**Software Engineering Assignment**

***SE - Overview of IT Industry***

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

**Answer** -> 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. It is the opposite of hardware, which describes the physical aspects of a computer It can be thought of as the variable part of a computer, while hardware is the invariable part.

The categories of software are below

• Middleware Software

• Propramming Software

• Application Software

• System Software

• Driver Software

2. **Answer** -> The term software engineering is the product of two words, software, and engineering. The software is a collection of integrated programs.

Computer programs and related documentation such as requirements, design models and user manuals.

Software subsists of carefully-organized instructions and code written by developers on any of various particular computer languages.

Engineering is the application of scientific and practical knowledge to invent, design, build, maintain, and improve frameworks, processes, etc.

**2. Explain types of software?**

**Answer**-> - It is a collection of data that is given to the computer to complete a particular task.

The list below describes the types of software:

**1 . Application Software**

• General Purpose Software

• Customize Software

• Utility Software

**2 . System Software**

• Operating System

• Device Driver

• Language Processor

**1.Application Software :-**

Software that performs special functions or provides functions that are much more than the basic operation of the computer is known as application software. Or in other words, 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 :**

There are three different 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 analyse, configure, optimize and maintains the system, and take care of its requirements.

**2.System Software**

System software is software that directly operates the computer hardware and provides the basic functionality to the users as well as to the other software to operate smoothly. Or in other words, 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 and vice versa.

**Types of System Software**

It has two subtypes which are:

**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 computer memory, CPU, printer, hard disk, etc., and provides an interface to the user, which helps the user to interact with the computer system. It also provides various services to other computer software.

Examples of operating systems are Linux, Apple macOS, Microsoft Windows, etc.

**2. 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, ete. needs a driver to connect with the computer system eternally. So, when you connect a new device with your computer system, first you need to install the driver of that device so that your operating system knows how to control or manage that device.

**3. 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 written in high level programming. languages like Java, C, C++, Python, etc(known as source code), into sets of instructions that are easily readable by machines(known as object code or machine code.

**3. What Is SDLC?**

**Answer**-> - The software development life cycle (SDLC) is a set of stages, activities, and tasks that software projects go through. The process outlines how software development teams build, test, deploy, and maintain their software to achieve top quality on time and within budget.

While the goal is to ensure a quality and timely development process, the development cycle also involves routine maintenance to ensure the software remains running without hitches. When implemented correctly, these core SDLC activities provide several benefits. The following sections will dive more deeply into the importance of SDLC to businesses and development teams.

SDLC begins with the planning phase, where the development team defines and analyses the project requirements, goals, and timeline. After the planning phase, the team creates the prototype by designing, building, and integrating different components. Next, the developers evaluate the project, investigate any reported issues, and fix bugs to ensure the software works efficiently before the official launch.

Each Phase Of SDLC: - All software development life cycle models involve various stages. Although these strategies can vary from model to model, we'll look at the following SDLC sequence:

1. Planning

2. Requirement gathering and analysis

3. Designing

4. Building and developing

5. Testing

6. Implementation

7. Deployment

8. Maintenance

**5. What Is Flowchart?**

**Answer**: - The Flowchart is the most widely used graphical representation of An Algorithm and procedural design workflows. It uses various symbols to show the operations and decisions to be followed in a program. It flows in sequential order

The process of drawing a flowchart for an algorithm is known as

Howcharting.

**Algorithm:** - An Algorithm is a step-by-step procedure to solve a given problem.

Algorithm of add two numbers

Start

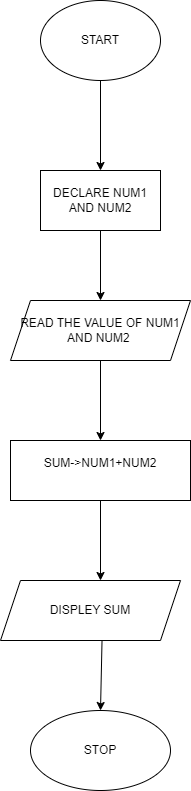
Declare variable n1, n2

Read the values for n1 and n2

Sum >n1 +n2

Display. sum

Stop

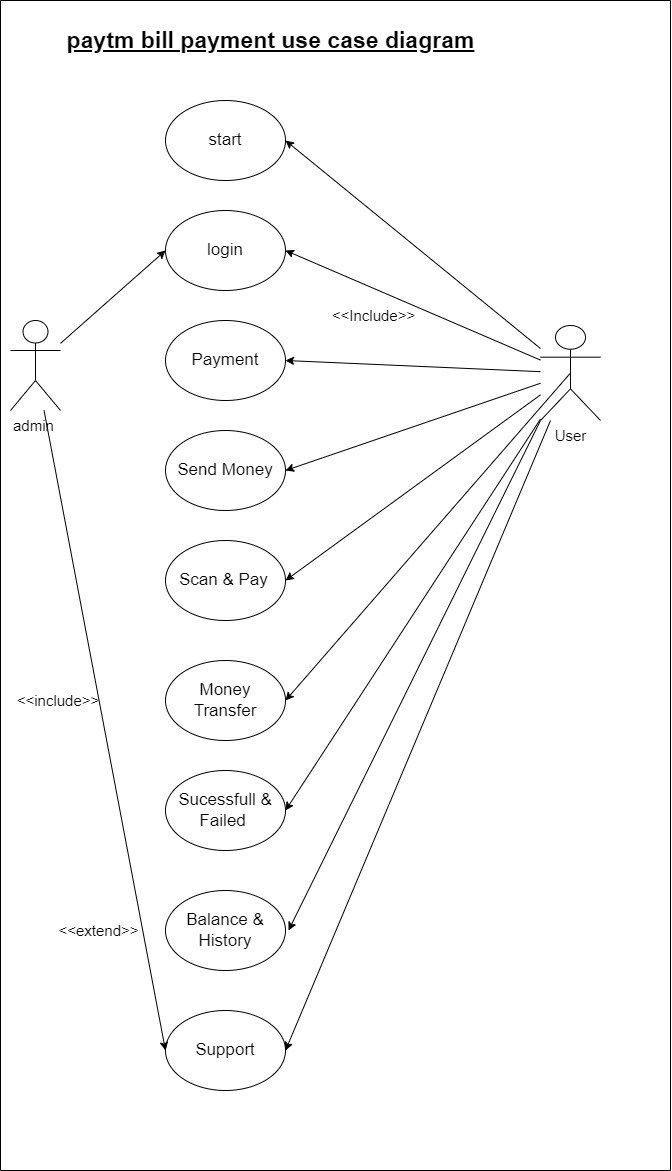


**4. What is DFD? Create a DFD diagram on Flipkart**

**Answer:** DFD is the abbreviation for Data Flow Diagram. The flow of data of a system or a process is represented by DFD.

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

**Answer-> Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally.**

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