

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

**Ans:**

**C Code:**

```
#include<stdio.h>
#include<conio.h>
void main(){
    printf("Hello World");
}
```

**Python Code:**

```
print("Hello World");
```

**2. Explain in your own words what a program is and how it functions.**

**Ans:**

Program Is A Set Of Instruction To Perform Specific Task.

**3. What is Programming?**

**Ans:**

Programming It Means To Write Code And Do Something;

**4. What are the key steps involved in the programming process?**

**Ans:**

Get Definition  
Requirement Gathering  
Design  
Implementation

**5. Types of Programming Languages**

**Ans:**

There Are Two Types Of Programming Languages:

1. Procedural Programming Language
2. Functional Programming Language
3. Object-Oriented Programming Language
4. Scripting programming Language
5. Logic Programming

**6. What are the main differences between high-level and low-level programming languages?**

**Ans:**

1. High-Level:-in this human understandable form of writing,reading.
2. Low-Level:-in this in computer readable for only in (0 and 1's)

**7. World Wide Web & How Internet Works**

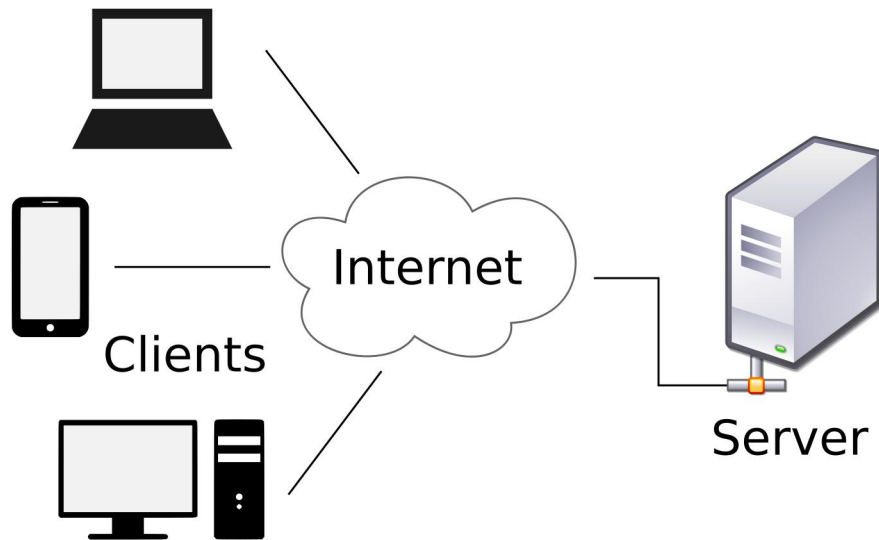
**Ans:**

World Wide Web is a collection of websites

A server which stores websites and give response as per user requirement, User Can request in internet for something and server returns as per the user's request

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

**Ans:**



**9.Describe the roles of the client and server in web communication**

**Ans:**

Client can request to server for something  
Server respond to as per client's request

**10.Network Layers on Client and Server**

**Ans:**

Network Layer Client Side:Routing Using IP Address  
Network Layer Server Side:reads IP address

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

**Ans:**

**12. Explain the function of the TCP/IP model and its layers.**

**Ans:**

TCP/IP:Transmission Control Protocol Reliable Data Transfer

**13.Client and Servers**

**Ans:**

**14.Explain Client Server Communication**

**Ans:**

Client Sends Request To server And Get Response From Server As Per The Request

**15.Types of Internet Connections**

**Ans:**

Wired Internet  
Wirless Internet

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

**Ans:**

Broadband Internet:Fast,  
Fiber Optic Internet:Highly reliable and stable  
Satellite:Available almost everywhere

**17.How does broadband differ from fiber-optic internet?**

**Ans:**

Broad band Speed is 10Mbps to 200Mbps

Fiber Speed is 100Mbps to 10Gbps

**18.Protocols**

**Ans:**

Protocols It Means Set Of Rules

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

**Ans:**

HTTP:Hyper Text Transfer Protocol

FTP:File Transfer Protocol

**20.What are the differences between HTTP and HTTPS protocols?**

**Ans:**

HTTP:Hyper Text Transfer Protocol Is Not Secure

HTTPS:Hyper Text Transfer Protocol Is Secure

**21.Application Security**

**Ans:**

Application Security It Means Securing Application From Cyber Attacks

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

**Ans:**

Check The Credentials

Check Login ID And Password Are Authentic Or Not

**23.What is the role of encryption in securing applications?**

**Ans:**

Encryption It Means Encrypting data it means change original text into some other format

Techniques of encryption is caesar cipher

**24.Software Applications and Its Types**

**Ans:**

System Software

Application Software

General Purpose Application Software

Custom Software

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

**Ans:**

Visual Studio Code

Whatsapp

Instagram

Snapchat

Microsoft Word

Microsoft Excel

**26.What is the difference between system software and application software?**

**Ans:**

System Software It Means Default Downloaded In Our System

Application Software It Means We Can Download it from either play store or app store

**27. Software Architecture****Ans:**

Software Architecture is Blue print of building software

**28. Design a basic three-tier software architecture diagram for a web application.****Ans:****29. What is the significance of modularity in software architecture?****Ans:**

1. Presentation Layer:-What We View On Screen
2. Application Layer:-Handles Main Programs
3. Business Layer:-Actual Logic Of Application
4. Persistence Layer:-Data Access Layer
5. Database Layer:-System Stores All Data

**30. Layers in Software Architecture****Ans:**

6. Presentation Layer
7. Application Layer
8. Business Layer
9. Persistence Layer
10. Database Layer

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

Presentation Layer:Displays Data

Business Layer:Logic of application

Database Layer:Stores Data

**32. Why are layers important in software architecture?****Ans:**

Layers Are Important in Software Architecture to divide all things in separate parts.

**33. Software Environments****Ans:**

Staging Environment

Production Environment

This Environment shows Where Our Software is Running Now

**34. Explore different types of software environments (development, testing, production). Set up a basic environment in a virtual machine.****Ans:****35. Explain the importance of a development environment in software production.****Ans:**

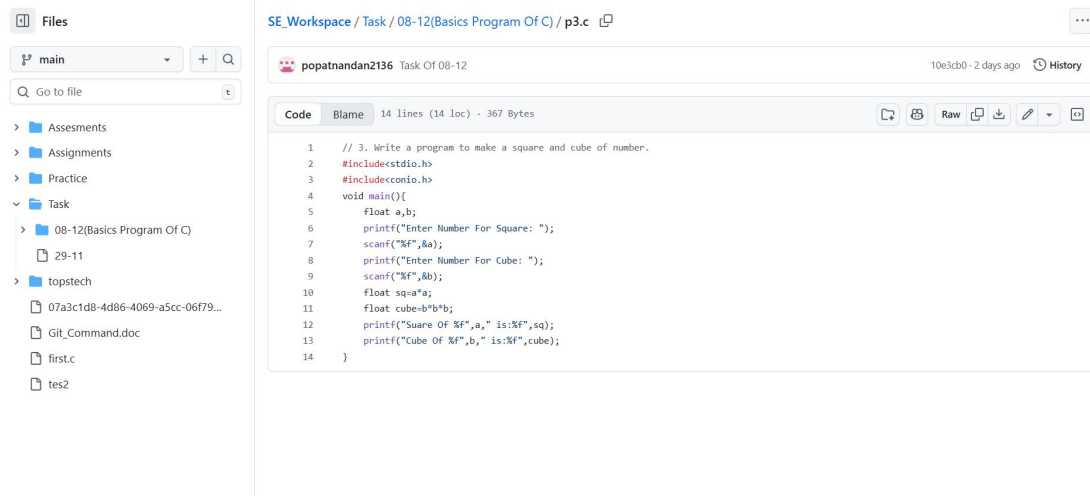
In Deployment Environment all things get make sure that code is running properly, test the software.

**36. Source Code****Ans:**

Code Of Software

### 37. Write and upload your first source code file to Github.

**Ans:**



### 38. What is the difference between source code and machine code?

**Ans:**

Source Code Is Written By Programmer

Machine Code Is Written By Computer For Example .class File in java

### 39. Github and Introductions

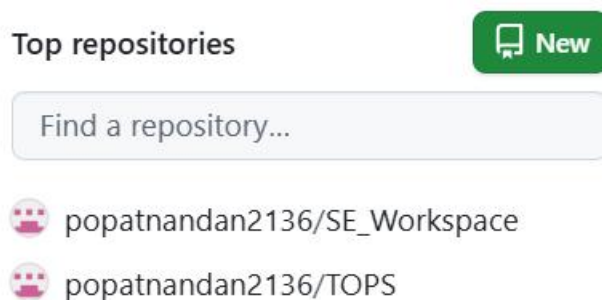
**Ans:**

Github Is Used For Storing, Sharing and managing code between multiple programmers who working on same Project

### 40. Create a Github repository and document how to commit and push code changes

**Ans:**

Done Created



### 41. Why is version control important in software development?

**Ans:**

Version Control Is Impotant Beacause Provide New User Expireiance

### 42. Student Account in Github

**Ans:**

Done

### 43. Create a student account on Github and collaborate on a small project with a classmate.

**Ans:**

Done

**44.What are the benefits of using Github for students?**

**Ans:**

Easy To Share Code And in Group Project Easy To Work as Group

**45.Types of Software**

**Ans:**

System Software

Application Software

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

**Ans:**

System Software:Windows,Android OS,Mac OS,IOS

Application Software:Visual Studio Code,Whatsapp,Instagram

**47.What are the differences between open-source and proprietary software?**

**Ans:**

Open Source Software are available free for use

Proprietary Software are which created by any company for their company use

**48.GIT and GITHUB Training**

**Ans:**

Done

**49.Follow a GIT tutorial to practice cloning, branching, and merging repositories.**

**Ans:**

Done

**50.How does GIT improve collaboration in a software development team?**

**Ans:**

GIT improve collaboration in a software development team By Allowing Team To Share Code With Whole Team

**51.Application Software**

**Ans:**

Visual Studio Code

Whatsapp

Instagram

Snapchat

Microsoft Word

Microsoft Excel

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

**Ans:**

Word:-by providing effective templates

**53.: What is the role of application software in businesses?**

**Ans:**

To make business easier

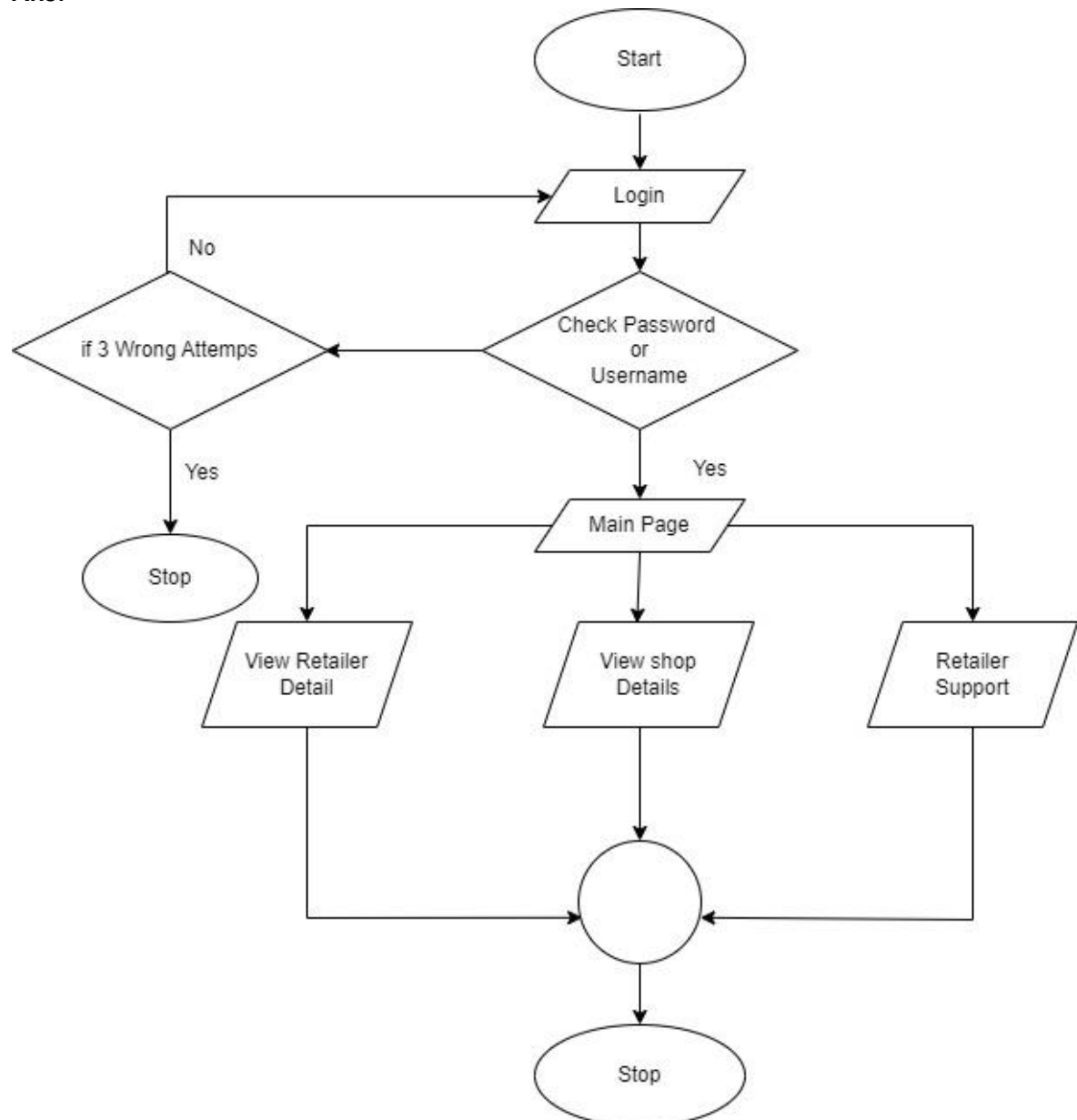
#### 54. Software Development Process

Ans:

1. Presentation
2. Application
3. Business
4. Persistence
5. Database

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

Ans:



#### 56. What are the main stages of the software development process?

Ans:

1. Requirement Analysis
2. System Design
3. Implementation (Coding)
4. Testing
5. Deployment

## 6. Maintenance

### 57. Software Requirement

**Ans:**

In Software Requirement what are features we have to get in Our App

### 58. Write a requirement specification for a simple library management system.

**Ans:**

Librarian:

Add new book as available

View available books

Student:

Get Book

View Book List

### 59. Why is the requirement analysis phase critical in software development?

**Ans:**

Because We Have Must Know That What We Have To Add In Our Software In Future

### 60. Software Analysis

**Ans:**

In This We Have To Analysis Software What are Specification Added.

### 61. Perform a functional analysis for an online shopping system.

**Ans:**

User Type:

1. Customer/Buyer

2. Admin

User Management

Payment Handling

### 61.: What is the role of software analysis in the development process?

**Ans:**

Understand User Requirements

Define Functional and Non-Functional Requirements

Reduce Development Errors

### 62. System Design

**Ans:**

Designing System

### 63. Design a basic system architecture for a food delivery app.

**Ans:**

Mobile/App

Application Layer:

Authentication

Database Layer:

Users

Restaurant

External Services:

Payment Gateway

**64.What are the key elements of system design?**

**Ans:**

1. Data Design
2. Interface Design
3. Module Design
4. Security Design
5. Performance Design

**65.Software Testing**

**Ans:**

Test The Software In All Ways And Then Deploy It

**66.Develop test cases for a simple calculator program.**

**Ans:**

Calculator Test Case:

Check All Buttons Working Properly Or Not

Then Check All Operations

**67.Why is software testing important?**

**Ans:**

Software Testing Is Important Because To Check Software Is Running Properly Or Not

**68.Maintenance**

**Ans:**

After Deployment Get Updates In Application That Cost Called As Maintenance

**69.Document a real-world case where a software application required critical maintenance.**

**Ans:**

Server Cost Is Called As Maintenance

1. Corrective Maintenance
2. Adaptive Maintenance
3. Perfective Maintenance

**70.What types of software maintenance are there?**

**Ans:**

4. Corrective Maintenance
5. Adaptive Maintenance
6. Perfective Maintenance

**71.Development**

**Ans:**

Deploying Product

**72.What are the key differences between web and desktop applications?**

**Ans:**

Web It Means Live On Browser Directly

Web App Means We Can Install It In Our Desktop Or PC Web App With .exe Format

**73.Web Application**

**Ans:**

Web Application Example is Social Media Apps In Desktop Or PC

**74.What are the advantages of using web applications over desktop applications?**

**Ans:**

Web app run in browser

**75.Designing**

**Ans:**

Designing It Means That We Can Design

**76.: Whatrole does UI/UX design play in application development?**

**Ans:**

Predifne Design Idea It Mans How Application or Website is Look Like After Proper Development

**77.Mobile Application**

**Ans:**

Instagram

Whatsapp

Snapchat

**78.What are the differences between native and hybrid mobile apps?**

**Ans:**

Native Apps:- Created Only For Specific OS For Example Android Or IOS

Hybrid Apps:- Are Created For All OS In One Technology

**79.DFD (Data Flow Diagram)**

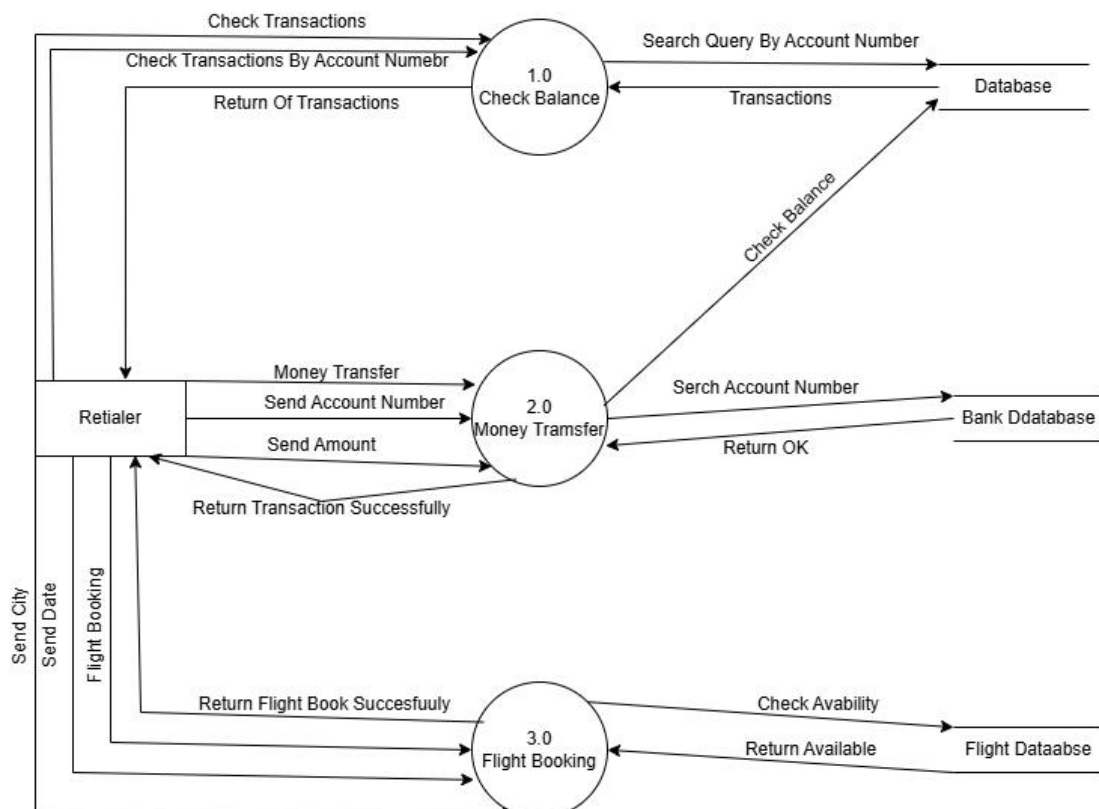
**Ans:**

DFD (Data Flow Diagram) Shows The Flow Of Diagram

**80.Create a DFD for a hospital managementsystem.**

**Ans:**

**Created For Money Transfer**



**81.What is the significance of DFDs in system analysis?**

**Ans:**

It Shows The Flow Of a System Of System Will Work

**82.Desktop Application**

**Ans:**

1. Microsoft Word
2. Excel
3. Visual Studio Code
4. Any ERP System
5. VLC Media Player

**83.Build a simple desktop calculator application using a GUI library.**

**Ans:**

**84.What are the pros and cons of desktop applications compared to web applications?**

**Ans:**

Desktop Application We Can Easily run in our Desktop Or PC  
And Is Difficult To Update It And It Occupy Memory Locally In Our Storage

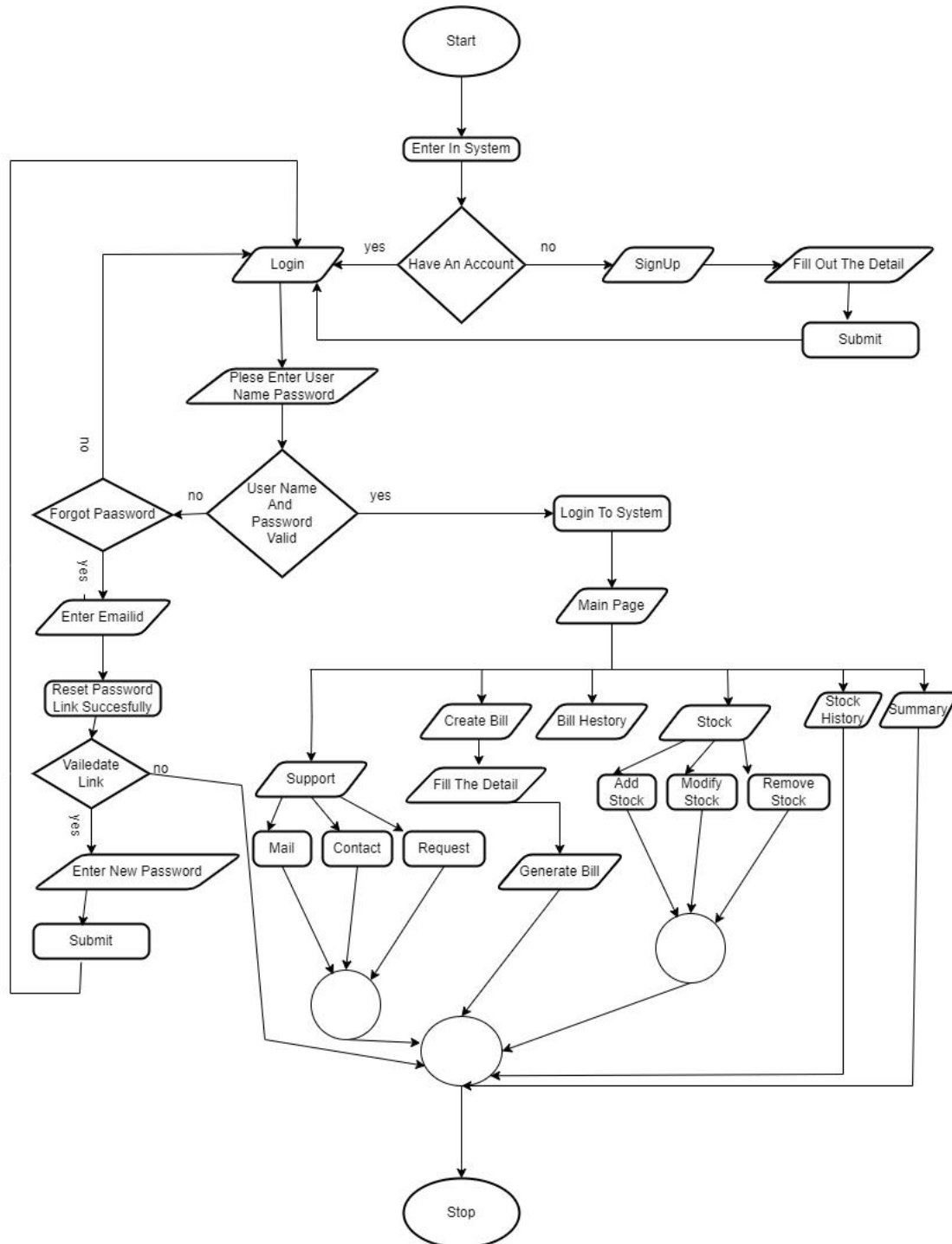
**85.Flow Chart**

**Ans:**

Shows Flow Of System

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

Ans:



87. How do flowcharts help in programming and system design?

Ans:

It Help By Providing Conditions How Conditions Are Work