

Module:-1

Q1.What is software? What is software engineering?

Ans:- Software:-

Software refers to a collection of programs, data, and instructions that enable a computer or other digital device to perform specific tasks or functions. It is a non-tangible component of a computer system that contrasts with the physical hardware, such as the central processing unit (CPU), memory, hard drive, and other physical components.

=>Software engineering:-

Software engineering is a disciplined and systematic approach to designing, developing, testing, and maintaining software systems. It encompasses a set of principles, methods, tools, and best practices that software professionals use to create high-quality software products efficiently and effectively.

Q2. Explain types of software.

Ans:- 1.System Software:-

Operating Systems (OS): Manage hardware resources, provide a user interface, and run applications. Examples include Windows, macOS, Linux, and Android.

Device Drivers: Enable communication between hardware devices and the operating system. Examples include printer drivers and graphics card drivers.

Utilities: Provide essential system tools and services, such as disk management, antivirus software, and system optimization tools.

2.Application Software:-

Word Processing Software: Allows users to create and edit documents. Examples include Microsoft Word, Google Docs, and LibreOffice Writer.

Spreadsheet Software: Enables the creation and manipulation of spreadsheets for data analysis. Examples include Microsoft Excel and Google Sheets.

Presentation Software: Used for creating and delivering presentations. Examples include Microsoft PowerPoint and Google Slides.

Database Software: Manages and organizes data. Examples include Microsoft Access, MySQL, and Oracle Database.

Web Browsers: Used for accessing and navigating websites. Examples include Google Chrome, Mozilla Firefox, and Microsoft Edge.

Email Clients: Manage email communication. Examples include Microsoft Outlook, Gmail, and Thunderbird.

Graphics Software: Used for image editing and design. Examples include Adobe Photoshop, GIMP, and CorelDRAW.

Multimedia Software: Handles audio and video editing and playback. Examples include Adobe Premiere Pro, VLC Media Player, and Audacity.

Project Management Software: Helps plan, track, and manage projects. Examples include Microsoft Project and Trello.

Accounting Software: Manages financial transactions and accounting tasks. Examples include QuickBooks and Xero.

3.Programming Software:-

Text Editors: Used for writing and editing code. Examples include Visual Studio Code, Sublime Text, and Notepad++.

Integrated Development Environments (IDEs): Provide a comprehensive development environment with features like code debugging and project management. Examples include Eclipse, PyCharm, and IntelliJ IDEA.

4.Enterprise Software:-

Customer Relationship Management (CRM): Helps manage customer interactions and relationships. Examples include Salesforce and HubSpot.

Enterprise Resource Planning (ERP): Integrates and manages various business processes, including finance, HR, and supply chain. Examples include SAP and Oracle ERP Cloud.

Supply Chain Management (SCM): Optimizes supply chain operations. Examples include JDA Software and Kinaxis RapidResponse.

5.Embedded Software:-

Firmware: Software embedded in hardware devices, such as microcontrollers in appliances, smartphones, and IoT devices.

Embedded Operating Systems: Lightweight operating systems designed for embedded systems, like FreeRTOS and embedded Linux.

6.Gaming Software:-

Video Games: Entertainment software designed for gaming consoles, PCs, and mobile devices. Examples include Fortnite, Minecraft, and Grand Theft Auto.

Q3.What is SDLC? Explain each phase of SDLC.

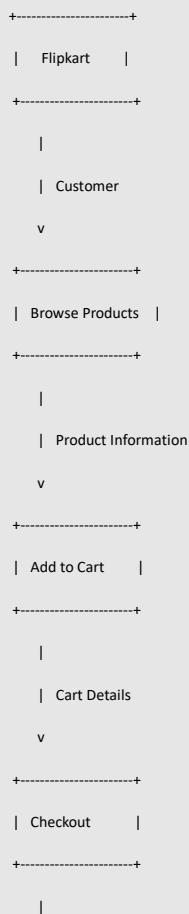
Ans:- SDLC stands for software development life cycle. It is a process followed for software building within a software organization. SDLC consists of a precise plan that describes how to develop, maintain, replace, and enhance specific software. The life cycle defines a method for improving the quality of software and the all-around development process.

1. Requirements gathering and analysis: This phase involves gathering information about the software requirements from stakeholders, such as customers, end-users, and business analysts.
2. Design: The software design is created, which includes the overall architecture of the software, data structures, and interfaces.
3. Implementation or coding: The design is then implemented in code, usually in several iterations, and this phase is also called as Development.
4. Testing: The software is thoroughly tested to ensure that it meets the requirements and works correctly.
5. Deployment: After successful testing, The software is deployed to a production environment and made available to end-users.
6. Maintenance: This phase includes ongoing support, bug fixes, and updates to the software.

Q4.What is DFD? Create a DFD diagram on Flipkart.

Ans:-DFD is the abbreviation for Data Flow Diagram. The flow of data of a system or a process is represented by DFD. It also gives insight into the inputs and outputs of each entity and the process itself. DFD does not have control flow and no loops or decision rules are present. Specific operations depending on the type of data can be explained by a flowchart. It is a graphical tool, useful for communicating with users, managers and other personnel. it is useful for analyzing existing as well as proposed system.

=>Create a DFD diagram on Flipkart:-





Q5.What is Flow chart? Create a flowchart to make addition of two numbers.

Ans:- A flowchart is a graphical representation of a process or algorithm that uses various symbols to depict different steps, decisions, and actions within the process. Flowcharts are commonly used in various fields, including computer programming, engineering, business, and more, to visually illustrate the flow of steps in a process.

=>Create a flowchart to make addition of two numbers:-

Start



Input Number A



Input Number B



Add A and B
↓
Display Result
↓
End

=>In this flowchart:-

- (i). "Start" is the starting point of the process.
- (ii). "Input Number A" represents the user entering the first number.
- (iii). "Input Number B" represents the user entering the second number.
- (iv). "Add A and B" is a process box that performs the addition operation on numbers A and B.
- (v). "Display Result" represents showing the result of the addition to the user.
- (vi). "End" marks the end of the process.

Q6.What is Use case Diagram? Create a use-case on bill payment on paytm.

Ans:- A use case diagram is a visual representation of the interactions between different actors (users or external systems) and a system (typically a software application) to depict the functional requirements of the system. It helps to illustrate how a system will be used by different actors and what functionality it will provide.

=>Use Case Diagram Elements:-

1. Actors:

User (Customer)

Paytm System

2. Use Cases:

Make Bill Payment: This represents the primary use case where a user initiates a bill payment transaction through the Paytm app. This use case includes steps like selecting the biller, entering payment details, and confirming the payment.

3. Associations:

User is associated with the "Make Bill Payment" use case because they initiate the bill payment process.

4. System Boundary:

The system boundary encloses the "Make Bill Payment" use case and the "Paytm System" actor, indicating that the use case occurs within the Paytm app.

=>Flow of Events:-

The user opens the Paytm app.

The user logs in to their Paytm account.

The user selects the "Bill Payment" option from the app's menu.

The system displays a list of billers or utilities (e.g., electricity, water, mobile, etc.) the user can pay.

The user selects a specific biller (e.g., electricity).

The system prompts the user to enter bill details, such as the bill amount, account number, and payment method (e.g., credit card, wallet balance).

The user enters the required information.

The system validates the information and calculates the total payment.

The user reviews the payment details and confirms the transaction.

The system processes the payment and sends a confirmation receipt to the user.