



SECP1513-09

TECHNOLOGY AND INFORMATION SYSTEM

ASSIGNMENT 3



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Description of the speaker experience

In the age of globalisation, along with the implementation of artificial intelligence (AI), the enrollment for fresh graduate into the information technology industry prioritises skills and abilities in system development and project management rather than the ability to write perfect code. System development will provide clearer overview and better understanding of problems and solutions, while project management avoids disorganisation during development. System development and project management is not just a chapter in your textbook but it is the nexus of future career.

System Development

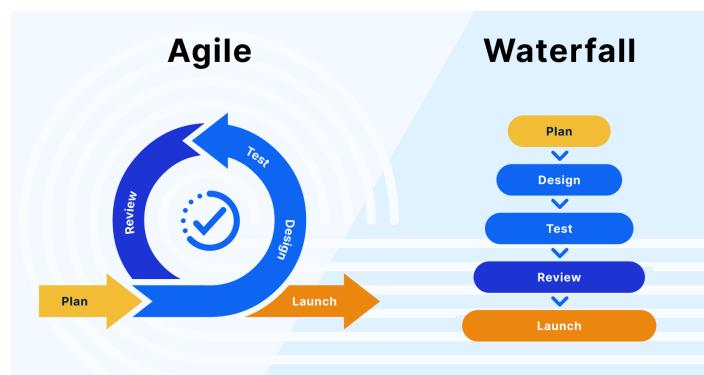


The above diagram shows the phases for Software Development Life Cycle(SDLC)

System development is the entire process of defining, testing, implementing, maintaining and updating a software application. The main purpose of system development is to prevent chaos, bugs and failure particularly for information overload. Thus, the existence of Software Development Life Cycle (SDLC) ensure the project managers in successful implementation of systems that satisfy University strategic and business objectives within standardized procedures.

Project Management

Project management is vital in controlling the complexity of software projects and enabling effective teamwork, ensuring work stays organized, on time, and within budget. There are two main methods for project management which are Agile and Waterfall.



The above diagram shows the properties of Agile and Waterfall method in project management

Waterfall is a traditional, linear and sequential approach by accomplishing the tasks phase by phase before moving to the subsequent phase. However, waterfall is tough to be modified once the project is initiated. Agile is an iterative and flexible approach by breaking the tasks into small 'sprints'. Agile suits the best for rapid changing software needs due to flexible and faster feedback but it may lead to a scrum project due to imprecise core solution.

Implementation of Project Management and System Development in

(i) Data Engineering

Project management assists in planning data pipelines, assigning tasks and managing timelines, while System Development is used to design, develop, test and maintain data processing systems and databases.

(ii) Computer Network

Project management is used to organize network projects, manage resources and reduce risks, while system development guides the design, configuration, testing and implementation of secure design architecture.

(iii) Bioinformatics

Project management coordinates research activities, datasets, and tools, while system development structures the process of building bioinformatics software, data analysis pipelines and robust algorithms.

(iv) Computer Graphics

Project management manages teamwork, schedules and deliverables, while system development controls the design, coding, testing and optimization of graphics systems and complex rendering engines.

Reflection

First and foremost, system development and project management are not merely about coding but also planning, designing, testing, and maintaining software. Both are obligatory in every computer science related field, including game development. Application of SDLC steps and Agile method could avoid confusion and on future projects and prompts to success in computer science related fields.

Besides that, project management plays an important role in computer network projects. It clarifies team goals and key requirements before project initiation, develop detailed work plans and appropriately assign tasks to each team member. Systems Development focuses on building and implementing the network system itself. Combination of these elements improves the stability and efficiency which is the pointer for success in computer science.

Moreover, coordination and communication is vital throughout the process of development. Thus, the application of agentic coding has indicated that the mastering in Artificial Intelligence(AI) for candidates in this era is a must. It is essential for us to learn about how each process works and cooperate from now on as well as mastering agentic coding to secure future in computer science field.

Last but not least, by applying vibe coding or agentic coding in our future career, most of the low level operations could be dealt by artificial intelligence and programmers could merely focusing on system and algorithm design without learning multiple programming languages . Collaboration between AI and programmers will be the foundation of future.Thus, programmers need to enhance their mastery in system development and project management but handling the uncomplicated tasks by vibe coding or agentic coding.

References

1. Software Engineering:A Practitioner's Approach (Roger S.Pressman & Bruce R.Maxim, 2019)
2. Diagram for Agile and Waterfall <https://www.easyredmine.com/news/waterfall-vs-agile-what-is-the-best-approach-for-a-software-development-project>
3. Diagram for SDLC <https://medium.com/@jilvanpinheiro/software-development-life-cycle-sdlc-phases-40d46afbe384>