**Software Engineering Assignment**

# MODULE: 1 (SDLC)

* What is software? What is software engineering?

 Software is a set of instructions, data or programs used to operate computers and execute specific tasks. Software is a generic term used to refer to applications, scripts and programs that run on a device.

 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. Software engineering includes a variety of techniques, tools, and methodologies, including requirements analysis, design, testing, and maintenance.

* Explain types of software

 There are five type of software

● Application software

- The most common type of software, application software is a computer software package that performs a specific function for a user, or in some cases, for another application. - An application can be self-contained, or it can be a group of programs that run the application for the user. - Examples of Modern Applications include office suites, graphics software, databases and database management programs, web browsers, word processors, software development tools, image editors and communication platforms.

-Example:Microsoft Office, Paint, Powerpoint etc..

● System software

- These software programs are designed to run a computer's application programs and hardware. - - System software coordinates the activities and functions of the hardware and software. - It controls the operations of the computer hardware and provides an environment or platform for all the other types of software to work in. - The OS is the best example of system software; it manages all the other computer programs. - Other examples of system software include the firmware, computer language translators and system utilities..

- Example:Notepad ,Calculator etc..

● Driver software

- Also known as device drivers, this software is often considered a type of system software. - Device drivers control the devices and peripherals connected to a computer, enabling them to perform their specific tasks. - Every device that is connected to a computer needs at least one device driver to function. - Examples include software that comes with any nonstandard hardware, including special game controllers, as well as the software that enables standard hardware, such as USB storage devices, keyboards, headphones and printers.

-Example: Audio Driver,Video Driver etc..

● Middleware

- The term middleware describes software that mediates between application and system software or between two different kinds of application software. For example, middleware enables Microsoft Windows to talk to Excel and Word. - It is also used to send a remote work request from an application in a computer that has one kind of OS, to an application in a computer with a different OS. It also enables newer applications to work with legacy ones.

- Example: database middleware,application server middleware

● Programming software

- Computer programmers use programming software to write code. Programming software and programming tools enable developers to develop, write, test and debug other software programs. - Examples of programming software include assemblers, compilers, debuggers and interpreters.

- Examples : Turbo c,Eclipse,Sublime etc..

* What is SDLC? Explain each phase of SDLC

 The Software Development Life Cycle (SDLC) is a process used by software development organizations to plan, design, develop, test, deploy, and maintain software applications.

 The Software Development Life Cycle (SDLC) refers to a methodology with clearly defined processes for creating high-quality software. in detail, the SDLC methodology focuses on the following phases of software development:

1. Requirement Gathering

2. Analysis

3. Designing

4. Implementation

5. Testing

6. Maintenance

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: In this phase, the software design is created, which includes the overall architecture of the software, data structures, and interfaces. It has two steps:

• High-level design (HLD): It gives the architecture of software products.

• Low-level design (LLD): It describes how each and every feature in the product should work and every component.

3. Implementation or coding: The design is then implemented in code, usually in several iterations, and this phase is also called as Development.

things you need to know about this phase:

• This is the longest phase in SDLC model.

• This phase consists of Front end + Middleware + Back-end.

• In front-end: Development of coding is done even SEO settings are done.

• In Middleware: They connect both the front end and back end.

• In the back-end: A database is created.

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.

* What is DFD? Create a DFD diagram on Flipkart

Data Flow Diagrams (DFDs) use specific shapes to represent the different components in the diagram.

shapes commonly used in a Data Flow Diagram:

1. Process:

The process shape is represented by a rectangle with rounded corners. It represents an activity or function that manipulates the data within the system. Processes are where data is transformed or processed.

2. Data Flow:

The data flow shape is represented by an arrow. It shows the movement of data from one process to another or between processes, data stores, and external entities. The arrow's direction indicates the flow of data.

3. Data Store:

The data store shape is represented by two parallel lines. It represents a repository where data is stored within the system. Data stores can be databases, files, or any other storage location.

4. External Entity:

Entity

The external entity shape is represented by a rectangle. It represents an external source or destination of data that interacts with the system but is not part of it. External entities can be users, other systems, or organizations.

**Data flow diagram on flipkart:**

Request for registration

Request for login

Admin

User

Response

Response

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

Ans:

A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows.

**Flowchart of addition of two numbers:**

Start

Input a, b

Sum= a+b

Print

sum

End

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

Ans:

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use

Cases are represented by either circles or ellipses. The actors are often shown as stick figures.

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

**Link:**

**https://drive.google.com/file/d/1krMn7wBibKpeyT03aM6bvbDdQF\_30uw2/view?usp=sharing**