**1. Learn about the project development process? Explain each phase of the project development process.**

The Project Management Process is a systematic series of steps that help ensure that a project is implemented on schedule, on time, and achieves the set goals. According to the document "SDLC – Project Selection and Management", this process consists of five main stages: Initiation, Planning, Execution, Control, and Closing.

**1.1. Initiation Phase**

The first stage of the process is to determine whether the project is worth implementing. Organizations often have many potential projects, so it is necessary to choose projects that are highly feasible and bring great benefits to the organization. The assessment is usually based on a feasibility study, which considers technical, economic, legal, and scheduling factors to ensure the project can be successfully implemented.

**1.2. Planning Stage**

Once the project has been selected, the development team begins to develop a blueprint. This includes identifying tasks to be performed, breaking down work into small steps in the Work Breakdown Structure (WBS), personnel planning, and estimating time and costs. Thorough planning helps control progress and allocate resources effectively.

**1.3. Execution Phase**

During this period, the tasks in the plan are carried out in practice. The development team designs, programs, tests, or implements the system. The personnel are assigned specific tasks according to the set plan. The technical and functional team leader will monitor the progress and quality of the work to ensure the requirements are met.

**1.4. Control Phase**

The project not only needs to be implemented, but it must also be closely monitored. The control phase includes tracking progress, costs, controlling the scope of work, and managing risk. Tools such as Gantt charts, PERT charts, and project management software are used for monitoring. If a problem such as "scope creep" occurs, the project manager needs to take timely action to make adjustments.

**1.5. Enclosure**

When the project is complete, the development team proceeds to hand over the product, summarize the results, and evaluate the performance. The project documents are stored and updated, and the experience from the project is drawn to improve for future times. Closing the project properly helps the organization learn and better prepare for the next projects.

**2. Learn the software development models (2 sequential models and 2 interactive models)**

Software Development Models are a method of organizing system development steps through a logical chain. Below are two common **sequential** and interactive models , with their characteristics, pros/cons, and real-world application examples.

**2.1. Sequential model:**

**a. Waterfall Model**

**Characteristics:** This is the traditional model, in which stages such as requirements analysis, design, programming, testing, and maintenance are carried out sequentially. The latter stage only begins when the previous stage is complete.  
**Advantage:**

* Be clear and have a specific structure.
* Requirements are defined from scratch, making it easy to manage documents and progress.

**Shortcoming:**

* It is difficult to change requirements when you have entered the later stages.
* Testing takes place late, leading to difficulty in detecting errors early.  
  **Real-world example:** Developing a financial management system for a business, where the requirements are clear and change little.

**b. V-model**

**Characteristics:** A variation of the waterfall model but with more emphasis on testing. Each development phase is associated with a corresponding testing phase.  
**Advantage:**

* Increase product quality by planning testing early.
* Easy to manage quality in stages.

**Shortcoming:**

* Lack of flexibility in case of changing requirements.
* Not suitable for short-term or small projects.  
  **Real-world example:** Developing control software in the medical or aerospace sectors where high accuracy and safety are required.

**2.2. Interactive model:**

**a. Iterative Development Model**

**Features:** Divide the project into multiple iterations. Each version is a piece of functionality that is built quickly, rolled out and gets feedback from users.  
**Advantage:**

* Early user feedback helps to adjust in the right direction.
* Reduce the risk of subdividing the project.

**Shortcoming:**

* The original version may not be complete.
* Requires strict management to synchronize between versions.  
  **Real-world example:** Build store management software with functions that are gradually added according to user needs.

**b. Agile Development Model**

**Characteristics:** Emphasis on collaboration, direct communication, and regular feedback. Functions are developed in short cycles (sprints).  
**Advantage:**

* Flexible, adaptable to change.
* Increase customer engagement.

**Shortcoming:**

* Difficult to control without team management experience.
* Depends on teamwork and communication skills.  
  **Real-world example:** Mobile app development for startups, where change is frequent and user feedback matters.