Stages of information system development

1. Planning Stage

Goal:

- Determine why the new system is needed.
- Evaluate business performance (reduce costs, increase revenue, improve performance).
- Plan the implementation of the project: human resources, budget, time, management tools.

Explain:

- **Project Initiation:** When a department or user discovers a problem that needs to be solved with technology, they will propose to build a new system.
- **Project Management: Project** management makes master plans, identifies resources, assigns work, establishes schedules, and risks.

Example:

One university found that the process of registering for modules was being done manually with paperwork, causing overload. The Board of Directors decided to build **an online module registration system** for students to register easily and centrally manage.

2. Analysis Phase

Goal:

- Understand user requirements.
- Analyze the current system (if any).
- Identify the functionality, data, and processes that the new system needs.

Explain:

- **Analysis strategy:** The project team evaluates the old system, pointing out weaknesses such as delays, errors, manual manipulation, etc.
- **Request Collection:** User interviews, surveys, actual observations to get system requirements.
- **System proposal:** Summarize the analysis results into a proposal to submit to the leadership for approval to continue the project.

Example:

In the module registration system, the analysis team found:

- Employees take a long time to enter data.
- Students often confuse class schedules. The requirements are: the system must allow students to choose subjects according to the schedule, report the number of inventory, and warn the same class time.

3. Design Stage

Goal:

- Determine how the system works.
- Clearly describe the software structure, hardware, network, interface, database, program.

Explain:

- **Design strategy:** Choose to develop in-house or outsource.
- **Architectural design:** Outline components such as servers, databases, and clients.
- **Data Specification:** Identify the data to be stored (e.g., student, course, module information).
- **Program design:** Create a functional diagram, define the main modules (e.g. registration, statistics, decentralization).

Example:

In the module registration system:

- The system is web-based, the server is located at the university, and students access it using a browser.
- The database stores student names, class schedules, and academic results.
- The user interface includes a login screen, subject selection, and registration confirmation.

4. Implementation Phase

Goal:

- Develop or purchase software.

- Testing the system and putting it into official use.

Explain:

- **System building:** Program the system according to design, test functionality, performance, security.
- **Installation:** Replace the old system, deploy the new system, guide the user.
- **Support plan:** Technical support after implementation, receive feedback for improvement.

Example:

After the module registration system is completed:

- The technical team tests functions such as login, subject registration, quantity limiting.
- The university provides training for students and lecturers on how to use the system.
- After implementation, the IT department receives bug feedback or suggestions for improvement (for example, adding unsubscribe functionality).