retrieval technology based on contents.
3. Text retrieval technology that combines with text structure information for re-ranking of retrieval result.

Scenario Theme:
Document Classification
Description of Work Scenario:
Assigning a single document to one or several categories through a computer automatically, requiring a profound understanding of text expression, classifier selection and training, classification result evaluation and feedback and other technologies, and completing content-based document classification and document classification task facing a request.

Job Responsibilities and Tasks:
1. Text expression, classifier learning and evaluation in document classification.
2. Document classification task based on contents.
3. Document classification task facing a request.

Requirements of Job Competency, Technology and Knowledge:
1. Pre-process document data
2. Decompose and conduct statistics of document
3. Extracting information reflecting document theme feature
4. Learning and training document classifier
Scenario Theme:
Automatic Chinese Word Segmentation
Description of Work Scenario:
The process of computer-based automatic segmentation of Chinese text and re-combining continuous character sequence into word sequence in accordance with certain specification. Requiring a profound perception and understanding of common Chinese word segmentation methods and tools.

Job Responsibilities and Tasks:
1. Word segmentation method based on character string matching.
2. Chinese word segmentation method based on understanding.
4. Realizing efficient automatic Chinese word segmentation based on algorithm.

Requirements of Job Competency, Technology and Knowledge:
1. Utilization of common automatic Chinese word segmentation tools such as HanLP.
2. Common automatic Chinese word segmentation technology based on character string, etc.
Scenario Theme:
Part-of-speech Tagging
Description of Work Scenario:

Text data processing technology that marks part of speech of words in the corpus as per their implications and context contents. Deeper understanding of application of part-of-speech tagging in text mining and natural language processing field and other machine learning tasks.

Job Responsibilities and Tasks:


Requirements of Job Competency, Technology and Knowledge:

2. Classifier model of part-of-speech tagging.
3. Natural language processing and text mining technology in large scale corpus.

Scenario Theme:

Grammar Analysis
Description of Work Scenario:
Combining word sequence into various grammar phrases and recognizing the corresponding grammar scope based on morphology analysis while checking grammar. Requiring a profound understanding of grammar analysis algorithm.

Job Responsibilities and Tasks:
1. Grammar analysis algorithm from top down.
2. Grammar analysis algorithm from bottom up.
3. Generating code and completing grammar analysis automatically in accordance with grammar generator and grammar rules.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of grammar analysis in natural language processing.
2. Utilization of grammar analyzer.

Scenario Theme:
Natural Language Generation
Description of Work Scenario:
Generating natural language from knowledge base or logical form and other machine expression systems in massive data, converting data in non-language format to the form to be understood by human to equip the computer with expression and writing functions like human, and requiring a profound understanding of language and language generation models.

Job Responsibilities and Tasks:
2. Neural language model for nonlinear relation modeling of input and output data.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of natural language generation.
2. Generation model for neural and other languages.
3. Language generation model for independently generated text.

Scenario Theme:
Text Matching
Description of Work Scenario:
Research text matching issue through a computer in the form of text similarity or correlation calculation and having a deeper understanding of its application in search engine, intelligent Q&A, knowledge retrieval and other tasks.

Job Responsibilities and Tasks:
1. Text similarity algorithm
2. Common text matching model
3. Chinese (English) text matching algorithm.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of text matching
2. Text similarity algorithm
3. Common (short) text matching model

Scenario Theme:
Information Extraction
Description of Work Scenario:
Extracting structuring information from non-structuring or semi-structuring documents in massive text data, improving relevant grammar analysis level facing semantics resolver and having a deeper understanding of its application in natural language processing task.

Job Responsibilities and Tasks:
1. Named entity recognition method of text data.
2. Entity relation extraction method of text data.
3. Specific task design and development of information extraction application in massive data.

Requirements of Job Competency, Technology and Knowledge:
1. Named entity recognition and entity relation extraction method.
2. Attribute and event extraction model.
3. Information extraction method based on pattern matching and machine learning.

Scenario Theme:
Machine Translation
Description of Work Scenario:

The process that uses a computer to convert a type of natural language (source language) to another natural language (target language). The machine translation service that realizes multi-way dynamic selection and knowledge base recombination technology, while enriching corpus.

Job Responsibilities and Tasks:

1. Improvement of knowledge base.
2. Converting source text to intermediate semantics expression and its learning method.
3. Application development of intelligent machine translation system.

Requirements of Job Competency, Technology and Knowledge:

1. Be familiar with basic knowledge of machine translation.
4. Optimize performance of online translation system.

Scenario Theme:

Automatic Abstract
Description of Work Scenario:
Using a computer to extract the most crucial information point from text or text collection automatically in accordance with certain type of application, reorganizing language to complete abstract and having a deeper understanding of tasks in natural language processing.

Job Responsibilities and Tasks:
1. Automatic abstract issue of single and multiple documents in text data.
2. Acquiring large linguistic data facing in-depth learning model.
3. Acquiring small linguistic data of participated evaluation.

Requirements of Job Competency, Technology and Knowledge:
1. Be familiar with basic knowledge of automatic text abstract.
2. Acquiring linguistic data necessary for automatic text abstract.
3. Analyzing the modeling of automatic text abstract issue.

Scenario Theme:
Handwritten and Printed Character Recognition
**Description of Work Scenario:**
Using optical technology and computer to read characters printed or written on a paper and converting them to a format able to be accepted by computer and understood by human to realize automatic recognition and input of characters. Having a deeper understanding of layout analysis, layout understanding and recovery and other contents from pure character recognition to mixed arrangement of text and graphics and mixed arrangement of several languages.

**Job Responsibilities and Tasks:**
1. Feature extraction and classification issue of handwritten and printed form recognition.
2. Handwritten/printed form recognition based on in-depth learning theory.

**Requirements of Job Competency, Technology and Knowledge:**
2. Learning and training of handwritten/printed form recognition models based on in-depth learning theory.
Scenario Theme:

Public Sentiment Analysis
Description of Work Scenario:
Analyzing, summarizing and recognizing crucial information in public opinion information in massive network, conducting deep thought processing and analysis research of public sentiment in accordance with demands of special issues to reach relevant conclusion, and having a deeper understanding of constructing public sentiment analysis and decision-making support system in big data times in terms of data collection and cleaning module, data analysis module and decision-making support.

Job Responsibilities and Tasks:
1. Network data crawling.
2. Data pre-processing and hotspot discovery.
3. Data hotspot evaluation and tracing.
4. Timely acquisition and analysis summary of public opinion data for special issue.

Requirements of Job Competency, Technology and Knowledge:
1. Data pre-processing method.
2. Evaluation and tracing algorithm of specific hotspot issue.
3. Public sentiment data acquisition and analysis report on big data platform.
Scenario Theme:

Q&A System
Description of Work Scenario:
Getting answer and making corresponding reply automatically in relevant knowledge resource through understanding of a computer on human's questions based on automatic inference and other methods. Requiring a profound understanding of Q&A system processing procedure and relevant theoretical knowledge based on structuring data and free text.

Job Responsibilities and Tasks:
1. Construct relatively complete structure data in specific field.
2. Query that is able to convert a question to query language form accurately and efficiently in Q & A system processing procedure based on structuring data and free text.
3. Designing and realizing Q&A system model in a specific field.

Requirements of Job Competency, Technology and Knowledge:
1. Constructing structure database for questions in specific fields on big data platform.
2. Analyzing and realizing question classification, theme extraction keyword extraction and other issues in Q&A system.
3. Retrieving information of document base and generating answer of relevant paragraph.
**Scenario Theme:**

Scenario Character Detection
Description of Work Scenario:
Detecting texts in single or mixed form of massive images, position character position in images, possessing significant application value in business field, acting as basis of data informatization and on-line and off-line connection, with higher requirements for text detection technology of network image.

Job Responsibilities and Tasks:
1. Detecting network image and position character row position in image.
2. Detecting text in complex scenario; 3. Detect characters in mixed scenario of multiple languages.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of character detection technology in automatic scenario.
2. Construct and realize character detection model in mixed scenario of multiple languages.
3. Character detection knowledge in special scenario.

Scenario Theme:
Semantics Understanding
Description of Work Scenario:
Paraphrasing text to structuring and machine-readable intention and slot information through a computer on the basis of grammar, semantics and pragmatics analyses of text data, and combining with summarizing and deductive inference abilities to generate more rich and flexible semantics expression with strong self-adaption. Requiring a profound understanding of sentence semantics expression, semantics similarity operation and other knowledge.

Job Responsibilities and Tasks:
1. Grammar, semantics and pragmatics analyses of text data
2. Text paraphrase method and semantics similarity operation

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of semantics understanding.
2. Grammar and pragmatics analyses of text data.
I'M AI & ML Engineer

Job Role: AI & Image and Video Engineer
Relevant person who assumes AI-related job, engages in researches into AI algorithm, in-depth learning, machine learning and other fields, and carries out computer vision-related R & D and application in daily work.
Classification of Scenario 1

Image/Video Recognition

Scenario Theme:
Target Detection
Description of Work Scenario:
Providing a understanding of picture foreground and background automatically through a computer, separating interesting target from a background, determining category of the target and description of the position, and requiring a profound perception and understanding of target detection-related algorithm frame.

Job Responsibilities and Tasks:
2. Sliding window and selective search methods in target detection method.
3. Training and testing basic idea and model from candidate to forecast boxes.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of target detection.
2. Different target detection methods in in-depth learning.
3. Optimize design method through target detection model.

Scenario Theme:
Small Target Detection
Description of Work Scenario:
Extracting and recognizing interesting small targets (with a size smaller than 32*32) in an image or a video through a computer, and requiring a profound perception and understanding of feature extraction and merging, recognition of target and small target, network model training and other knowledge.

Job Responsibilities and Tasks:
1. Extracting and merging small target feature information.
3. Adjusting setup and parameter of small target detection network.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of small target detection.
2. Extracting and merging various feature information of small target.
3. Adjusting parameter and optimize small target detection model.

Scenario Theme:
Image Classification
Description of Work Scenario:
By using the different characteristics contained in the different images information, the computer can predict the class of each image by assigning the correct category labels to each images instead of human visual interpretation. The accurate image classification which requires a deep understanding of the supervised learning, unsupervised learning, semi-supervised learning and image classification algorithms, which belong to the fields of deep learning and machine learning.

Job Responsibilities and Tasks:
1. Feature extraction and information expression of image
2. Supervised learning, non-supervised learning and semi-supervised learning methods and their application in image classification task
3. End-to-end in-depth learning method and its application in image classification task.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of image classification.
3. End-to-end image classification method based on in-depth
learning.

**Scenario Theme:**

Emotion Recognition
Description of Work Scenario:
The computer analyzes and processes the signals collected by the sensor. Using these signals, computers can infer the emotional states by observing the expression, behavior and the premise environment generated by the emotion. To achieve accurate emotion recognition requires a deep understanding of the knowledge of the facial emotion recognition, voice emotion recognition, language and character recognition and physiological pattern recognition as well.

Job Responsibilities and Tasks:
1. Feature information extraction and processing of the signals collected by the sensor.
2. The classifier design based on the feature information for classification.
3. The CNN / DNN model classification based on massive data (or big data).

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of emotion recognition.
2. Data analysis of emotion recognition model.
3. Construction method of emotion recognition classifier or model.
Scenario Theme:
Expression/Micro-expression Recognition
Description of Work Scenario:
Separating specific expression state from given static image or dynamic video sequence to determine psychological mood of the recognized object. Requiring analyzing and processing digitized facial image or a small section of facial expression sequence from different sides, and providing correct expression/micro-expression recognition result.

Job Responsibilities and Tasks:
1. Extracting and processing facial expression image in an image/video.
2. Expression recognition method based on facial kinematic unit.

Requirements of Job Competency, Technology and Knowledge:
1. Extracting and analyzing feature information of image/video data.
2. Expression recognition method of facial kinematic unit.

Scenario Theme:
Medical Image Analysis
Description of Work Scenario:
model through learning and recognizing medical treatment image data to make a machine judge patient's condition and provide strong auxiliary diagnostic support, assist doctors in qualitative and even quantitative analyses of mutants and other interesting areas to improve accuracy and reliability of medical treatment diagnosis, and requiring a profound cognition and understanding of image feature extraction, recognition and other theoretical knowledge.

Job Responsibilities and Tasks:
1. Image feature extraction method.
2. Medical image analysis technology based on CNN and other in-depth learning methods.
3. Frame structure and learning parameter adjustment of medical image recognition network.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of medical image analysis.
2. Feature information extraction method of medical image.
3. Medical image analysis method based on in-depth learning frame.
Scenario Theme:

Image Semantics Division
Description of Work Scenario:
Conducting an automatic pixel-level recognition for input image through a computer and label category of each pixel in the image. For input image, classifying each pixel in the image and requiring a profound understanding of feature extraction method, traditional semantics division algorithm, convolutional neural network and other algorithms.

Job Responsibilities and Tasks:
2. Traditional semantics division method.
3. Application of convolutional neural network in semantics division field.
4. Method of constructing neural network architecture for semantics division application.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of semantics division.
2. Traditional semantics division algorithm.
3. In-depth learning technology in semantics division.
Scenario Theme:

Image Generation
Description of Work Scenario:
Forecasting feature label in accordance with input image, learn from data directly and converting vision concept from character to pixel to generate high fidelity and diversified image. Requiring a profound understanding of generative adversarial network (GAN), stack generative adversarial network (StackGAN), self-attention generative adversarial network (SAGAN) and other models.

Job Responsibilities and Tasks:
2. Method of generating text description-based real image based on stack generative adversarial network (StackGAN).

Requirements of Job Competency, Technology and Knowledge:
1. Distinguish classification/return issue cognition of image generation.
2. Several image generation network models developed on the basis of GAN.
3. Parameter adjustment and optimization issue of training model.
Scenario Theme:
Image Retrieval
Description of Work Scenario:
According to pictures input by users, search for other pictures with identical or similar contents through a computer, analyzing and converting the users' demands, processing image resources and output retrieval results in accordance with similarity. Requiring a profound understanding of feature extraction, feature coding and index technology.

Job Responsibilities and Tasks:
1. Extracting feature information, learn visual feature codebook and embed and quantize space context.
2. Image retrieval based on mixing method.
3. Image retrieval technology based on pre-training and fine adjustment models.

Requirements of Job Competency, Technology and Knowledge:
1. Feature extraction and analysis method.
2. Image retrieval technology based on mixing method.
3. Image retrieval technology based on pre-training model.
4. Image retrieval technology based on fine adjustment model.
Scenario Theme:

Image Recognition
Description of Work Scenario:
Using a computer to process, analyze and understand images to recognize the targets of different patterns and technology of object. Requiring a profound understanding of image acquisition, pre-process, feature extraction and selection, classifier design, classification decision-making and other technologies.

Job Responsibilities and Tasks:
1. Image acquisition and pre-process technologies.
2. Information extraction and selection method.
3. Classifier design and classification decision-making.
4. Image recognition technology based on in-depth learning.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of image recognition.
2. Feature extraction and optimization method of image vision.
3. Classifier design and classification decision-making.

Scenario Theme:
Target Tracing
Description of Work Scenario:
According to target size and position of initial frame in a given video sequence, forecasting the size and position of the target in follow-up frame. Requiring a profound cognition and understanding of feature extraction, motion model, observation model, model update, integration method for obtaining better tracing results and other knowledge.

Job Responsibilities and Tasks:
1. Motion model, feature extraction, model update and other technologies in video.
2. Video target tracing realization based on in-depth learning.
3. Solutions related to shielding, deformation, scale change and other challenging issues in target tracing issue.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of target tracing.
2. Video target tracing technology based on in-depth learning.

Scenario Theme:
Video Semantics Division
Description of Work Scenario:
Providing a label with semantics for each pixel on each frame of image in the given video to meet specific task requirements. Requiring a profound perception and understanding of information extraction, scenario cognition, understanding and other algorithms.

Job Responsibilities and Tasks:
1. Feature information extraction of video data.
3. Acceleration issue of video semantics division.

Requirements of Job Competency, Technology and Knowledge:
1. Feature information extraction of video semantics division.
2. Network model of video semantics division.
3. Acceleration issue of video semantics division.

Scenario Theme:
Video Semantics Analysis
Description of Work Scenario:
Realizing spanning over the "wide semantics gap" between underlying data feature and high level semantics in video data, retrieving required video contents, playing a significant role in management, classification and retrieval of video data, request profound understanding of underlying feature of video data, recognition of video semantics object and frame model of video analysis.

Job Responsibilities and Tasks:
1. Underlying feature extraction and semantics information expression of video data.
2. Object recognition technology of video semantics.
3. Analysis model of video semantics based on in-depth learning.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of video semantics analysis.
2. Object recognition, verification, detection and authentication issues of video semantics.
3. Construction of mapping model from underlying feature to semantics analysis.
Scenario Theme:

Few-shot Issue
Description of Work Scenario:
The issue of rapid learning when only a few mark samples are given for recognition issue in machine learning model. Requiring a profound understanding of multi-task learning, twin network, memory-based neural network and cross entropy-based neural network classifier.

Job Responsibilities and Tasks:
1. Few-shot issue in massive data
2. Few-shot issue in multi-task learning

Requirements of Job Competency, Technology and Knowledge:
1. Solving theoretical basis in few-shot issue.

Scenario Theme:
One-shot Issue
Description of Work Scenario:
In case of a single or very few training samples in the machine learning model, to learn a single generalized mapping is required before conducting upgrade mapping on small data set to conduct the issue of rapid learning. Requiring a profound understanding of classification issue, similarity function learning, in-depth learning and other issues.

Job Responsibilities and Tasks:
1. One-shot issue in massive data.
2. Learning issue of similarity function.

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical basis of one-shot issue in massive data.
I'M AI & ML Engineer

Job Role: AI & Voice Engineer
Relevant person who assumes AI-related job, engages in researches into AI algorithm, in-depth learning, machine learning and other fields, and carries out intelligent voice-related R&D and application in daily work.
Classification of Scenario 1

Intelligent Voice

Scenario Theme:
Voice Recognition
Description of Work Scenario:
Extracting and recognizing language contents in audio documents through computer-based voice collection techniques to realize real-time conversion from voice to character. Be able to realize real-time voice recognition, single sentence recognition, sound recording document recognition and other tasks in different forms to meet the demands of different users. Possess relatively profound understanding of acoustic feature extraction and acoustic model training facing massive voice data.

Job Responsibilities and Tasks:
1. Extracting acoustic feature of massive voice data.
2. Training and adjusting parameter of acoustic model.
3. Conducting language model training on the basis of plenty of texts and improve recognition accuracy based on statistics rules.

Requirements of Job Competency, Technology and Knowledge:
1. Basic knowledge of voice recognition.
2. Extraction of acoustic features.
3. Training and parameter adjustment of acoustic model.
4. Training of language model.
Scenario Theme:

Voice Generation
Description of Work Scenario:
Using a computer to convert text to voice signal and synthesize audio to equip the computer with a clear and natural "talking" function and allow users to understand and accept easily to meet different users' demands for different styles and individual talking. Possess higher requirements for voice generation technology.

Job Responsibilities and Tasks:
1. Voice and rhythm conversion methods in voice generation
2. Constructing relatively complete rhythm and frequency spectrum models based on source linguistic data

Requirements of Job Competency, Technology and Knowledge:
1. Theoretical knowledge of voice generation.
2. Voice and rhythm conversion methods.
3. Establishing mapping relation between source and target corpora based on frequency spectrum and rhythm conversion methods to generate customized voice generation model.
I'M Engineer

Job Role: Engineer
The practitioners who assume the positions related to engineers in daily work and participate in coding development, quality assurance, development estimation, and parts of project management
Classification of Scenario 1

Quality of Code

Scenario Theme:
Following the code specification and keeping the code form clean
Description of Work Scenario:

1. How to be integrated into team development and use the same code specifications and benchmarks as the team does
2. How to avoid formal issues when reviewing code
3. What does a basic Clean Coder look like.

Job Responsibilities and Tasks:
Writing high-quality codes that are easy to maintain and participating in design and code review to maintain a high level of technology.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master at least one of code writing conventions such as C / C++ / Java / C# / JavaScript / Python.
2. Be able to master the key points in the clean form of the code such as naming, function responsibilities, comments, code specifications.
Classification of Scenario 2

Quality of Code

Scenario Theme:
Refactoring: Level of Language and Code Specification
Description of Work Scenario:
1. How to find bad smells in code form when writing code or review
2. How to reconstruct the bad smell in some form.
3. How to guarantee the quality of the code after refactoring.

Job Responsibilities and Tasks:
Writing high-quality codes that are easy to maintain and participating in design and code review to maintain a high level of technology.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master the bad smell characteristics of code form problems, such as duplicated code, large class, Switch Case statements, and names that cannot be understood by context.
2. Be able to master the refactoring methods corresponding to the bad smells in code and the skills of using the refactoring tools.
3. Be able to use Unit Test to ensure code quality during refactoring.
Classification of Scenario 3

Software Engineering

Scenario Theme:
Controlling the development lifecycle through waterfall development
Description of Work Scenario:
1. How to define the work content and products at each stage of the development process
2. How to evaluate the process data at each stage and the quality of the product
3. How to decompose the large demand
4. How to estimate and schedule the workload.

Job Responsibilities and Tasks:
Developing software according to the development process and ensuring process quality and project schedule.

Requirements of Job Competency, Technology and Knowledge:
1. The requirements phase usually defines the requirements of the system and understands the goals of the system.
2. The design phase usually determines what database the system uses, the division of system modules, and the functions of each module.
3. Using programming language to realize the design phase in the coding phase.
4. The testing phase which is divided into black box testing and white box testing is to test whether the function of the test system is realized and accurate or not.

5. The maintenance phase is to re-modify the system according to the user’s new needs to have a greater reliability of the system and a greater conformity with the user’s requirements.
Classification of Scenario 4

Algorithm and Data Structure

Scenario Theme:
Developing functions or types by using intermediate algorithms and data structures
**Description of Work Scenario:**

How to use intermediate algorithms to solve issues when you need to focus on sorting efficiency, large-scale relational network search, and information consistency in distributed systems.

**Job Responsibilities and Tasks:**

Fulfilling product development requirements with efficiency and completing the implementation of the software system code.

**Requirements of Job Competency, Technology and Knowledge:**

1. Be able to abstract the algorithm requirements in business scenarios.
2. Be able to evaluate the applicability of the target algorithm.
3. Be able to evaluate the advantages and disadvantages of selected algorithms.
4. Be able to fine-tune algorithm and improve its performance

Be able to master the algorithm such as hashing, consistent hashing, binary tree, red-black tree, recursive tree, heap sort.
Classification of Scenario 5

Quality of Code

Scenario Theme:
Refactoring: Level of Code Structure
Description of Work Scenario:

1. How to find the bad smell in the structure of the code when writing code or review.
2. How to reconstruct the bad smell of a certain structure.
3. How to guarantee the quality of the code after refactoring.

Job Responsibilities and Tasks:

Writing high-quality codes that are easy to maintain and participating in design and code review to maintain a high level of technology.

Requirements of Job Competency, Technology and Knowledge:

1. Be able to grasp the bad smell characteristics of code structure issues, such as mass type judgments, violation of SOLID principles.
2. Be able to master the replacement of conditional expressions with polymorphism, encapsulate attributes, extract functions, and extract base classes.
3. Be able to master the TDD development model and use Unit Test to ensure the code quality during refactoring.
Classification of Scenario6

Scenario Theme:
Pattern of Creation Design
**Description of Work Scenario:**

1. How to abstract the instantiation process of classes.
2. How to separate the creation of objects in software modules from the use of objects.
3. How to make the structure of the software clearer, and the outside world needs to know their common interface alone instead of the concrete implementation details of these objects.
4. How to make the design of the whole system more consistent with the principle of single responsibility.

**Job Responsibilities and Tasks:**

Be familiar with the common design patterns and architectural patterns.

**Requirements of Job Competency, Technology and Knowledge:**

1. Be able to master the two dominant ideas of the creation pattern. One is to encapsulate the concrete classes used by the system, and the other is to hide the way instances of these concrete classes are created and combined.
2. Be able to learn how to create objects in an appropriate manner according to the actual situation. Basic object creation can result in design issues or increase in design complexity. The creation pattern
solves the issue by somehow controlling the creation of objects.
Classification of Scenario 7

Pattern of Design

Scenario Theme:
Pattern of Structure Design
Description of Work Scenario:
1. How to combine classes or objects to form larger structures just like building blocks. Complex and more powerful structures can be formed through the combination of simple blocks.
2. How to choose whether to use class structure or object structure in a project.

Job Responsibilities and Tasks:
Be familiar with common design patterns and architectural patterns.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master how to combine classes and objects involved in structured patterns to obtain a larger structure.
2. Be able to master the structure pattern using inheritance mechanism to combine interfaces or implementations. Rather than combining interfaces and implementations, the structural object pattern describes the ways to combine objects to realize new functionality.
3. Be able to learn how to change the composition of objects at runtime through structure patterns to realize greater flexibility, a mechanism that is impossible to realize with static class composition.
Classification of Scenario8

Pattern of Design

Scenario Theme:

Pattern of Behavior Design
Description of Work Scenario:
1. How to divide the abstraction of responsibilities and algorithms among numerous different objects of the project.
2. How to divide the responsibilities of classes and objects clearly, and study the interaction among instance objects at runtime.

Job Responsibilities and Tasks:
Be familiar with common design patterns and architectural patterns.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to understand "How do software components work?" through behavior patterns.
2. Be able to master the abstract form of dividing responsibilities and algorithms among different objects.
Classification of Scenario 9

Software Engineering

Scenario Theme:
Management of Source Code
Description of Work Scenario:

1. How to use source code management tools and team work to ensure the safety and stability of code assets in team-based development of medium-large-sized products.
2. How to determine whether to use branches for development during functional development.
3. How to track and submit the issue point and roll back when there is a problematic source code.

Job Responsibilities and Tasks:

Be proficient in SCM tools, such as SVN, Git.

Requirements of Job Competency, Technology and Knowledge:

Be able to understand the following categories and implications: baseline, code base, working copy, committing, change, change record, taking out, updating, merging and conflict.
Classification of Scenario 10

Message Queue

Scenario Theme:
Message Queue
Description of Work Scenario:

1. When to use MQ?
2. How to use MQ to guarantee the message is sure to reach?
3. How to use MQ to ensure idempotence?
4. How to use MQ to realize flow peak-filling quickly?

Job Responsibilities and Tasks:

Be familiar with message middleware (such as Kafka, RockerMQ) and RPC frameworks (such as thrift).

Requirements of Job Competency, Technology and Knowledge:

1. Be able to master the usage scenarios of message queues.
2. Be able to understand the core architecture and internal implementation mechanism of message queues.
3. Be able to understand how to remove duplicate message queues and ensure idempotence.
4. Be able to master the buffering scheme of the message queue.
Classification of Scenario 11

Caching

Scenario Theme:
Caching
Description of Work Scenario:
1. How to improve throughput by using caching in the system.
2. How to use the caching to create a global ID in a distributed system.
3. How to update the caching and database when data changes.
4. How to ensure the consistency of the caching with the database.
5. How to ensure high availability of caching.

Job Responsibilities and Tasks:
Be able to use caching to improve system performance and be proficient in using either Redis or Memcached.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to master the Cache Aside Pattern.
2. Be able to master the method of caching consistent with data from database.
3. Be able to master the method to keep caching in consistency with the master-slave data from database.
4. Be able to master the method of building a distributed caching cluster.
Classification of Scenario12

Algorithm and Data Structure

Scenario Theme:
Developing with Advanced Data Structures
Description of Work Scenario:
How to use advanced data structures to solve issues in scenarios that require attention, such as implementing database indexing and URL deduplication.

Job Responsibilities and Tasks:
Completing product development requirements with efficiency and the realization of the software system code.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to abstract data structure requirements in business scenarios.
2. Be able to evaluate the suitability of the target data structure.
3. Be able to evaluate the strengths and weaknesses of selected data structures.
4. Be able to fine-tune data structures and improve its performance
Data structure: B+ tree, bitmap.
Classification of Scenario 13

Algorithm and Data Structure

Scenario Theme:
Developing with Advanced Algorithm
Description of Work Scenario:
How to use advanced algorithms to solve issues that require attention, such as solving the shortest path, URL deduplication, card spam message filtering, pathfinding scenarios.

Job Responsibilities and Tasks:
Completing product development requirements with efficiency and the realization of the software system code.

Requirements of Job Competency, Technology and Knowledge:
1. Be able to abstract algorithm requirements in business scenarios.
2. Be able to evaluate the suitability of the target algorithm.
3. Be able to evaluate the strengths and weaknesses of selected algorithm.
4. Be able to fine-tune algorithm and improve its performance.
Be able to master the algorithms, such as topological sorting, shortest path, vector space, search algorithm.
Classification of Scenario 14

Safety

Scenario Theme:
PKI
Description of Work Scenario:

1. How to use PKI to ensure information security in the system.
2. How to use public key, private key, digital signature and digital certificate.
3. How to use HTTPS for communication encryption.

Job Responsibilities and Tasks:

Be familiar with PKI development, be able to understand the basic principles of cryptographic algorithms, and the basic principles of the certificate system.

Requirements of Job Competency, Technology and Knowledge:

Be able to develop the system based on PKI / CA certificate system and HTTPS protocol.