World Wide Web & How Internet Works

Que: : Research and create a diagram of how data is transmitted from a client to a server over the internet.

Network Layers on Client and Server

Types of Internet Connections

Que: Research different types of internet connections (e.g., broadband, fiber, satellite) and list their pros and cons.

Ans:

1.DSL:

Pros-Widely available in urban and suburban areas.

This is affordable.

Cons-speed depends on distance

Slower than cable and fiber .

2.cable internet:

Pros-high speed

Widely available in cities and town.

More stable than DSL

Cons-slightly more expansive than dsl

3.fiber-optic internet

Pros-extremely fast

Symmetrical download and upload speed.

Very low latency and high reliability.

Cons-limited available

Higher cost compared to DSL/cable

4.satellite internet:

Pros-available almost everywhere.

No need for cabels or phone lines

Cons-high latency

Weather can affect signal

Higher cost for lower speeds

5.wireless:

Pros-good for rural areas without wired infrastructure

No cables required.

Cons- Requires line of sight to tower.`

Speeds and stability depend on weather and obstructions.

6.BPL(broadband over power lines):

Pros- No extra wiring needed.

Can reach some areas not served by other methods.

Cons- Limited availability.

Can suffer from interference and slower speeds.

Protocols

Que: Simulate HTTP and FTP requests using command line tools (e.g., curl).

Application Security

Que: Identify and explain three common application security vulnerabilities. Suggest possible solutions.

Software Applications and Its Types

Que: Identify and classify 5 applications you use daily as either system software or application software.

Ans: firstly I use windows .

I use codeblock for programming .

I use google for browsing the internet

I use Microsoft word ,it helps to creating and edit documents

I also use whatsapp it let me send messages,calls etc.

Software Architecture

Que: Design a basic three-tier software architecture diagram for a web application.

Ans:

1.presentation tier(client/user interface):

Web browser or interface

Displays UI,sends user requests to the server

Ex. Html ,css, javascript,etc

2.application tier(business logic layer):

Web server and backend application.

Processes requests, applies business logic.

Examples: Node.js, Java Spring Boot, Python etc.

3.data tier:

Database server where data is stored/retrieved.

Examples: MySQL, PostgreSQL, MongoDB.

Layers in Software Architecture

Que: Create a case study on the functionality of the presentation, business logic, and data access layers of a given software system.

Software Environments

Que:

Types of Softwar

Que: Create a list of software you use regularly and classify them into the following categories: system, application, and utility software.

Ans:

1.system software-windows 11, android, macos

2.application software-google,whatsapp,spotify,MS word

3.utility software-antivirus,backup tools

Application software

Que: Write a report on the various types of application software and how they improve productivity.

Ans:

Word processor- make creating/editing documents

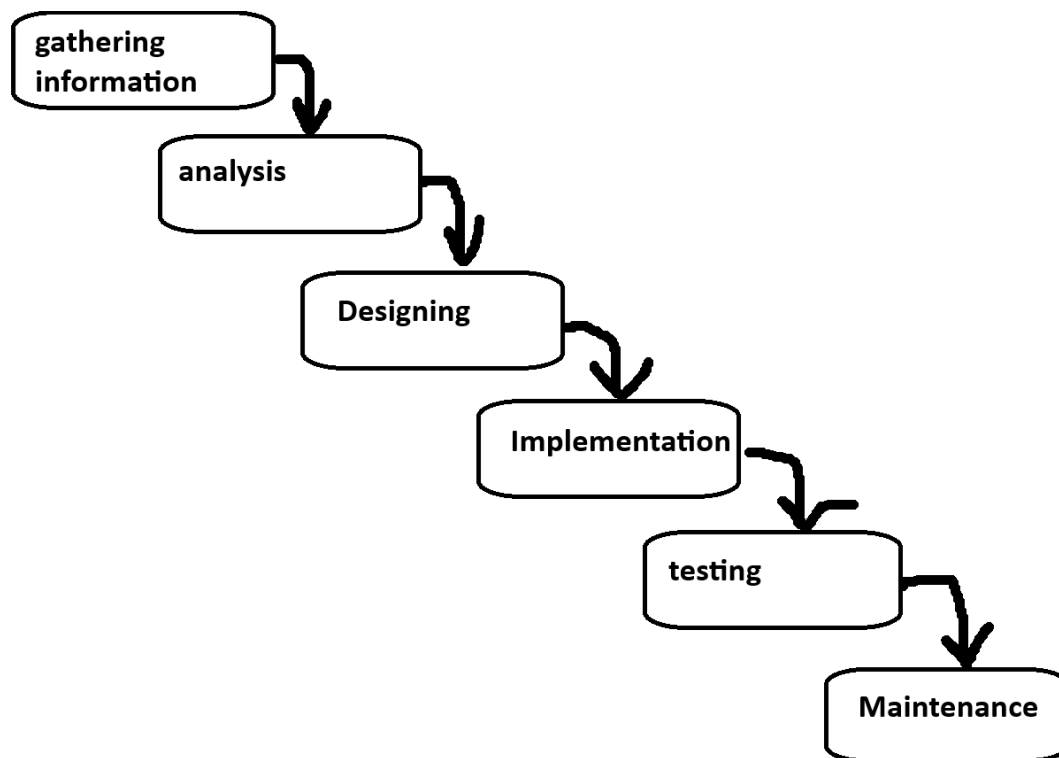Spreadsheet- automate calculations and organize data.

Graphic tools- help design and edit media quickly

communication apps– enable quick teamwork and sharing.
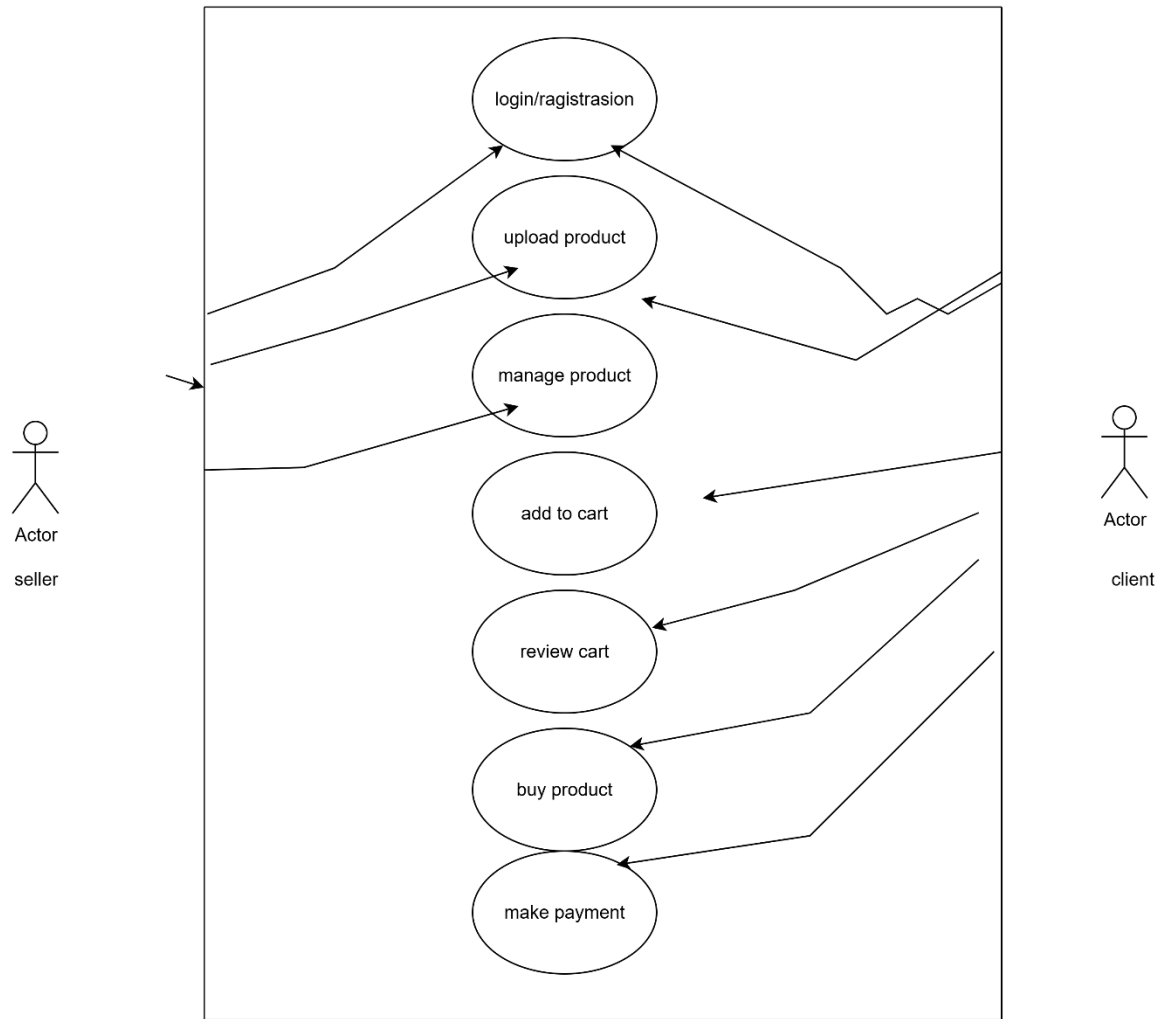
Software Development Process

Que: Create a flowchart representing the Software Development Life Cycle (SDLC).
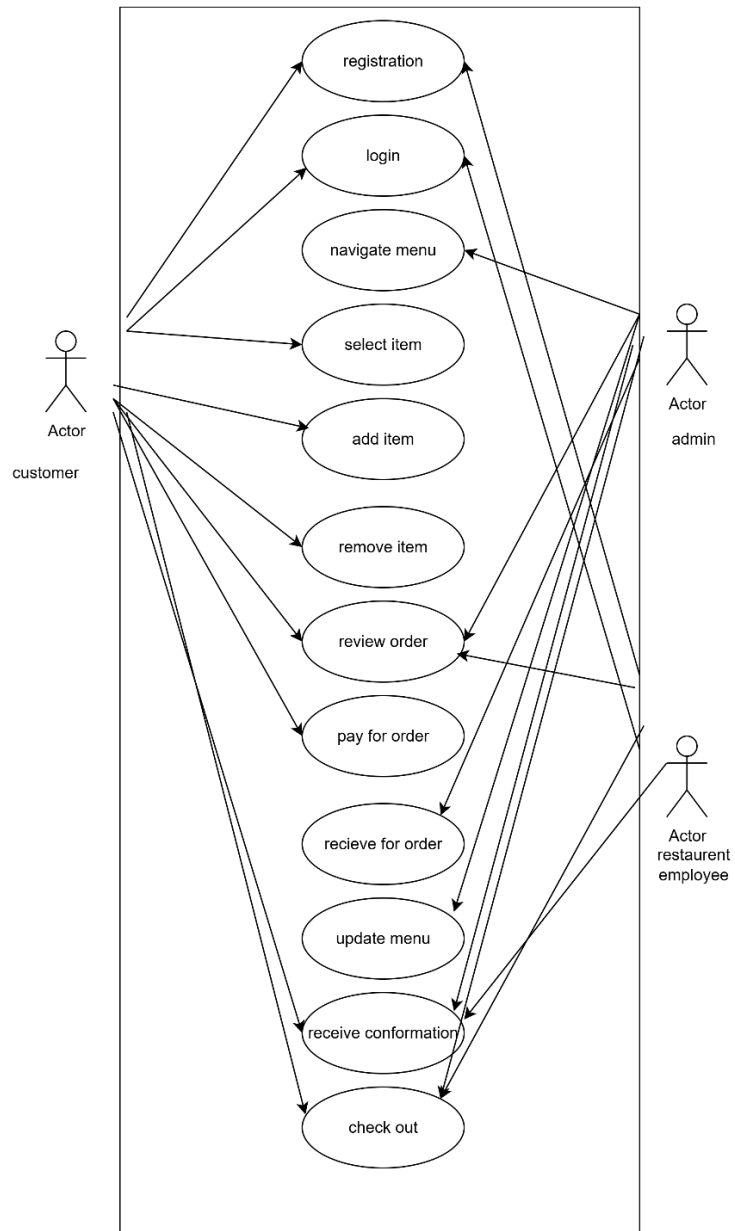
Ans:

```
gathering
information
    │
    ▼
  analysis
    │
    ▼
 Designing
    │
    ▼
Implementation
    │
    ▼
  testing
    │
    ▼
Maintenance
```

Software Analysis

Que: Perform a functional analysis for an online shopping system.

Actor
seller

Actor
client

login/ragistrasion

upload product

manage product

add to cart

review cart

buy product

make payment

System Design

Que: Design a basic system architecture for a food delivery app.

DFD(Data Flow Diagram)

Que: Create a DFD for a hospital management system.

Ans: