

ASSIGNMENT 1

1. What is software? What is software engineering?

A- Software is a set of instructions, data, or programs used to operate computers and execute specific tasks. It is the opposite of Hardware. Software refers to a set of instructions which enable the hardware to perform a specific set of tasks.

Software engineering is the process of designing, developing, testing, and maintaining software. It is a systematic and disciplined approach to software development that aims to create high-quality, reliable, and maintainable software. It offers a structured and efficient approach to software development, which can lead to higher-quality software that is easier to maintain and adapt to changing requirements. This can help to improve customer satisfaction and reduce costs, while also promoting better collaboration among development teams.

2. Explain types of software

A- There are Mainly 3 types of software

(I). System Software: - Type of software that is designed for providing a platform to other software. It manages the hardware components of a computer and provides services for application software.

Ex – Operating systems Like MacOS, Linux, Android, Windows etc.

(II). Application Software: - Application software is designed to help users perform specific tasks or activities on a computer or mobile device.

Ex – Google Chrome, Safari, Firefox, Microsoft Edge etc.

(III). Utility Software: - Utility software helps manage and maintain computer hardware and software. Utility software is a program or tool that performs specific tasks to enhance productivity, efficiency, functionality, or maintenance of a computer system.

Ex- Antivirus Software, Backup Software etc.

3. What is SDLC? Explain each phase of SDLC.

A- SDLC or Software Development Life Cycle is a structured process that is used to design, develop, and test good-quality software.

It consists of 6 phases

1. *Analysis*

Requirement analysis is performed by the developers of the organization. This is attained from customer inputs, and sales department/market surveys.

The information from this analysis forms the building blocks of a basic project. Thus, in this stage, the basic project is designed with all the available information.

2. *Planning*

Planning is a crucial step in everything, just as in software development. The Planning phase fosters effective communication and collaboration within the team. By defining clear roles, responsibilities, and expectations, it lays a solid foundation for an efficient software development process.

3. *Designing*

The Design phase is all about building the framework. The development team is responsible for software engineering and outlines the software's functionality and aesthetic. This ultimately results in the software product. The emphasis lies on outlining the software's structure, navigation, user interfaces, and database design. This phase ensures that the software is user-friendly and performs its tasks efficiently.

4. *Development/Implementation*

The development phase aims to develop software that is functional, efficient, and user-friendly. Developers use an appropriate programming language, Java or otherwise, to write the code, guided by the SDD and coding guidelines. This document ensures the software aligns with the

vision set in earlier phases. At the end of this phase, a functional piece of software comes to life. It embodies the planning, analyzing, and designing efforts of the preceding stages.

5. *Testing*

The testing process begins by setting clear parameters in line with the software's requirements. This includes identifying the necessary software conditions and outlining diverse scenarios to examine these conditions. This step aids in creating an efficient testing strategy. When a test reveals a bug, it is documented in detail, noting its symptoms, reproduction method, and its influence on the software. These bugs are then sent back to the developers for rectification. Once the required fixes are implemented, the software re-enters the testing phase for validation. This process is a cycle of persistent refinement until the software complies with all predetermined parameters.

6. *Deployment*

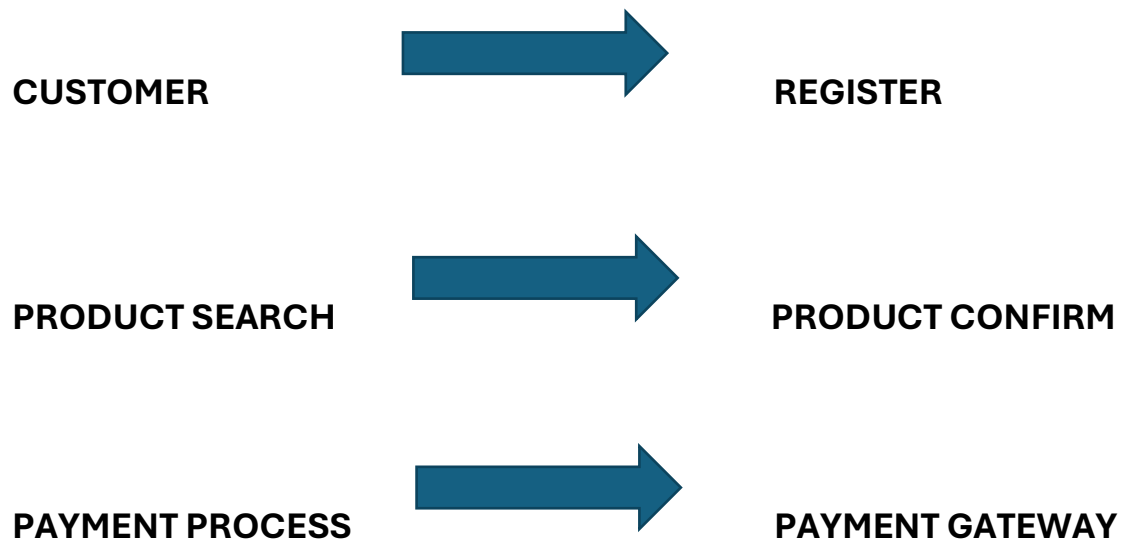
After crafting a product with precision, it's time to present it to the users by pushing to the production environment. The Deployment phase involves rolling out the meticulously tested and fine-tuned software to its end-users. However, deployment isn't just about launching the software. It's about ensuring users can operate it with ease. This responsibility might involve creating user manuals, conducting training sessions, or offering on-site support.

The Deployment phase doesn't signal the end, but rather a notable milestone. It signifies the shift from a project phase to a product phase, where the software begins to fulfil its purpose.

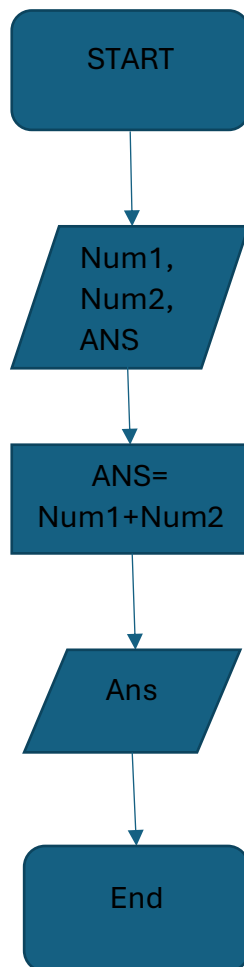
4. What is DFD? Create a DFD diagram on Flipkart

A- DFD or Data Flow Diagram represents the flow of data within information systems. They provide a graphical representation of the data flow of a system that can be understood by both technical and non-technical users. The models enable software engineers, customers, and users to work together effectively during the analysis and specification of requirements.

Flipkart dataflow diagram



5. What is flowchart? Create a flowchart to make addition of two numbers.



A- A flowchart is a diagram that depicts a process, system or computer algorithm. They are widely used in multiple fields to document, study, plan, improve and communicate often complex processes in clear, easy to understand diagrams.

6. What is Use case Diagram? Create a use-case on bill payment on paytm.

A- A Use Case Diagram is a vital tool in system design, it provides a visual representation of how users interact with a system. It serves as a blueprint for understanding the functional requirements of a system from a user's perspective, aiding in the communication between stakeholders and guiding the development process.

Use case on bill payment on paytm:-

USER: -

