**Q-1) What is software? What is software engineering?**

* Software is a set of computer programs and associated documentation and data that tell a computer how to function.
* 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.

**Q-2) Explain types of software**

* In a computer system, the software is basically a set of instructions or commands that tells a computer what to do. Or in other words, the software is a computer program that provides a set of instructions to execute a user’s commands and tell the computer what to do. For example like MS-Word, MS-Excel, PowerPoint, etc.
* **types of software**

**1) system software**

* system software basically controls a computer’s internal functioning and also controls hardware devices such as monitors, printers, and storage devices, etc. It is like an interface between hardware and user applications, it helps them to communicate with each other because hardware understands machine language(i.e. 1 or 0) whereas user applications are work in human-readable languages like English, Hindi, German, etc. so system software converts the human-readable language into machine language.
* **Types of system software:**

1. Operating System: It is the main program of a computer system. When the computer system ON it is the first software that loads into the computer’s memory. Basically, it manages all the resources such as memory, CPU, printer, hard disk, etc.
2. Language Processor: As we know that system software converts the human-readable language into a machine language and vice versa. So, the conversion is done by the language processor. It converts programs written in high-level programming languages like Java, C, C++, Python, etc.
3. Device Driver: A device driver is a program or software that controls a device and helps that device to perform its functions. Every device like a printer, mouse, modem, etc.

**2) application software**

* application software is designed to perform a specific task for end-users. It is a product or a program that is designed only to fulfill end-users’ requirements. It includes word processors, spreadsheets, database management, inventory, payroll programs, etc.

**Types of application software:**

1)General Purpose Software: This type of application software is used for a variety of tasks and it is not limited to performing a specific task only. For example, MS-Word, MS-Excel, PowerPoint, etc.

2)Customized Software: This type of application software is used or designed to perform specific tasks or functions or designed for specific organizations. For example, railway reservation system, airline reservation system, invoice management system, etc.

3)Utility Software: This type of application software is used to support the computer infrastructure. It is designed to analyze, configure, optimize and maintains the system, and take care of its requirements as well. For example, antivirus, disk fragmenter, memory tester, disk repair, disk cleaners, registry cleaners, disk space analyzer, etc.

**Q3) What is SDLC? Explain each phase of SDLC**

* For software development, there is a specific programming language like Java, Python, C/C++, etc. The entire process of software development isn’t as simple as its definition, it’s a complicated process. Accordingly, it requires an efficient approach from the developer in the form of the Software Development Life Cycle (SDLC).
* SDLC specifies the task(s) to be performed at various stages by a software engineer/developer. It ensures that the end product is able to meet the customer’s expectations and fits in the overall budget.
* Proper planning and execution are the key components of a successful software development process. The entire software development process includes 6 stages.
* **Stage-1: Planning And Requirement Analysis**
* Planning is the crucial step in everything and so as in software development. In this same stage, requirement analysis is also performed by the developers of the organization. This is attained from the inputs from the customers, sales department/market surveys.
* **Stage-2: Defining Requirements**
* In this stage, all the requirements for the target software are specified. These requirements get approval from the customers, market analysts, and stakeholders.
* This is fulfilled by utilizing SRS (Software Requirement Specification). This is a sort of document that specifies all those things that need to be defined and created during the entire project cycle.
* **Stage-3: Designing Architecture:**
* SRS is a reference for software designers to come out with the best architecture for the software. Hence, with the requirements defined in SRS, multiple designs for the product architecture are present in the Design Document Specification (DDS).
* This DDS is assessed by market analysts and stakeholders. After evaluating all the possible factors, the most practical and logical design is chosen for the development.
* **Stage-4: Developing Product**
* At this stage, the fundamental development of the product starts. For this, developers use a specific programming code as per the design in the DDS. Hence, it is important for the coders to follow the protocols set by the association. Conventional programming tools like compilers, interpreters, debuggers, etc. are also put into use at this stage. Some popular languages like C/C++, Python, Java, etc. are put into use as per the software regulations.
* **Stage-5: Product Testing and Integration**
* After the development of the product, testing of the software is necessary to ensure its smooth execution. Although, minimal testing is conducted at every stage of SDLC.
* Therefore, at this stage, all the probable flaws are tracked, fixed, and retested. This ensures that the product confronts the quality requirements of SRS.
* **Stage 6: Deployment and Maintenance Of Product**
* After detailed testing, the conclusive product is released in phases as per the organization’s strategy. Then it is tested in a real industrial environment. Because it is important to ensure its smooth performance. If it performs well, the organization sends out the product as a whole.
* Therefore, along with the deployment, the product’s supervision.

Q-5) What is Flow chart? Create a flowchart to make addition of two numbers

* 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.

Q-6) What is Use case Diagram? Create a use-case on bill payment on paytm.

* A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application.

.