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.

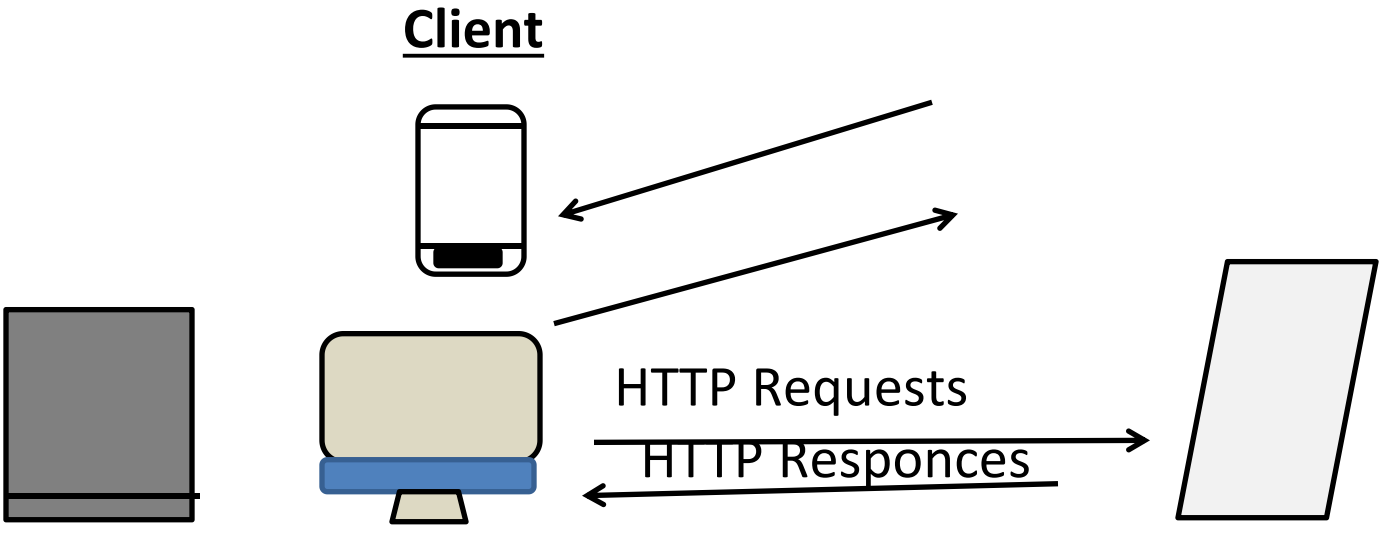
=>C language:

```
#include<stdio.h>

int main()

{

printf("Hello world");

return 0;


}
```

=>Python:

```
printf("Hello world");
```

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



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

<*>Client

<*>Server

<*>website search

<*>Google server

4>Research different type of internet connection(e.g.,broadband,fiber,satellite)and list their pros and cons.

Type	***Speed***	***Use***
Mobile network 4G,5G	High medium	Hotspot etc….
USB cable	Low,high	Charge:mobile
Fiber	Medium,high	Home,office

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

Curl,wget,ftp……

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

<>Three common application security vulnerabilities are SQL Injection, Cross-Site Scripting (XSS), and Broken Authentication. SQL Injection occurs when attackers insert malicious SQL code into input fields to manipulate database queries. XSS allows attackers to inject malicious scripts into websites, which can then be executed in users' browsers. Broken Authentication vulnerabilities arise when systems improperly handle user authentication, allowing unauthorized access. Solutions include input validation and parameterized queries for SQL Injection, output encoding and context-aware escaping for XSS, and implementing multi-factor authentication and strong password policies for Broken Authentication.

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

=>Window

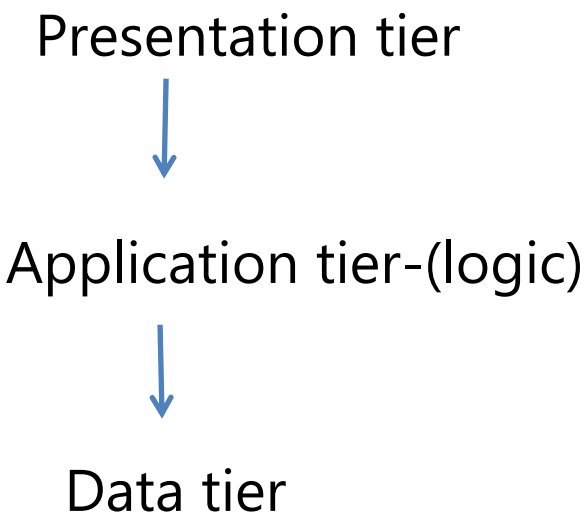
=>Google chrome

=>VS code

=>Microsoft word

=>Excel

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



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

<>A three-layer architecture, comprising presentation, business logic, and data access layers, enhances modularity and maintainability in software systems. The presentation layer handles user interface interactions and data display, while the business logic layer encapsulates application rules and processes. The data access layer manages data persistence and retrieval from databases or other data sources.

10) Explore different types of software environment

Enviornment	purpose	Key users
Development	Write,test code	developers
testing	code	Tester
production		

(development,testing,production).set up a basic environment in a virtual machine.

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

Done

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

=>First one is done.

=>Second

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

=>Done

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

=>System software:Windows,Ios,Andriod

=>Application software:Microsoft word Google chrome,Vlc media player

=>Utility software:Windows restore,task manager

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

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

=>Types of application software:

*Microsoft word

*Google

*Microsoft Excel

*My sql

=>Improve productivity advantage:

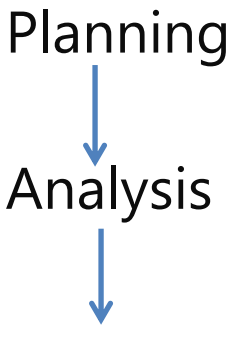
*Document creation and editing

*Collaboration and sharing

*Complex data calculation

*Data security and integrity

17) Create a flowchat representing the software Development life cycle(SDLC).



Implementation/Development

Testing

Devlopnment

Maintenance

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

=>Library management system in add,update delete and search for books.

=>Register and manage library members.

=>Track book loans and returns.

=>Simple reports on borrowing Activities.

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

=>User login/log out.

=>Product management/serch

=>Checkout process

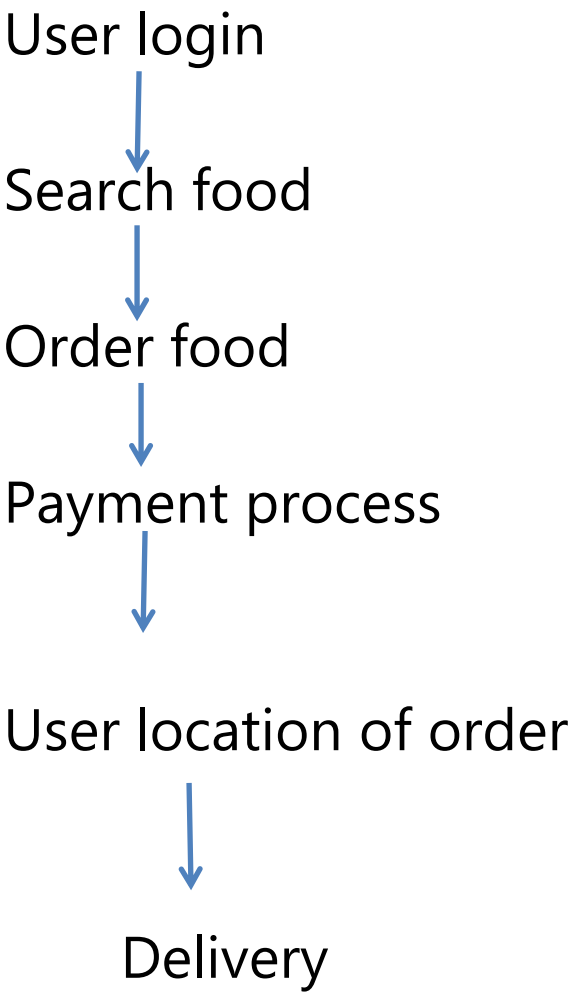
=>Order management

=> Payment process

=>Account management

=>Customer support

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



21)Develop test cases for a simple calculator program.

```
#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 critical maintenance.

23) Create a DFD for a hospital management system.

=>(Patient)->->->

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-->(Hospital management system)<--<-<--
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>>>>>(Admin)---->---->--->--->(Pharmacy)--->(lab)<-

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

=>A simple desktop calculator application can be built using a GUI library like Tkinter in Python. The process involves creating a window, adding an entry field for display, and buttons for numbers and operations.

Steps to build a simple calculator with Tkinter:

=>**Import Tkinter:** Begin by importing the necessary modules from Tkinter.