MODULE : 1

SE-Overview of it industry

Q - 1. What is software ? what is software engineering ?

Ans : Software is considered to be collection of executable programming code, associated libraries and documentations. Software, when made for a specific requirement is called software product. Engineering on the other hand, is all about developing products, using well-defined, scientific principles and methods.

Q - 2. Explain types of software.

Ans : 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.

The two main categories of software are application software and system software. An application is software that fulfills a specific need or performs tasks. System software is designed to run a computer's hardware and provides a platform for applications to run on top of.

1. 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.

2. 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. In addition, 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.

3. 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.

4. 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.

5. Programming softwar - 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.

Q - 3. What is SDLC ? explain each phase off SDLC.

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

SDLC (Software Development Life Cycle) is used in Every Software Development Company because it is the root of the Development Cycle, if that model would not exist in the world, firstly no software can build secondly if any how it would be made, it's not going to succeed it has no use, because of no maintenance, but Luckily SDLC model exist in Tech world

The SDLC typically includes the followingg phase
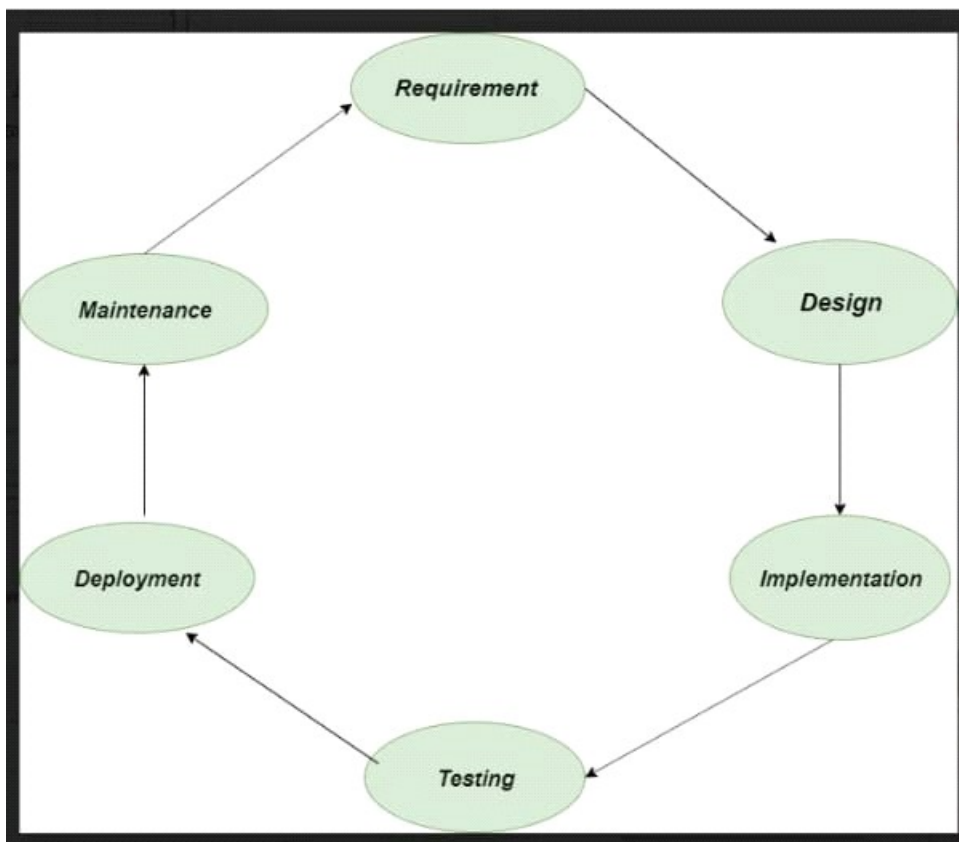
1. Requirements gathering and analysis: This phase involves gathering information about the software requirements from stakeholders, such as customers, end-users, and business analysts.

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.
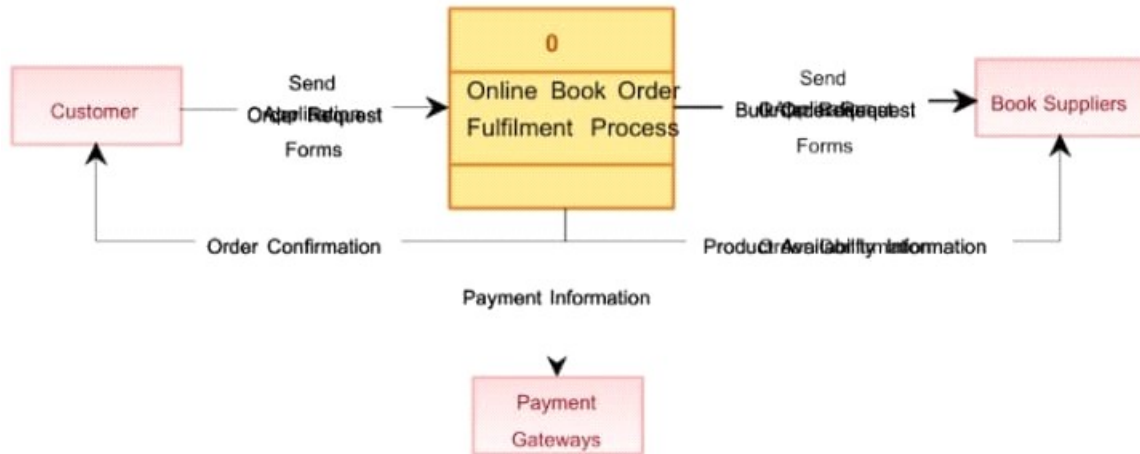
5. Deployment: After successful testing, The software is deployed to a production environment and made available to end-users.

 6. Maintenance: This phase includes ongoing support, bug fixes, and updates to the software.

There are different methodologies that organizations can use to implement the SDLC, such as Waterfall, Agile, Scrum, V-Model and DevOps.
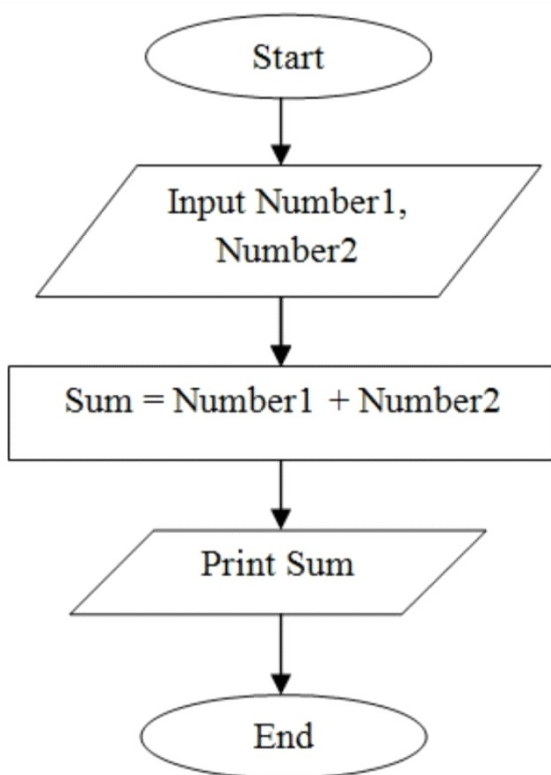
Q - 4. What is DFD ? create a DFD diagram on flipkart.

Ans. A data-flow diagram is a way of representing a flow of data through a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow — there are no decision rules and no loops.

```
           Send                  0                 Send
Customer   Order Request  →  Online Book Order  Bulk Order Request  →  Book Suppliers
           Forms             Fulfilment Process   Forms
```

Order Confirmation ———————————— Product Availability Information

Payment Information

Payment Gateways

Q - 5. What is flowchart ? create a flowchart to make addition of two numbers.

Ans. a diagram that shows step-by-step progression through a procedure or system especially using connecting lines and a set of conventional symbols.


```
        ( Start )
           ↓
  / Input Number1, /
  /   Number2     /
           ↓
  [ Sum = Number1 + Number2 ]
           ↓
  / Print Sum /
           ↓
        ( End )
```

Q - 6. 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.