Project Title: UrbanGarden

Mohib Abbas Sayed – 2103158

Hamza Sayyed – 2103159

Om Shete – 2103163

Experiment No 1

Aim: Write a detailed problem statement for any case study. Justify which process model would be best suited to apply to it.

Theory:

1. Title: UrbanGarden

2. Problem Statement:

   Despite the increasing demand for plants and gardening products, many plant nurseries **struggle to attract** and **retain customers** through their websites.
   Customers often face difficulty **navigating websites**, finding **detailed plant information**, and completing purchases, resulting in **lost sales** and decreased customer satisfaction.
   As a result, there is a need to develop and optimise plant nursery websites to provide-
   a. User-Friendly shopping experience
   b. Wide Variety to select the desired products to shop
   c. Enhancing online experience that encourages customer loyalty and drives sales

3. Traditional model:

   The Waterfall model is a traditional software development approach where the development process follows a linear and sequential path, with each phase dependent on the completion of the previous one. Here's how the Waterfall model can be applied:

   Clear Requirements:
   - The Waterfall model is suitable when the requirements for the project are well-defined and stable.
   - Since UrbanGarden's objective is clear (providing a platform for nursery owners to sell their products and users to purchase), and the functionalities are known, the Waterfall model fits well.

   Small Development Team:

   - The Waterfall model can be effective for a small development team of three developers.
   - With a small team, communication is more manageable, and the linear approach can help maintain focus and minimize confusion during development.

   Predictable Timeline:

- Given the project scope and a predefined 3-month timeline, the Waterfall model can provide a clear roadmap with specific milestones for each development phase, making it easier to track progress.

Limited Iterations:

- In the Waterfall model, there are minimal iterations, which can be advantageous when there are time constraints.
- Once each phase is completed, the team can move on to the next stage, reducing the back-and-forth iterations often seen in Agile methodologies.

Stable User Base:

- If the target user base for UrbanGarden is well-established and has relatively stable preferences, the Waterfall model's sequential approach may be sufficient to deliver a product that meets their needs.

Limited Changes in Requirements:

- Since the project aims to provide a specific set of functionalities for nurseries and users, major changes in requirements during development are less likely.
- This aligns with the Waterfall model's linear structure.

However, it's essential to consider the potential challenges and mitigate them:

Rigid Structure:

- The Waterfall model can become inflexible if significant changes or new requirements emerge during development.
- To address this, a thorough initial requirement-gathering phase is crucial, along with clear communication with stakeholders.

Risk of Late Discoveries:

- Any issues or bugs discovered late in the development process might require considerable effort to fix.
- Detailed testing and quality assurance processes should be in place to identify and address issues early on.

Limited User Feedback:

- With Waterfall, user feedback typically comes later in the development process.
- It is vital to involve stakeholders and users early on through comprehensive requirement analysis and mockups to ensure alignment with their needs.

Time Management:

- With a tight 3-month timeline, it's essential to have a well-defined project plan with realistic estimates for each phase.
- Proper project management is vital to ensure on-time delivery.

4. Agile Model:

The Agile model can be well-justified for developing the UrbanGarden platform due to its adaptability, collaborative nature, and ability to deliver incremental value within a time-sensitive project. Here's why Agile would be a suitable choice:

Iterative and Incremental Development:
- With Agile, the development process is broken down into smaller iterations (sprints) that typically last 1-4 weeks. This allows the development team to deliver functional increments of the platform within each sprint.
- In a 3-month time frame, multiple iterations can be completed, and valuable features can be delivered to users throughout the development process.

Flexibility and Adaptability:
- Agile embraces changes in requirements, allowing the team to adjust and respond to evolving needs.
- As the project progresses, feedback from nursery owners and users can be incorporated, ensuring the platform aligns better with their expectations.

Regular User Feedback:
- Agile prioritizes constant user feedback through iterative cycles. This enables the team to validate assumptions, understand user needs better, and make improvements based on real-world usage, leading to a more user-friendly and customer-centric platform.

Collaborative Teamwork:
- Agile encourages close collaboration among team members, including developers, designers, and stakeholders.
- With a small team of three developers, communication and coordination are more streamlined, leading to faster decision-making and issue resolution.

Early Delivery of Core Features:
- Agile prioritizes delivering the most valuable features first. Core functionalities, such as nursery registration, product listings, and user registration, can be developed and deployed early to start gathering feedback and attracting users to the platform.

Risk Management:
- Agile allows risks to be identified and addressed early in the development process.

- Frequent testing and continuous integration help detect and resolve issues promptly, reducing the chances of major setbacks or delays.

Time-Boxed Sprints:
- The time-boxed nature of Agile sprints ensures that the team focuses on delivering specific, achievable goals within a fixed timeframe.
- This helps keep the project on track and maintain momentum throughout the development process.

Continuous Improvement:
- Agile encourages retrospectives after each sprint, allowing the team to reflect on their performance, identify areas for improvement, and implement changes in subsequent iterations.

However, it's important to consider the potential challenges:
Scope Management:
- In a 3-month timeframe, the scope of the project needs to be well-defined and prioritized.
- To avoid scope creep, clear communication with stakeholders is essential.

Resource Allocation:
- With a small team, it's crucial to ensure that developers have the necessary skills and expertise to deliver the required functionalities effectively.

Managing Expectations:
- Agile requires close collaboration with stakeholders, and they need to understand the iterative nature of development and the potential for changes during the process.

In conclusion, the Agile model is well-suited for developing the UrbanGarden platform, given the project's time constraints, need for flexibility, and desire for early user feedback. By embracing Agile principles and practices, the development team can deliver a functional and user-friendly platform that meets the needs of nursery owners and users while adapting to changing requirements within the 3-month timeframe.