Assignment – 1

Module 1 –Overview of IT Industry

Q1. :Write a simple "Hello World" program in two different programming languages of your choice. Compare the structure and syntax.

Ans:-

- ***C:- #include <stdio.h>***

```
int main() {
  printf("Hello, World!\n");
   return 0;
}
```

- ***Python:- print("Hello, World!")***

Q2. Research and create a diagram of how data is transmitted from a client to a server over the internet.

Ans:-

[Client] ----------→[DNS Server] --> Finds IP address

Q3. Design a simple HTTP client-server communication in any language.

Ans:-

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

Ans:-

Type	Pros	Cons	speed
Broadband	Common and widely available Always connected	Slower than fiber Speed can drop during peak hours	Medium-high
Fiber	Very fast internet Reliable	Not available everywhere	Medium
Satellite	No cables needed	Weather can affect it Slower and more costly	Low-medium
Mobile network	Fast with 5G	Not always strong signal	High-medium

- That's all are pros and cons different types of internet connections.

Q5. Simulate HTTP and FTP requests using command line tools (e.g., curl).

Ans:-

- The HTTP requests:-_

  https://www.filpkart.com

- The FTP requests:-

  Just replace to use values username , file txet //ftp.username.com

Q6. Identify and explain three common application security vulnerabilities. Suggest possible solutions.

Ans:- **1. Weak Passwords:**

In this the Applications like Instagram, Facebook, Gmail, etc. are used weak password means use simple passwords like 123456, which are easy to guess.

solution : use strong password like alphanumeric and and login via otp verification

Q7. Identify and classify 5 applications you use daily as either system software or application software.

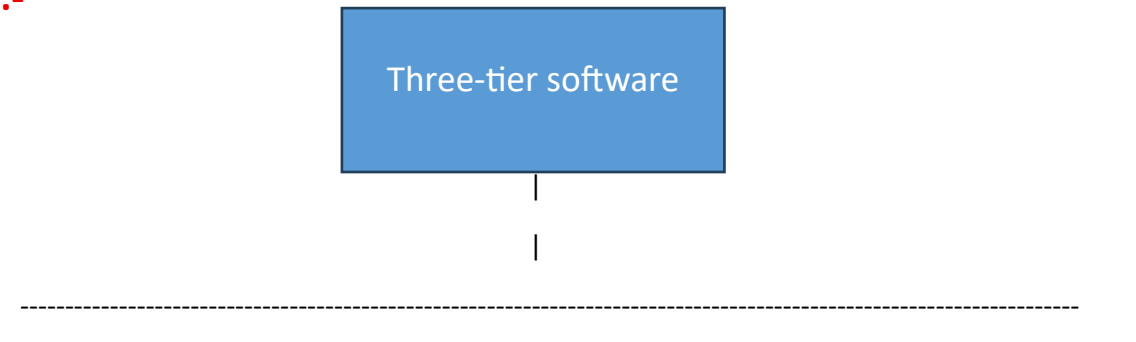
Ans:-

- **There are five type of applications of daily use to either system software & application software**

1. **. Spotify**
2. **Instagram**
3. **Whatsapp**
4. **Netflix**
5. **Microsoft word**

Q8. Design a basic three-tier software architecture diagram for a web application.

Ans:-



There are three type of three-tire software to architecture are use in diagram.

Q9. Create a case study on the functionality of the presentation, business logic, and data access layers of a given software system.

Ans:-

Study of Online Bookstore

1. **Presentation Layer (UI Layer)**
   - **. Shows books**
   - **. Lets user search, add to cart, buy**

   Technologies:-
   - **. HTML, CSS, JavaScript**

2. **Business Logic Layer**
   - **. Checks stock**
   - **. Calculates price**
   - **. Handles login, payment**

   Technologies:-
   - **. Python, Java, Node.js**

3. **Data Access Layer**
   - **. Saves orders**
   - **. Gets book/user data**
   - **.Updates inventory**

   Technologies:-
   - **. MySQL, MongoDB**

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

Ans:- **1. Development Environment**

- writing and build code

Example:- VS Code, Node.js, Local Servers.

2. Testing Environment

- testing the app (bugs,performance)
- Use manual and automated testing

3. Production Environment

- The live system used by real users.

Q.11 : Write and upload your first source code file to GitHub.

Ans:-

➢ **Create a github Account**

https://github.com **and sing up**

➢ **Create a New Repository**

Click "New"------Name of repo.--------- Click "Create repository".

Write Code

Example: Create a file hello.c .

Initialize Git

git init

git add .

git commit -m "First commit"

Connect to GitHub Repository

Push Your Code

git push -u origin master

```
#include<stdio.h>
int main()
{
        printf("Hello guys");
        printf("\n");
        return 0;
}
```

Q.12 : Create a GitHub repository and document how to commit and push code changes.

Ans:- I don’t know that

Q.13 : Create a student account on GitHub and collaborate on a small project with a classmate.

Ans:- Already done it .

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

Ans:- 1. System Software

Device Drivers : Hardware communication

2. Application Software

VLC Media Player : Playing videos

3. Utility Software

Backup Software : Data backup

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

Ans:- **I don’t know that**

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

Ans:-

- **Graphics software**
- **Multimedia**
- **Education software**
- **Mange the data of a software.**
- **Make to easy to use.**
- **Make changes to work fast.**
- **Spreadsheet**
- **Web browser**

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

Ans:-

Planning

Analysis

Implementation/development

Testing

Deployment

Maintenance

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

Ans:- • **User registration system , Simple search option for book by it's title or author , Issue & return function , Book details management system.**

Q19. Perform a functional analysis for an online shopping system.

Ans:- **1. User Functions**

Register/Login

View Product Details

Add to Cart / Remove from Cart

Place Orders

Make Payments

Track Orders

Leave Reviews / Ratings

2. System Functions

Shopping Cart Management

Order Management

Payment Gateway Integration

Email Notifications

Search and Filter Products

3. Functional Flow Example

User logs in

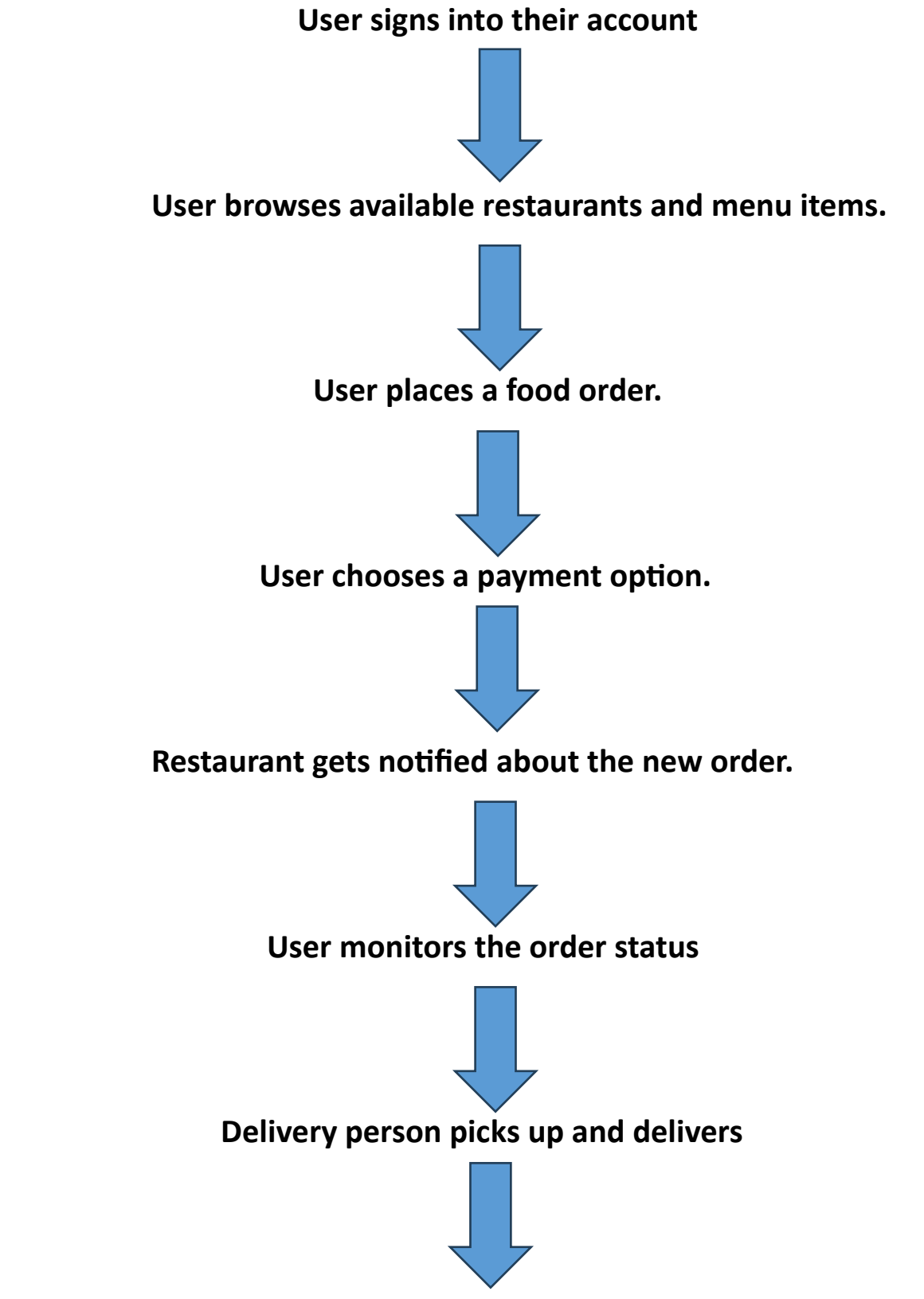
Searches for a product

Adds product to cart

Proceeds to checkout

Q20. Design a basic system architecture for a food delivery app.

Ans:-



Q.21: Develop test cases for a simple calculator program.

Ans:-

```
#include<stdio.h>
int main()
{
        char ch='%',choice;
        int num1,num2;
        up :
        printf("\nEnter the value of num1 = ");
        scanf("%d",&num1);
        printf("\nEnter the value of num2 = ");
        scanf("%d",&num2);

        printf("\nPress '+' for addition");
        printf("\nPress '-' for subtraction");
        printf("\nPress '*' for multiplication");
        printf("\nPress '/' for division");
        printf("\nPress '%c' for remainder",ch);
        printf("\nEnter the choice = ");
        scanf(" %c",&choice);

        switch(choice)
        {
            case '+':
```

```
                    printf("\nThe addition of %d and %d is =
%d",num1,num2,num1+num2);
                    break;
                    case '-':
                        printf("\nThe subtraction of %d and %d
is = %d",num1,num2,num1-num2);
                    break;
                    case '*':
                        printf("\nThe multiplication of %d and
%d is = %d",num1,num2,num1*num2);
                    break;
                    case '/':
                        printf("\nThe division of %d and %d is =
%.2f",num1,num2,(float)num1/num2);
                    break;
                    case '%':
                        printf("\nThe remainder of %d and %d is
= %d",num1,num2,num1%num2);
                    break;
                }
                printf("\nPress 'Y' to continue or 'N' to exit = ");
                scanf(" %c",&choice);
                if(choice=='y' || choice=='Y')
                {
                    goto up;
```

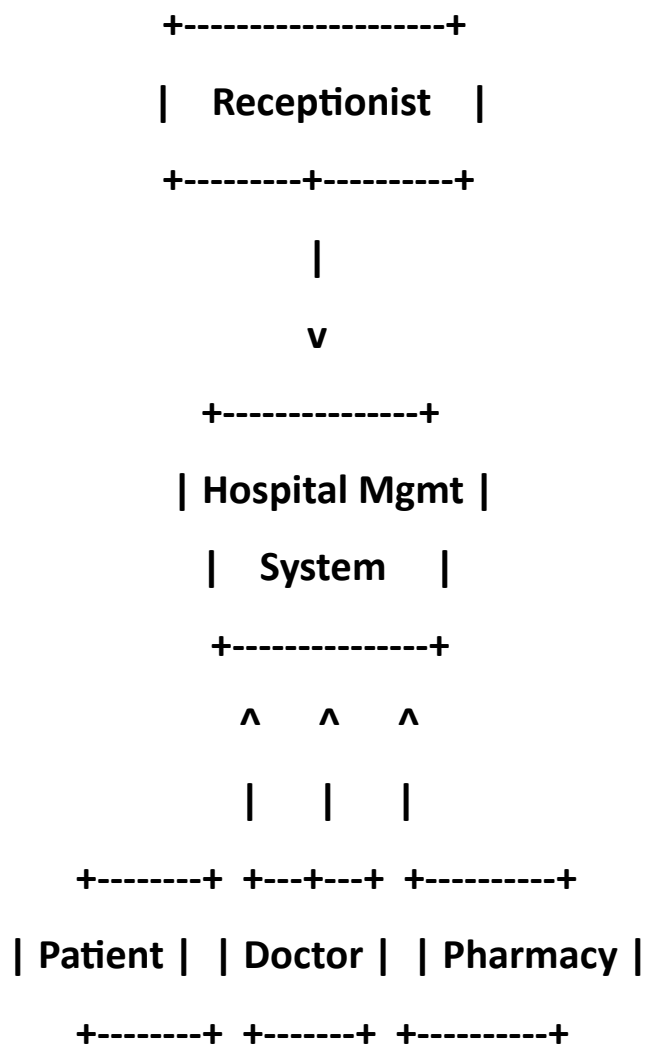
```
    }
    return 0;
}
```

Q.22: Document a real-world case where a software application required critical maintenance.

Ans:- I don't know that

Q.23: Create a DFD for a hospital management system.

Ans:-



Q.24: Build a simple desktop calculator application using a GUI library.

Ans:- I don’t know that.

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

Ans:-