**ASSIGNMENT**

**Define Software Engineering:**

The method of designing, creating, testing, and maintaining software is known as software engineering. It is an organized, methodical approach to software development to produce software that is dependable, high-quality, and maintainable (GeeksforGeeks, 2024).

While programming primarily focuses on writing code or creating specific functions or modules within software applications without having to consider the entire system, software engineering also takes requirements analysis, testing, and project management into consideration in addition to coding (Agira, 2019).

**Software Development Life Cycle (SDLC):**

The life cycle of software development contains the following phases:

Planning involves obtaining the client's or stakeholders' business requirements.

Requirement analysis and gathering: Transforming the collected data into precise specifications for the development team.

Design: Developing the program’s architecture and layout.

Development: Coding and software product construction.

Testing: Confirming the program’s dependability and quality (Manager and Clark, 2024; Beram, 2023).

**Agile and Waterfall Models:**

Agile is more flexible and iterative than Waterfall, which takes a linear, sequential approach.

Agile development is more incremental and allows for the flexibility to make adjustments and adjust to new knowledge as the project moves forward, whereas Waterfall development requires each stage to be finished before moving on to the next.

Waterfall planning divides teams into phases; agile allows for cross-functional work across several project phases.

Agile is recognized for its adaptability, while Waterfall is an organized approach to software development (Atlassian; Stec, 2023; Hamilton, 2024)

A waterfall methodology can work well if your project scope is well-defined, unlikely to change, and requires a lot of documentation. Agile is the ideal option for projects with changing requirements or technological capabilities (Kasata, 2024).

**Requirements Engineering:**

This is the procedure for determining, gathering, assessing, defining, verifying, and overseeing the requirements and anticipations of those involved in a software system.

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