
IT314 Software Engineering



Lab Report: 1

Choosing Software Process Models

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- 1 **Giving reasons for your answer by taking examples (features, non-functional aspects, domain) based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of the following system.**
 - (a) **A simple data processing project.**
⇒ WaterFall Model
The Waterfall Model follows a sequential and linear approach to software development, which can be beneficial for straightforward projects with clear and well-defined requirements, such as data processing tasks.
 - (b) **A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important.**
⇒ Prototyping Model
The Prototype Model allows for the development of a working prototype of the system early in the development process, enabling continuous feedback from users and stakeholders.
 - (c) **A spreadsheet system that has some basic features and many other desirable features that use these basic features.**
⇒ Spiral Model
The Spiral Model allows for incremental development and frequent iterations, making it easier to add new functionalities while ensuring that the core basic features are robust and functional.
 - (d) **A web-based system for a new business where requirements are changing fast and where an in-house development team is available for all aspects of the project.**
⇒ Iterative Model
The Iterative Model's emphasis on flexibility, collaboration, and continuous improvement makes it the most suitable choice for this.
 - (e) **A Web-site for an on-line store which has a long list of desired features it wants to add, and it wants a new release with new features to be done very frequently.**

⇒ **Iterative Model**

By adopting the Iterative Model, the development team can efficiently manage the website's development, prioritize features, deliver frequent releases, gather customer feedback, and ensure that the website evolves with time to meet the business needs and user expectations effectively.

- (f) **A system to control anti-lock braking in a car.**

⇒ **Spiral Model**

The Spiral Model is best suited for projects with clear and well-defined requirements and for future updates for software improvements.

- (g) **A virtual reality system to support software maintenance**

⇒ **Iterative Model**

The Iterative Model's focus on continuous improvement, flexibility, and incremental development makes it a suitable choice for developing a Virtual Reality system to support software maintenance.

- (h) **A university accounting system that replaces an existing system**

⇒ **Iterative Model**

With the Iterative Model, the development team can progressively develop and refine the university accounting system, considering user feedback, requirements, and integration with existing university processes.

- (i) **An interactive system that allows railway passenger to find train times from terminals installed in stations.**

⇒ **Iterative Model**

By Iterative Model, the development team can continuously improve the interactive system, making it more effective and user-friendly for railway passengers over time.

- (j) **Company has asked you to develop software for missile guidance system that can identify a target accurately.**

⇒ **Spiral Model**

The Spiral Model's focus on risk management, incremental development, validation, and adaptation to evolving requirements makes it the most appropriate choice for developing software for a missile guidance system.

- (k) **When emergency changes have to be made to systems, the system software may have to be modified before changes to the requirements have been approved. Choose a process model for making these modifications that ensures that the requirements documents and the system implementation do not become inconsistent.**

⇒ **Iterative Model**

By Iterative Model, the development team can respond quickly and effectively to emergency changes while ensuring that the requirements and system implementation remain consistent.

- (l) **Software for ECG machine.**

⇒ **Spiral Model**

By Spiral Model, the development team can create software for an ECG machine that undergoes continuous improvement, validation, and verification under risk management.

- (m) **A small scale well understood project (no changes in requirement will be there once decided).**

⇒ **Waterfall Model**

Its sequential approach, emphasis on clear documentation, and predictability make it a suitable choice when requirements are well-defined and not expected to change during the development process.