Software Engineering Assignments

Module - 1[Software]

Q-(1). What is software? explain types of software.

- Software is a set of programs that can do particular work of the user. The software simply is a collection of documentation, instructions, and procedures that are capable of performing different tasks on a computer system.

* **Types of software :**

(1) System Software

(2) Application Software

(1) System Software :

- System software operates directly on hardware devices of the computer. It provides a platform to run an application and helps to run the hardware of the computer and the system itself.
- These are mostly pre-installed on computers.
- **Examples**: Windows, Linux, Unix, etc.

Types of System Software :

(a) Operating System :

- An operating system (OS) is the program that, after being initially loaded into the computer by a boot program, manages all of the other application programs in a computer.
- The application programs make use of the operating system by making requests for services through a defined application program interface (API).

Examples: Windows, Mac OS, Linux, Unix, Ubuntu.

(b) Utility Program :

- A program that performs a specific task related to the management of computer functions,resources,or files. It improve the performance of computer and protect the computer.

  Examples: Disk tools, antivirus, compression tools, Backup software.

(c) Device Drivers :

- A device driver is a specialized software that operates a particular computer-connected device—offering a software interface to the hardware allows operating systems and other computer applications to access hardware functionalities.

(2) Application Software :

- Designed for user-benefit to complete different tasks. These are either pre-installed in the computers or can be installed as per the need. It includes word processing, Language processors, web browsing, translators, editors and almost any other task for which we install the software. **Examples:** Word, Excel, PowerPoint, Oracle, etc.

Types of application software :

(a) Customised software :

- Software of this type is intended to perform specific tasks or functions in an organisation by receiving and interpreting user commands**.**

Examples: train ticket reservation systems, hotel booking, bus booking, Air ticket reservations, etc.

(b) Package Software:-

- A type of application software that is developed for the scale to the general public.This software is developed by expert programmers.This software is loaded with many features.

Examples: MS Word, MS Excel, Adobe photo shop, etc.

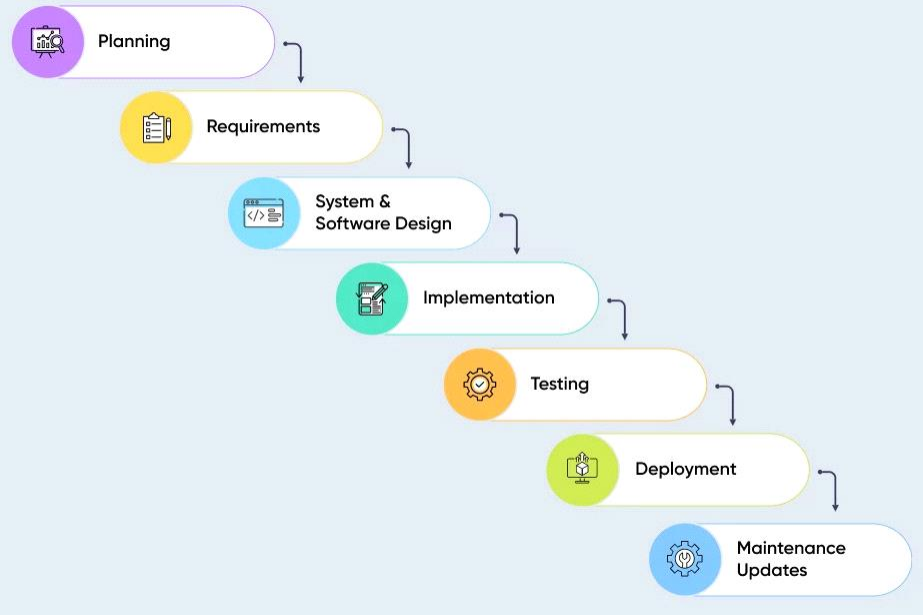
Q-(2) Explain the SDLC each phase process.

* SDLC (Software Develpoment Life Cycle) :

- **Software Development Life Cycle(SDLC)** is a process that produces software with the highest quality and lowest cost in the shortest time possible. SDLC provides a well-structured flow of phases that help an organization to quickly produce high-quality

software which is well-tested and ready for production use.

The SDLC involves six phases are explained in the image given below.



The various phases of SDLC are explained below :

(1) Requirement and Planning :

- Requirement analysis is the most important and fundamental stage in SDLC. It is performed by the senior members of the team with inputs from the customer, the sales department, market surveys and domain experts in the industry
- Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage. The outcome of the technical feasibility study is to define the various technical approaches that can be followed to implement the project successfully with minimum risks.

(2) Analysis :

- When the requirement of customer is collected, there are another set of employees like Human Resource (HR), Finance Analyst, Architect, a Business analyst as well as Project manager will sit jointly discuss as well as analyze how to proceed and whether it is feasible and possible in the allotted budget.
- Such decisions are taken depending on the cost, resources, time, etc. Documentation is made, which is the SRS (Software Requirement Specification) document, which contains a detailed explanation of product requirements, right from design to development.

(3) Designing :

- Based on the requirements specified in SRS, usually more than one design approach for the product architecture is proposed and documented in a DDS (Design Document Specification).
- This DDS is reviewed by all the important stakeholders and based on various parameters as risk assessment, product robustness, design modularity, budget and time constraints, the best design approach is selected for the product.

(4) Implementation :

- As you are preparing with the design document, this phase deals with the developers to start writing the code or prepare for the engineering so that a prototype of the product can be created using some specific tools and techniques.
- This is considered the longest phase of SDLC.

(5) Testing :

- As your product is prepared for deployment, it needs a prior testing environment by the test engineers to check for bugs and run-time errors, and they check in this phase whether the functionality of the product is working as per the requirement or not.
- The bugs or defects which are encountered in the test phase are reported to the developers, who fix the bug and revert to the test engineers for further testing.
- This is an iterative process that continues until your application is free from bugs and defects and works stably.

(6) Deployment :

- Once the software testing phase is over and no bugs or errors left in the system then the final deployment process starts. Based on the feedback given by the project manager, the final software is released deployed in the customer's workplace or system for their use.

(7) Maintenance :

- After the deployment of a product on the production environment, maintenance of the product i.e. if any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.