Module\_01

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

* **Software** is a set of instructions, data or programs used to operate computers and execute specific tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a generic term used to refer to applications, scripts and programs that run on a device. It can be thought of as the variable part of a computer, while hardware is the invariable part.
* **Software engineering** is the branch of computer science that deals with the **design, development, testing, and maintenance of software applications.** Software engineers apply engineering principles and knowledge of programming languages to build software solutions for end users.

Software engineers play an important role in making sure computers and mobile devices operate correctly. Software engineers play an important role in making sure computers and mobile devices operate correctly.

**2. Explain types of software?**

* Examples and types 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.
* **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
* **Driver Software -** Device drivers control the devices and peripherals connected to a computer, enabling them to perform their specific tasks.
* **Middle Software -** 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.
* **Programing 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.

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

* **Software Development Life Cycle (SDLC)** is a process used by the software industry to design, develop and test high quality software.The SDLC aims to produce a high-quality software that meets or exceeds customer expectations, reaches completion within times and cost estimates.
* **The 6 phases of SDLC in below.**

1. **Requirement Gathering -** Requirement and planning are preceded by identifying current problems that users face to offer valuable solutions to customers.
2. **Analysis -** The analysis stage includes gathering all the specific details required for a new system as well as determining the first ideas for prototypes.
3. **Designing -** Software design or we can say a layout is prepared in this phase according to the requirements specified in the previous step (requirement gathering). In this phase, the requirements are broken down into multiple modules like login module, signup module, main functionality, etc.
4. **Coding/Implementation -** In this phase, the actual development gets started. The developer writes code using different languages and platforms, depending on the need of the product. The main stakeholder in this phase is the development team.
5. **Testing -** Once the developers build the software, then it is deployed in the testing environment. Then the testing team tests the functionality of the entire system.
6. **Maintenance -** In the maintenance stage, users may find bugs and errors that were missed in the earlier testing phase. These bugs need to be fixed for better user experience and retention.