

# Module-Overview of it industry

## Assignment-1

1) Write a simple "Hello World" program in two different programming languages of your choice. Compare the structure and syntax.

ANS..

### EX. 1 C Language

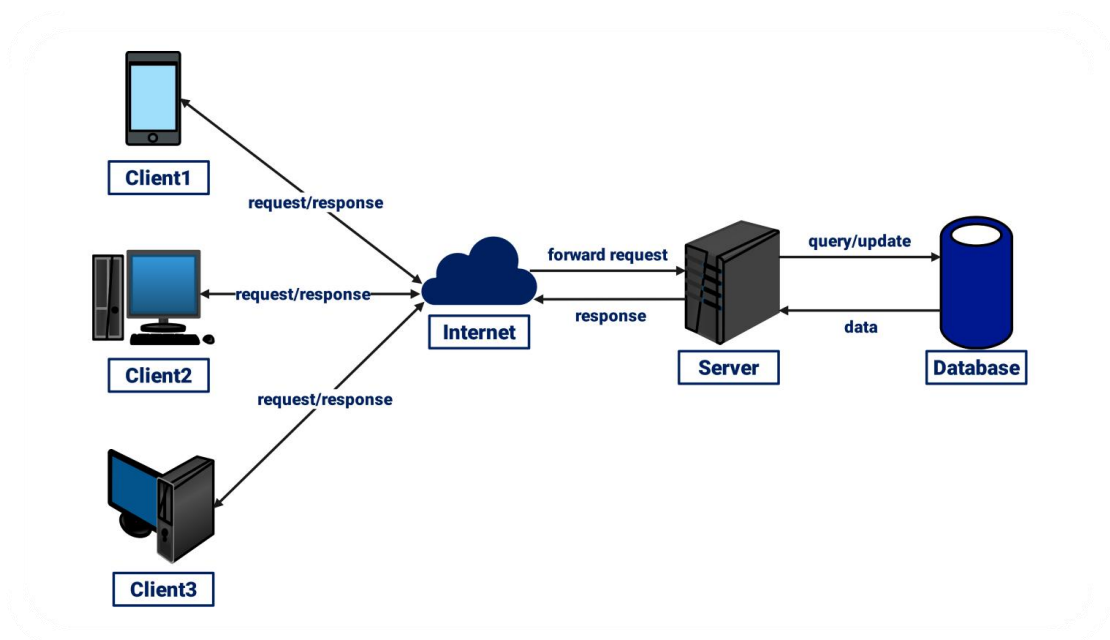
```
#include<stdio.h>
int main()
{
    Printf( "Hello World" );
    return 0;
}
```

### EX. 2 Paython

```
Printf( "Hellow World" );
```

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

Ans...



3) Design a simple HTTP client-server communication in any language.

Ans...

- > Client
- > Server
- > User request website search
- > [Https.Google.com](https://www.google.com)
- > Goggle server

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

Typs	Speed	Use
Fiber	Medium, high	Home, office

Mobile network 4g. 5g	High mediam	Hotspot, online-work, etc.
USB cable	Low, high	Charge:mobil, leaptop etc.

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

Curl http://example.com

6) Identify and explain three common application security vulnerabilities. Suggest possible solutions.

## 1. SQL Injection :

**Explanation:** Attackers manipulate SQL queries by injecting malicious code into input fields, potentially gaining unauthorized access to a database.

**Solution:** Use parameterized queries or prepared statements to prevent user input from altering database commands. Implement strict input validation and least privilege access controls.

## 2. Cross-Site Scripting (XSS):

**Explanation:** Malicious scripts are injected into web applications and executed in users' browsers, enabling attackers to steal credentials or manipulate content.

**Solution:** Sanitize user input by escaping HTML characters and using Content Security Policy (CSP) headers to restrict script execution. Regular security audits help identify vulnerabilities early.

### 3. Broken Authentication :

**Explanation:** Weak or improperly implemented authentication mechanisms allow attackers to gain unauthorized access, often through credential stuffing or session hijacking.

**Solution:** Use multi-factor authentication (MFA) and secure session management practices. Implement strong password policies and monitor failed login attempts for suspicious activity.

7) Identify and classify 5 applications you use daily as either system software or application software.

-> YouTube

-> Google chrome

-> Word online

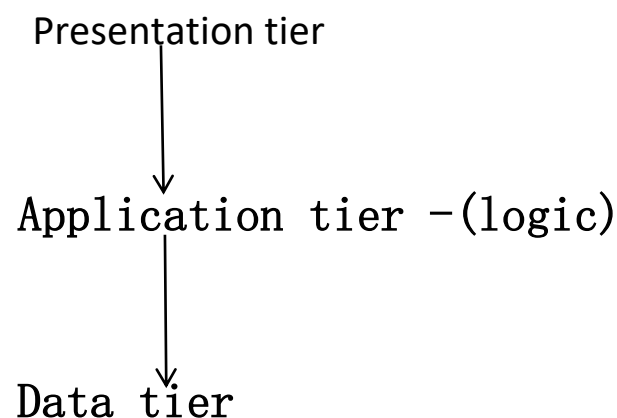
-> Microsoft word

-> Google drive

-> Excel

8) Design a basic three-tier software architecture diagram for a web application.

Ans...



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

## Presentation Layer (User Interface)

### Functionality:

Displays web pages and forms for users to view/search books, write reviews, and make purchases.

Handles input validation for forms (e.g., ensuring ISBN is correctly formatted).

Communicates with the business logic layer via API calls or controllers in MVC.

**Example:** When a user clicks “Buy Now,” the UI calls the `purchaseBook()` function from the BLL, passing the book ID and user credentials.

## Business Logic Layer (Service Layer)

### Functionality:

Acts as the intermediary between the PL and the DAL.

Implements core rules of the bookstore such as discount eligibility, order processing, user authentication, and inventory management.

Ensures that operations follow defined workflows (e.g., check inventory before confirming purchase)

**Example:** `purchaseBook()` first verifies the user’s account, checks inventory from DAL, calculates pricing and taxes, then places the order.

10) Explore different types of software environments (development, testing, production). Set up a basic environment in a virtual machine

Ans...

Environment	Purpose	Key users
Production	-----	-----
Development	Write, test code	Developers
Testing	Code, bug	Tester, QA

11) Write and upload your first source code file to Github.

Ans...

-> Done

12) Create a Github repository and document how to commit and push code changes.

Ans...

->First one is done.

->Second I don't know.

13) : Create a student account on Github and collaborate on a small project with a classmate.

Ans...

->Done

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

Ans...

-> System software :BIOS, Windows, GPU, Linux

->Application software :Excel, powerpoint, Microsoft word, visual studio

->Utility software :windows defender, Google drive, c cleaner

15) Follow a GIT tutorial to practice cloning, branching, and merging repositories.

Git add.

Git commit -m "Add new feature"

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

Ans...

-> Types of Application software:

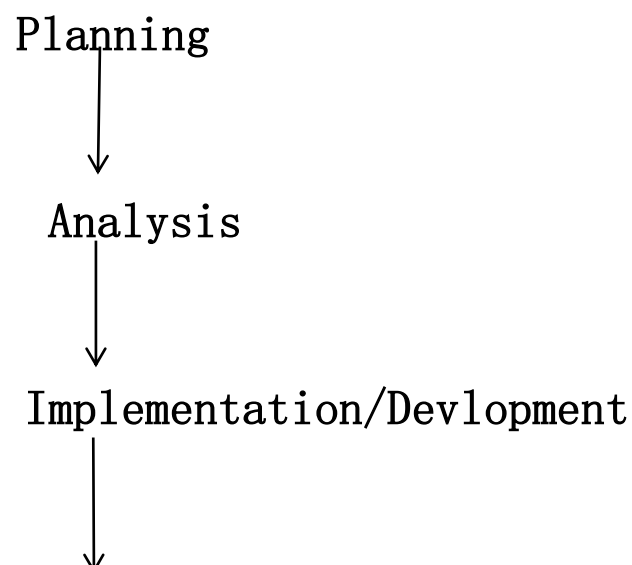
- Microsoft office
- Zoom
- Google docs
- VLC media player

-> Improve productivity advantage:

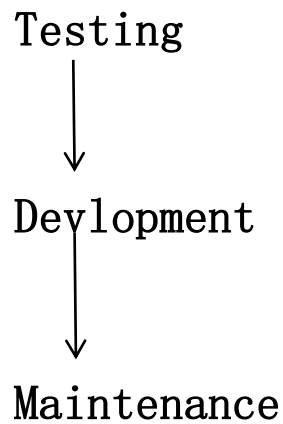
- Completing tasks faster and with fewer resources.
- Reducing operational expenses by optimizing workflows.
- Freeing up time for personal activities.
- Businesses generate more output, leading to higher profits.

17) Create a flowchart representing the Software Development Life Cycle (SDLC).

Ans...







18) Write a requirement specification for a simple library management system.

Ans...

- > Check out books based on availability.
- > Return books within the due date.
- > Track overdue books and calculate fines.

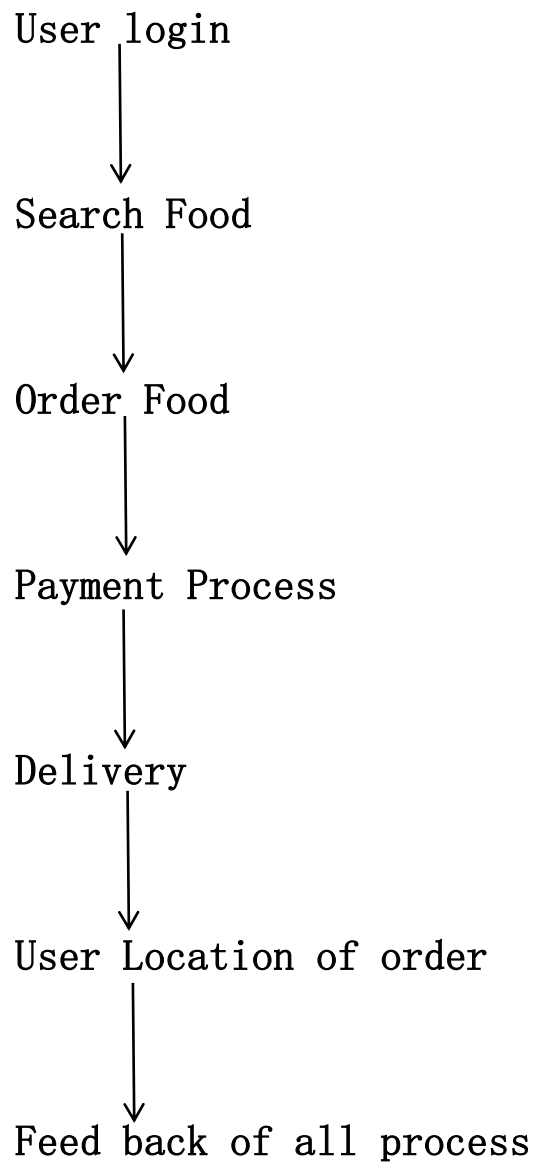
19) Perform a functional analysis for an online shopping system.

Ans...

- >Product management
- >delivery management
- >Payment process
- >Shopping management
- >Account management

20) Design a basic system architecture for a food delivery app.

Ans...



21) Develop test cases for a simple calculator program.

Ans...

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
int num1,num2,ans;
```

```
printf("\nEnter the value in num1=");

scanf("%d", &num1);

printf("\nEnter the value in num2=");

scanf("%d", &num2);

ans=num1+num2;

printf("\nThe addition of %d and %d is =%d", num1, num2, ans);

printf("\nEnter the value in num1=");

scanf("%d", &num1);

printf("\nEnter the value in num2=");

scanf("%d", &num2);

ans=num1-num2;

printf("\nthe subtraction of %d and %d is =%d", num1, num2, ans);

printf("\nEnter the value in num1=");

scanf("%d", &num1);

printf("\nEnter the value in num2=");

scanf("%d", &num2);

ans=num1*num2;

printf("\nthe multiplication of %d and %d is =%d", num1, num2, ans);

printf("\nEnter the value in num1=");

scanf("%d", &num1);

printf("\nEnter the value in num2=");

scanf("%d", &num2);

ans=num1/num2;

printf("\nthe division of %d and %d is =%d", num1, num2, ans);

printf("\nEnter the value in num1=");

scanf("%d", &num1);

printf("\nEnter the value in num2=");
```

```
scanf("%d", &num2);

printf("\nthe remainder of %d and %d is =%d", num1, num2, num1%num2);

return 0;

}
```

22) Document a real-world case where a software application required

**Appointing a dedicated documentation owner**, streamlining responsibilities.

**Automating parts of the documentation process**, reducing manual effort.

**Refactoring their content management system** to better support localization and version control.

23) Create a DFD for a hospital management system.

Ans...

->Patient Management

->Appointment Management

->Billing System

->Pharmacy System

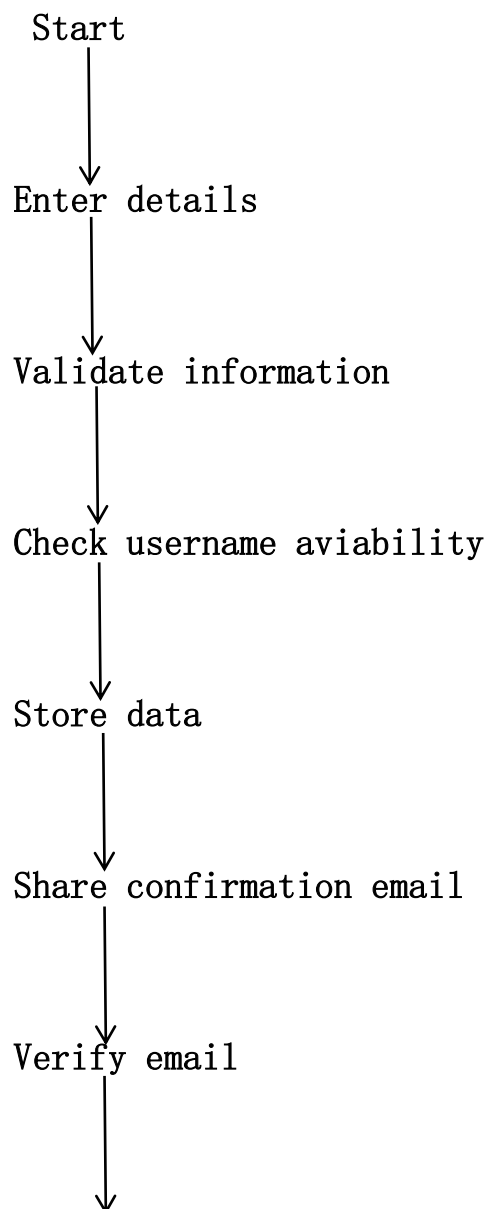
24) Build a simple desktop calculator application using a GUI library.

Ans...

desktop calculator built using Python and the Tkinter GUI library. It performs simple arithmetic operations: addition, subtraction, multiplication, and division.

25) Draw a flowchart representing the logic of a basic online registration system.

Ans...



Success



End