-waterfall

Advantages:

* Easy to understand and apply for project management due to clear sequential structure.
* Suitable for projects with clear requirements from the outset and minimal changes expected during development.

Disadvantages:

* Not flexible to accommodate changes in requirements.
* Risks and issues may not be detected until the testing phase.
* Could lead to waste if significant adjustments are needed during the project.

-Agile:

Advantages:

* Flexible and adaptable to change.
* Facilitates better collaboration and communication among stakeholders.
* Quick feedback from users helps shape and improve the product based on real needs.

Disadvantages:

* Requires high commitment and collaboration from the customer.
* Can be challenging to manage if the scope of work is not clearly defined from the beginning.
* Sometimes may lead to a lack of focus on long-term planning due to emphasis on short-term delivery.

Q1.

For the development of the Shuttle Bus Management System (SBMS), given the rapid timeline and expectation for iterative and incremental delivery, the Agile software development methodology, particularly the Scrum framework, is recommended

Project Characteristics:

* The project requires a quick turnaround with the first functional iteration to be delivered within three months, demanding a highly adaptive and iterative approach.
* The involvement of multiple departments indicates the necessity for cross-functional collaboration and constant communication.
* As SBMS is a new venture for FU, there's a likelihood of evolving requirements which necessitates a flexible approach to accommodate potential changes without significant delays.

User, Customer, and Team Dynamics:

* The system will serve a diverse group of users, including lecturers, administrative staff, and managers, each with unique requirements that must be clearly understood and quickly addressed.
* The development team is comprised of 4-6 experienced IT personnel alongside contributors from other departments, implying a need for a method that supports team dynamics and leverages various skill sets.

Requirements Characteristics:

* SBMS requirements may not be fully defined upfront and are subject to change, thus a methodology that embraces requirement evolution is crucial.
* The system requires high quality and security standards, which Agile can assure through continuous testing and integration.

Time Constraints and Management Expectation:

* A tight deadline necessitates a development model that allows for concurrent phases of planning, development, testing, and revisions.
* Management expects quick and tangible results, which Agile's sprint cycles can deliver, providing frequent progress updates and product increments.

Development Model Choice:

Scrum fits the identified factors well as it:

* • Encourages regular reflection on how to become more effective, allowing the team to adjust behaviors accordingly.
* Utilizes time-boxed sprints to divide the work into manageable chunks, which aligns with the three-month release target.
* • Emphasizes daily communication and collaboration through rituals like Daily Stand-Ups and Sprint Reviews, ensuring the team stays aligned and bottlenecks are addressed promptly.

Considering these points, Scrum's iterative development cycles, emphasis on user feedback, and ability to accommodate changing requirements will likely lead to the successful delivery of SBMS within the specified timeframe and to the satisfaction of all stakeholders."

Q2

Suggested Testing Types and Levels for SBMS

Unit Testing

* Executors: Developers
* Timing: Post-development of individual functions
* Objective: Verify the correctness of each unit of code in isolation

Integration Testing

* Executors: Development Team or Integration Testers
* Timing: Post-completion of module development
* Objective: Ensure that integrated modules operate cohesively

System Testing

* Executors: Quality Assurance Team
* Timing: After integration and before UAT
* Objective: Confirm that the system as a whole meets specified requirements

User Acceptance Testing (UAT)

* Executors: End Users/Stakeholders
* Timing: Before final deployment
* Objective: Validate the system against user requirements and expectations

Q3

**Functional Requirements:**

Bus Route Registration: The system shall allow lecturers and staff to register bus routes.

• Bus Route Modification: The system shall allow modification of existing bus routes.

• Weekly Schedule Generation: The system shall enable admin staff to generate and record weekly bus schedules.

Cost Summary: The system shall provide a feature for managers to view and approve a summary of vehicle costs.

Non-Functional Requirements:

* Performance: The system shall process route registration and modification requests within 2 seconds under normal operation conditions.
* Security: The system shall enforce role-based access controls to ensure users can only access features relevant to their permissions.

Q4

Q5

Q6

**+ As a Lecturer, I want to easily register bus routes, so that I can efficiently plan my transportation to the university.**

**+ As an Admin Manager, I want to quickly approve weekly bus schedules, so that the transportation system runs smoothly.**

P1

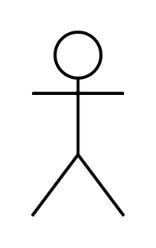
Q7 bất kể bạn chọn cách nào ở Q1 khách hang yêu cầu agile scrum:

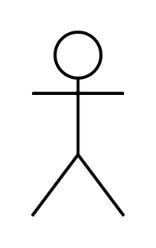
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Nhược điểm

Yêu cầu đối với cấp trên

Use-case diagram





User