1. **What is software? What is software engineering?**

**Ans:-** Software refers to a collection of instructions, programs, and data that tell a computer how to perform specific tasks. It encompasses everything from operating systems and applications to games and utilities. Software can be categorized into two main types: system software, which includes the operating system and utility programs that manage computer hardware at a basic level, and application software, which performs specific tasks for users.

**Software Engineering:-**

Software engineering is the systematic application of engineering approaches to the development, operation, and maintenance of software. It involves designing, building, testing, and maintaining software systems to ensure they meet quality, functionality, and performance requirements.

1. **Explain types of software ?**
2. Ans:- **System Software:**
   * **Operating Systems:** Software that manages computer hardware and provides services for other software applications. Examples include Microsoft Windows, macOS, Linux, and Unix.
   * **Device Drivers:** Software that facilitates communication between the operating system and hardware devices such as printers, graphics cards, and input devices.
3. **Application Software:**
   * **Productivity Software:** Tools designed to help users perform tasks more efficiently. Examples include word processors (e.g., Microsoft Word, Google Docs), spreadsheets (e.g., Microsoft Excel, Google Sheets), and presentation software (e.g., Microsoft PowerPoint, Google Slides).
   * **Graphics Software:** Applications for creating and editing digital images and graphics. Examples include Adobe Photoshop, GIMP, and CorelDRAW.
   * **Multimedia Software:** Software for creating, editing, and playing multimedia content such as audio and video files. Examples include Adobe Premiere, VLC Media Player, and Audacity.
   * **Gaming Software:** Software designed for entertainment purposes, including video games for various platforms such as consoles, PCs, and mobile devices.
4. **Embedded Software:**
   * Software that is embedded within hardware devices and performs specific functions. Examples include firmware in smartphones, digital cameras, home appliances, and automotive systems.
5. **Middleware:**
   * Software that acts as an intermediary between different software applications or between software and hardware. Examples include database management systems (DBMS), web servers, and application servers.
6. **What is SDLC? Explain each phase of SDLC ?**

**Ans:-** SDLC is a software Devlopment life circle. It is a systematic process used by software developers to design, develop, test, and deploy software applications.

1. **Planning:- Objective:** The planning phase involves defining the project scope, objectives, timelines, budget, and resources required for software development.
2. **Activities:**

* Requirement gathering: Collecting and analyzing user requirements and expectations from the software.
* Feasibility study: Assessing the technical, operational, and economic feasibility of the project.

1. **Anylisis:- Objective:** The analysis phase focuses on understanding the end-users' needs and defining the software's functional and non-functional requirements.

**Activities:**

* Requirement analysis: Detailed examination and documentation of user requirements, use cases, and system specifications.
* System modeling: Creating models such as data flow diagrams, entity-relationship diagrams, and use case diagrams to represent system functionalities and interactions.

1. **Implemnation:- Objective:** The implementation phase is where the actual coding of the software takes place based on the design specifications.

**Activities:**

* Writing code: Developing software components/modules using programming languages and following coding standards.
* Unit testing: Testing individual units or modules of the software for correctness and functionality.

1. **Testing & integration:- Objective:** The testing phase involves verifying and validating the software to ensure it meets the specified requirements and quality standards.

**Activities:**

* System testing: Evaluating the integrated software system as a whole to identify defects, errors, and inconsistencies.
* Acceptance testing: Conducting tests to validate the software against user acceptance criteria.

1. **Desgin:-** **Objective:** The design phase involves translating the system requirements into a blueprint for the software solution.

**Activities:**

* Architectural design: Defining the overall structure, components, and modules of the software system.
* Detailed design: Designing individual components, data structures, algorithms, and user interfaces.

1. **Maintnace:- Objective:** The maintenance phase focuses on maintaining and enhancing the software to address issues, incorporate new features, and adapt to changes in the environment.

**Activities:**

* Bug fixing: Resolving defects and issues reported by users.
* Enhancements: Making improvements and additions to the software based on user feedback and evolving requirements.

1. **What is DFD? Create a DFD diagram on Flipdfdkart**

**Ans:-** DFD stands for Data Flow Diagram.

**+----------------------+**

**| Flipkart System |**

**+----------------------+**

**|**

**v**

**+--------------------+**

**| User Interface |**

**+--------------------+**

**|**

**v**

**+-----------------------+**

**| Search and |**

**| Browsing Module |**

**+-----------------------+**

**|**

**v**

**+------------------------+**

**| Product |**

**| Information and |**

**| Inventory |**

**| Management |**

**+------------------------+**

**|**

**v**

**+------------------------+**

**| Shopping Cart |**

**| Management |**

**+------------------------+**

**|**

**v**

**+------------------------+**

**| Payment and |**

**| Checkout |**

**| Processing |**

**+------------------------+**

**|**

**v**

**+------------------------+**

**| Order |**

**| Fulfillment and |**

**| Shipping |**

**+------------------------+**

* The system starts with the Flipkart System, which interfaces with users through the User Interface.
* User interactions with the system include searching and browsing for products.
* Product Information and Inventory Management handles data related to product details and availability.
* Shopping Cart Management manages user-selected items for purchase.
* Payment and Checkout Processing handle payment transactions.
* Order Fulfillment and Shipping manage the processing and delivery of orders.

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

**Ans:-**flow chart is a step by step solution of any program and problem.

Start

|

v

Enter first number (A)

|

v

Enter second number (B)

|

v

Add A and B

|

v

Output

|

v

Stop

The process starts with the "Start" symbol.

The user is prompted to enter the first number (A).

Then, the user is prompted to enter the second number (B).

The numbers A and B are added together.

The result of the addition is displayed.

Finally, the process ends with the "Stop" symbol.

1. **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 users and a system, illustrating the various use cases or scenarios in which users interact with the system to achieve specific goals.

**Create a use-case on bill payment on paytm.**

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**| Bill Payment System |**

**+---------------------------+**

**|**

**+----------------------------+**

**| User |**

**+-----------------------------+**

**|**

**+-----------------------------+**

**| <<Actor>> |**

**| Paytm User |**

**+-------------------------------------+**

**|**

**+-------------------------------------+**

**| Use Cases |**

**+--------------------------------------+**

**| 1. Make Bill Payment |**

**| 2. View Bill Payment History |**

**+---------------------------------------------+**

* The "Bill Payment System" is the system being described.
* "User" represents the external entity interacting with the system.
* "Paytm User" is a specific type of user who interacts with the system through the Paytm platform.
* The two main use cases related to bill payment are:
  1. **Make Bill Payment:** This use case involves the user initiating a bill payment transaction through the Paytm platform. It may include selecting the type of bill, entering payment details, and confirming the payment.
  2. **View Bill Payment History:** This use case allows the user to view their past bill payment transactions and their associated details, such as transaction date, amount, and status.