1.(LAB ex.)

    1.   In python.

print("Hello, World!")

2. in c lan.

#include <stdio.h>

void main()

{

printf("Hello, World!");

getch();

}

2. What is a Program?

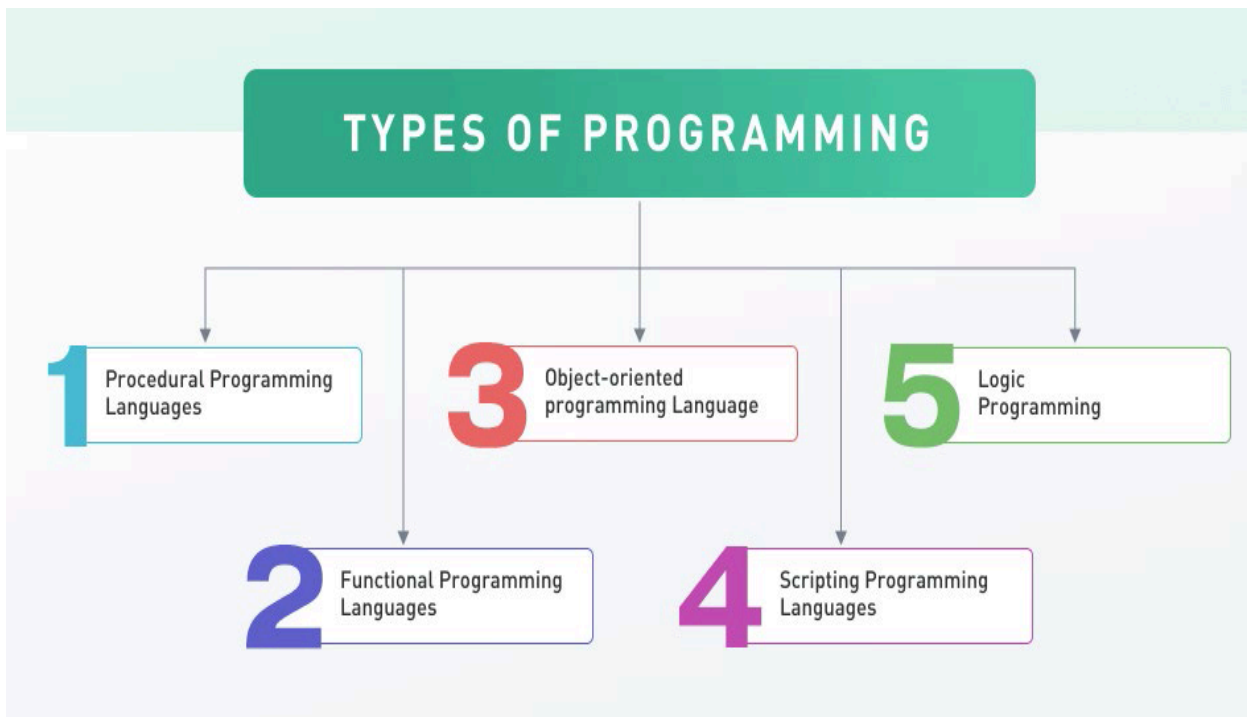ans. program is nothing but a set of instuctions to com.

->program convert our human language tocomputer language.

->programming = creat a program

3.What are the key steps involved in the programming process?

Ans. **understanding → planning → coding → testing → documenting → deploying → maintaining**.

Types of pro. Lan.

TYPES OF PROGRAMMING

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

4 : What are the main differences between high-level and low-level programming languages?
World Wide Web & How Internet Works

ANS. High-level = like talking to a human

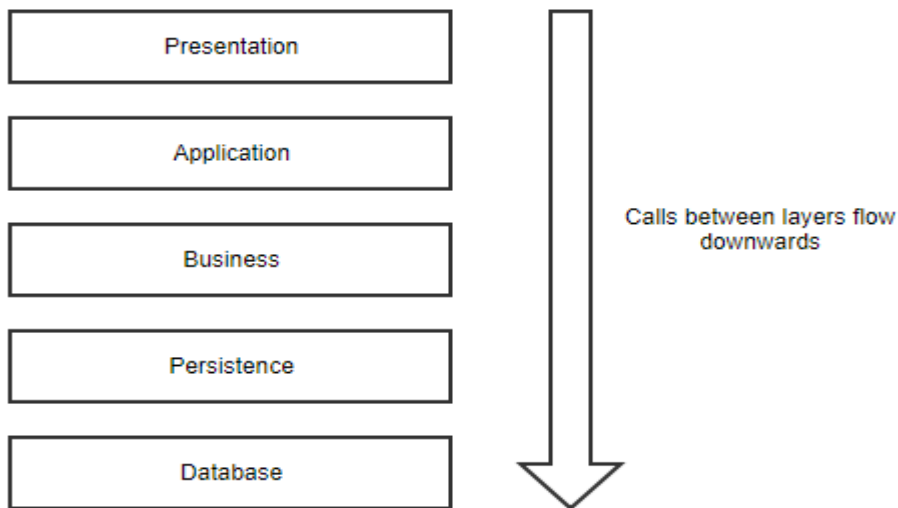**Low-level = like talking directly to a computer's brain**

Internet woks:

->The Internet is a huge network of computers connected globally.
It's like a giant transportation system for data.

The Internet includes:

- **Cables & WiFi networks**

- **Servers & routers**

- **Protocols (rules for communication)**

- **Devices like phones, laptops, computers**

Abot WWW :- The World Wide Web is the collection of websites and web pages you can access through the internet.

```
┌─────────────────────────┐
│      Presentation       │
└─────────────────────────┘

┌─────────────────────────┐
│      Application        │
└─────────────────────────┘                    Calls between layers flow
                                                      downwards
┌─────────────────────────┐
│       Business          │
└─────────────────────────┘

┌─────────────────────────┐
│      Persistence        │
└─────────────────────────┘

┌─────────────────────────┐
│       Database          │
└─────────────────────────┘
```
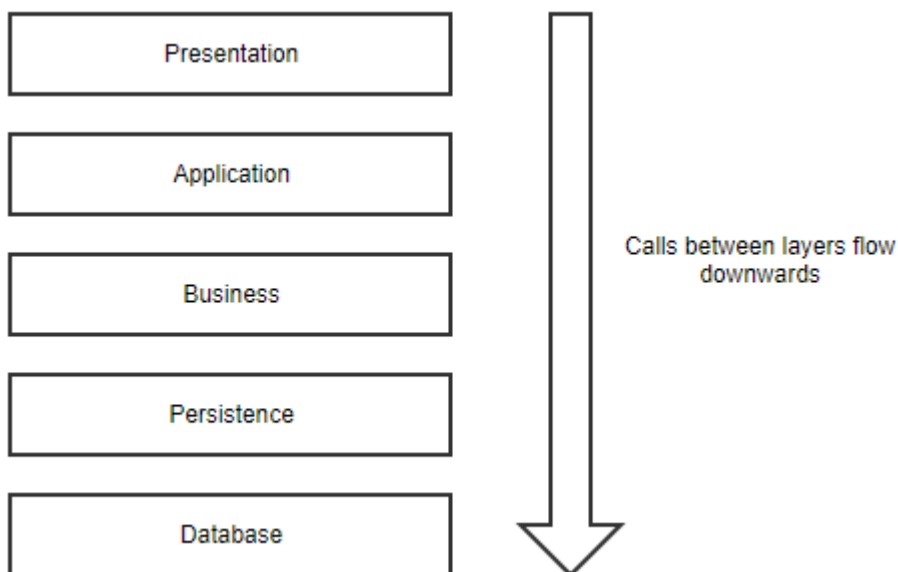
5: Describe the roles of the client and server in web communication.
Client (Browser) → sends request → Server
Server → processes request → sends response → Client

6.ans

```
┌─────────────────────────┐
│      Presentation       │
└─────────────────────────┘

┌─────────────────────────┐
│      Application        │
└─────────────────────────┘                    Calls between layers flow
                                                      downwards
┌─────────────────────────┐
│       Business          │
└─────────────────────────┘

┌─────────────────────────┐
│      Persistence        │
└─────────────────────────┘

┌─────────────────────────┐
│       Database          │
└─────────────────────────┘
```

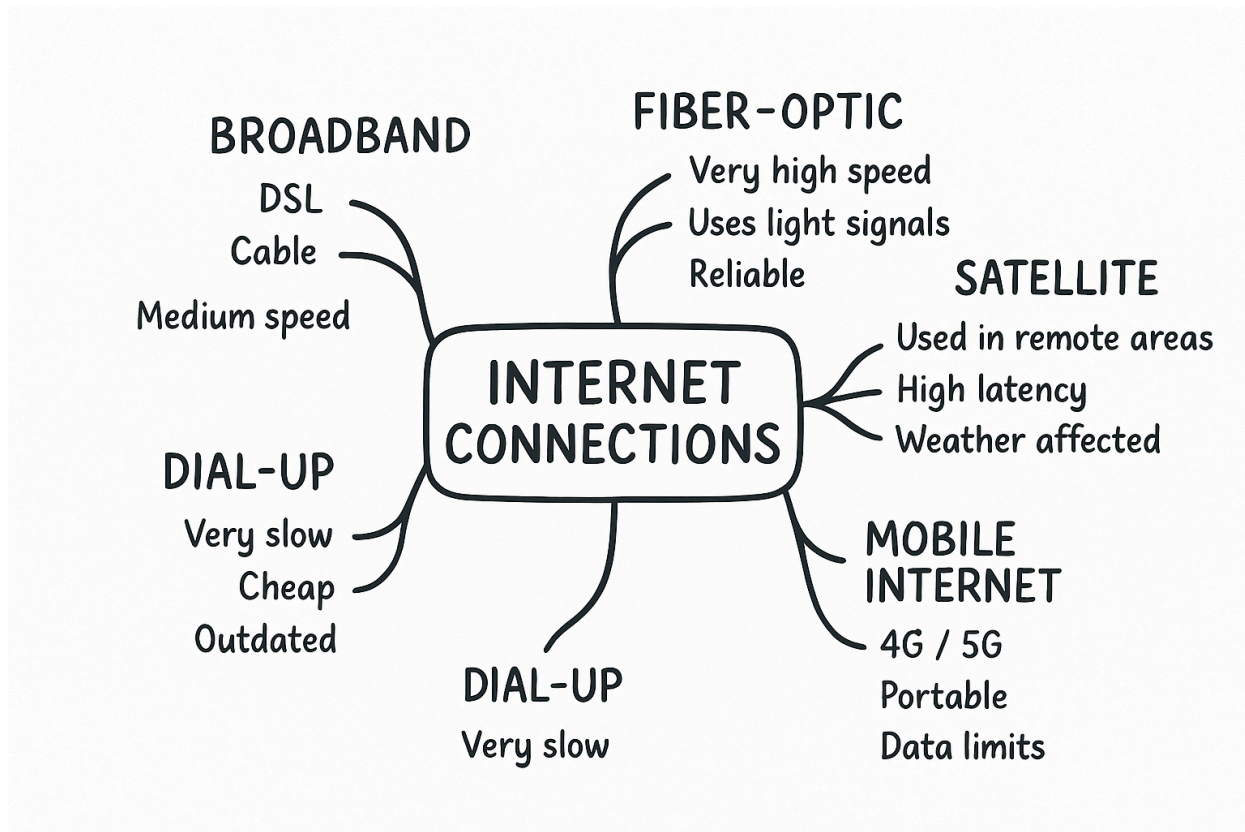8.Explain the function of the TCP/IP model and its layers.
-.Application → Transport → Internet → Network Access → Physical Network

9.types of internet connections.

There are mainly 3 types of internet connection
1 is the wired internet connection , 2nd is wireless internet connection& the 3rd id broadband
internet connection

10. Pros and cons of internet connection

11. Difference between broadband conn. & fiber optic conn.
Ans. **Broadband** is cheaper and widely available but slower.

Fiber-optic is faster and more reliable but costs more.

12. What are the differences between HTTP and HTTPS protocols?

Https certified websites are more secure then http certified websites cause.

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

Ans…

Vulnerability	Cause	Solution
QL Injection	nsanitized input	arameterized queries
SS	nvalidated scripts	put validation & CSP
roken Authentication	'eak login security	trong passwords & MFA

14. What is the role of encryption in securing applications?

ans…Encryption plays a vital role in application security by protecting data confidentiality, integrity, and authenticity during storage and transmission.

15. Identify and classify 5 applications you use daily as either system software .

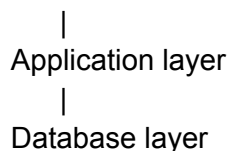Ans… **System Software**: Controls hardware and provides a platform (e.g., Operating System).

Application Software: Helps users perform specific tasks.

16.what are diff between application software and system software.
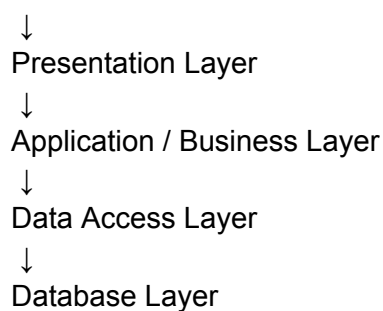Ans… application software only run for the and the system software runs for whole device or system

17. Design a basic three-tiersoftware architecture diagram for a web application.
Ans… designing layer
             |
        Application layer
             |
        Database layer
18.Layers in Software Architecture

Ans… User
↓
Presentation Layer
↓
Application / Business Layer
↓
Data Access Layer
↓
Database Layer

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

Ans… An **Online Shopping System** uses a **layered software architecture** to divide responsibilities and improve efficiency.

  Presentation Layer:
   This is the user interface of the system. It displays products, collects user inputs (login, search, order details), and shows order confirmations or errors.

  Business Logic Layer:
   This layer processes user requests and applies business rules. It validates users, calculates prices and discounts, checks product availability, and processes orders and payments.

Data Access Layer:
This layer communicates with the database. It retrieves product information, stores user and order data, and updates inventory after purchases.

20. Why are layers important in software architecture?

Ans… Layered architecture makes software **organized, secure, maintainable, and scalable**—which is why it is widely used in modern applications.

21.Explore different types of software environments.

Ans'... A **software environment** is the setting in which software is developed, tested, deployed, and used. Different environments serve different purposes in the software lifecycle.

22.: Explain the importance of a development environment in software production. Source Code.

Ans… **Why Software Environments Matter**

- Improve software quality

- Reduce errors

- Ensure smooth deployment

- Support collaboration

23.What is the difference between source code and machine code?

Ans.. **Source code** is written by humans.

Machine code is what the computer actually runs.

24. Why is version control important in software development?

ansVersion control improves **teamwork, code safety, and software quality**, making it essential in modern software development.

25.What are the benefits of using Github for students?

Ans… GitHub helps students **learn, collaborate, and build a strong coding profile**.

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

Ans…

Category	Examples
System Software	Windows, Android, Device Drivers
Application Software	Chrome, Word, WhatsApp, Zoom
Utility Software	Antivirus, Disk Cleanup, Backup Tools

27.: What are the differences between open-source and proprietary software?

Ans. Open-source software promotes **freedom and collaboration**, while proprietary software focuses on **control and commercial use**.

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

ans. GitHub helps students **learn, collaborate, and build a strong coding profile.**

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

Ans. Application software helps businesses perform specific tasks efficiently and supports day-to-day operations, decision-making, and growth.

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

```
┌─────────────────────┐
│  Requirement    │
│  Analysis       │
└─────────┬───────────┘

         ↓

┌─────────────────────┐
│   System        │
│   Design        │
└─────────┬───────────┘
```

```
           ↓
┌─────────────────────────┐
│  Implementation   │     │
│  (Coding)         │     │
└─────────────┬───────────┘
           ↓
┌─────────────────────────┐
│     Testing       │     │
└─────────────┬───────────┘
           ↓
┌─────────────────────────┐
│   Deployment      │     │
└─────────────┬───────────┘
```
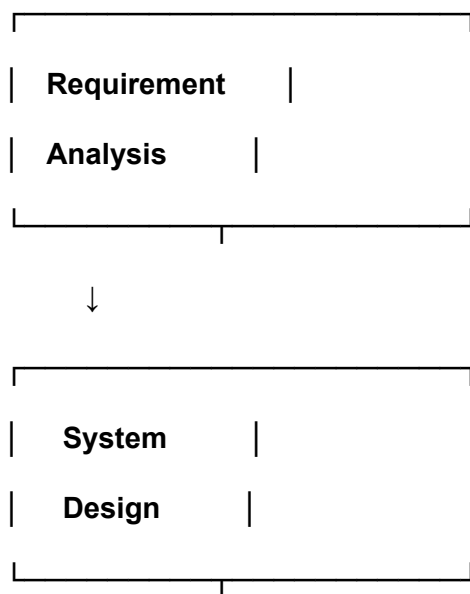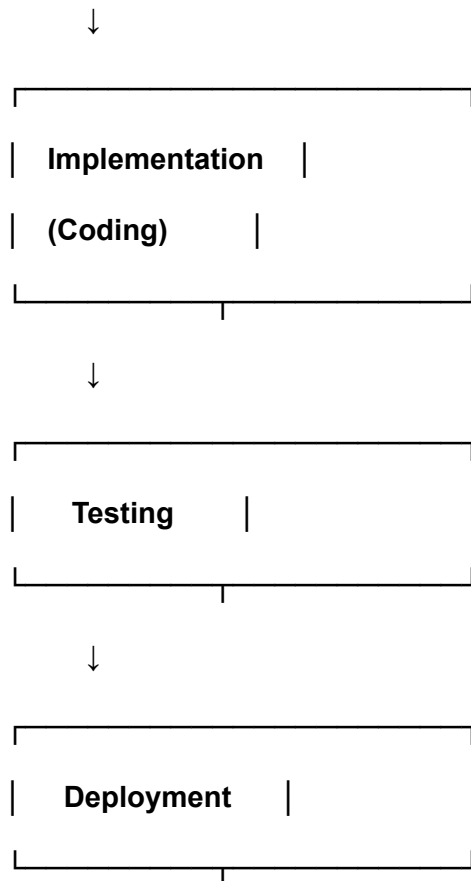
31. What are the main stages of the software development process?

ans.The software development process moves from planning → building → testing → releasing → maintaining the software.

32.

Ans… Below is a simple, clear Requirement Specification for a Library Management System, suitable for school/college assistant

33. Write a requirementspecification for a simple library management system

1. Introduction

The Library Management System is designed to manage library operations such as book records, member details, and issue/return of books. The system aims to reduce manual work and improve efficiency.

---

2. Objectives

- **To maintain records of books and members**
- **To automate book issue and return**
- **To track availability of books**

- **To generate basic reports**

3. Functional Requirements

The system shall be able to:

1. **Book Management**
   - **Add new books**
   - **Update book details**
   - **Delete book records**
   - **Search books by title, author, or ID**
2. **Member Management**
   - **Register new members**
   - **Update member details**
   - **Delete member records**
3. **Issue and Return**
   - **Issue books to members**
   - **Return books**
   - **Calculate due dates**
4. **Reports**
   - **Display available books**
   - **Display issued books**
   - **Show member borrowing history**

4. Non-Functional Requirements

- **The system should be easy to use**
- **The system should respond quickly**
- **Data should be stored securely**
- **The system should be reliable and accurate**

5. Hardware Requirements

- **Computer or laptop**
- **Keyboard and mouse**

6. Software Requirements

- **Operating System: Windows / Linux**
- **Database: MySQL (or any simple database)**
- **Programming Language: Java / Python / C++**

7. Users of the System

- **Librarian: Manages books and members**
- **Members: Search and borrow books**

8. Conclusion

The Library Management System will make library operations efficient, accurate, and organized, reducing paperwork and saving time.

—---

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

Software analysis ensures that the system is well-understood, feasible, and correctly designed, making it essential for effective system design and successful software development.

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

System Design

ans.System design focuses on architecture, data, interfaces, components, security, and performance to build a reliable and efficient software system.

36q.why is software testing is important.

36ans. Software testing helps deliver high-quality, secure, and reliable software, making it essential in the development process.

37.What types of software maintenance are there?

Ans.. there are 3 major types of maintenance

38. What role does UI/UX design play in application development?

Ans… UI/UX design ensures applications are user-friendly, efficient, and successful, making it a vital part of application development..

39.: What are the differences between native and hybrid mobile apps?

Ans.. native application is only for1 operating system and hybrid applications are for both operating system android and ios.

40.Create a DFD for a hospital management system.

Ans…

```
┌─────────────────┐
│    Patient      │
└─────────────────┘
         │ Patient Details / Requests
         ▼
┌───────────────────────┐
│ Hospital Management    │
│      System            │
└───────────────────────┘
         ▲
         │ Bills / Reports / Appointments
┌─────────────────┐
│  Doctor/Admin   │
└─────────────────┘
```
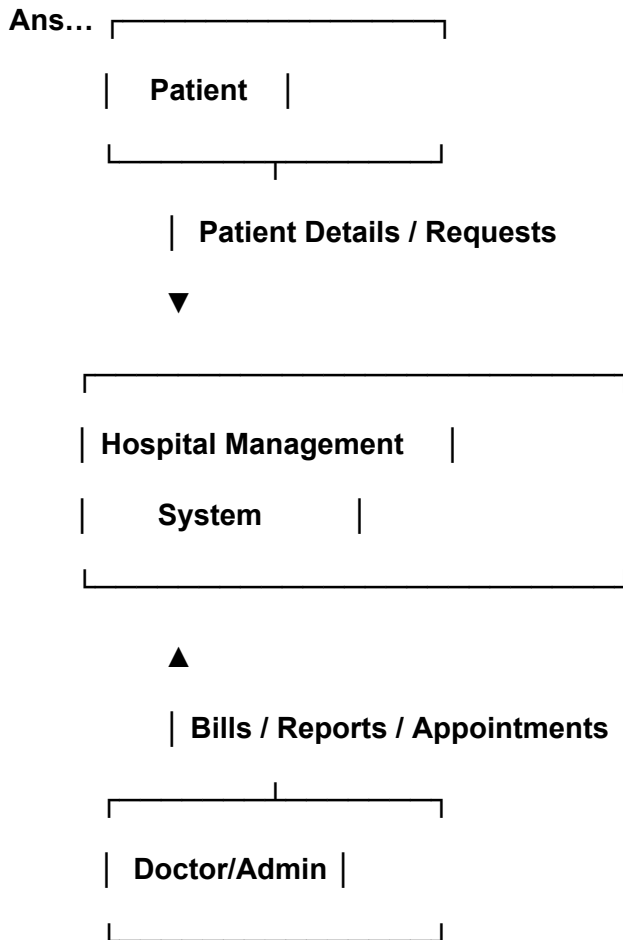
41. What is the significance of DFDs in system analysis?

Ans… DFDs are significant in system analysis because they provide a clear, logical, and visual representation of data flow, helping build accurate and efficient systems.

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

Ans… Desktop Applications – Pros:

- **Better performance**

- **Works offline**

- **Uses system resources efficiently**

Desktop Applications – Cons:

- **Requires installation**

- **Limited accessibility**

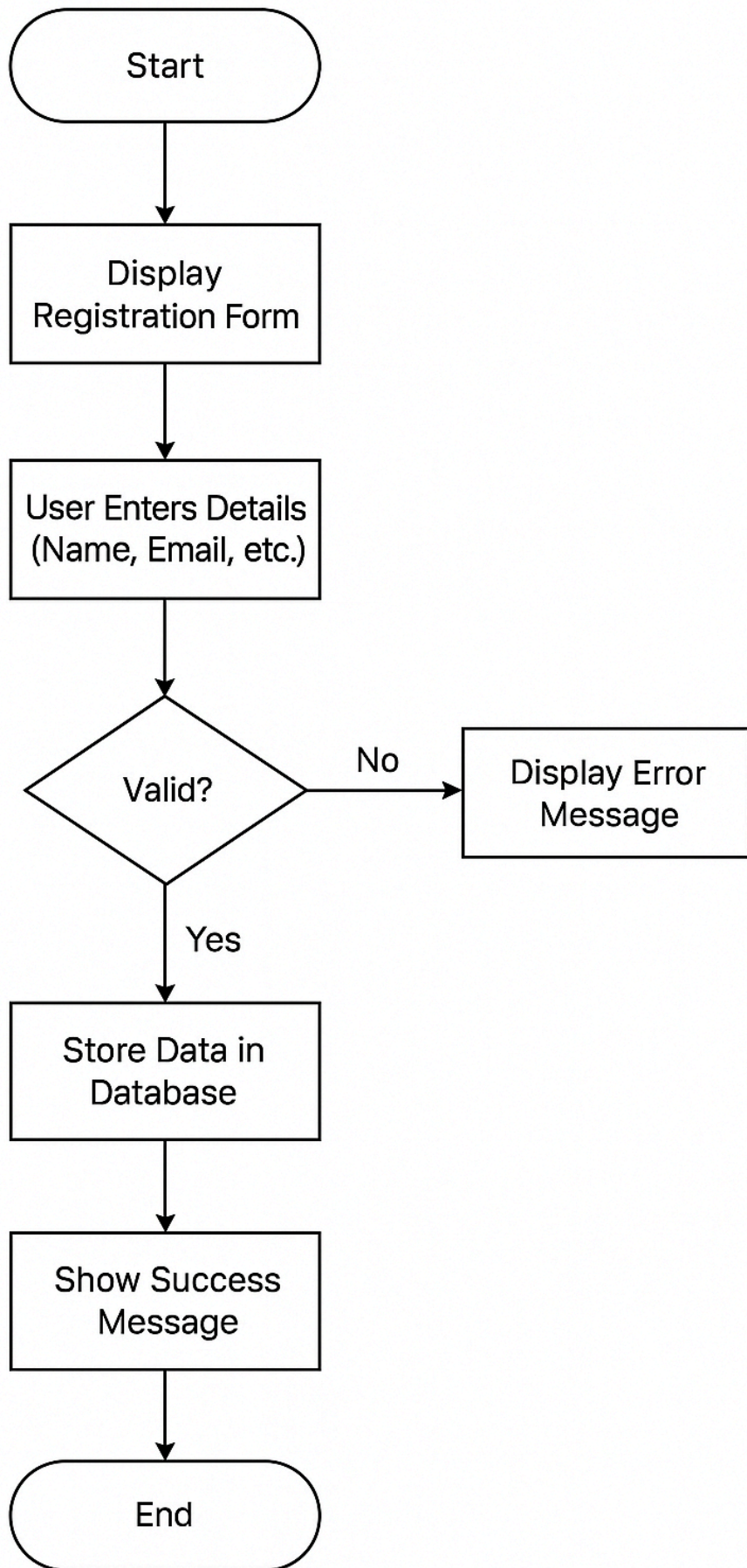- **Manual updates**

Web Applications – Pros:

- **Accessible anywhere**

- **No installation required**

- **Easy updates and maintenance**

Web Applications – Cons:

- **Needs internet connection**

- **Performance depends on network**

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

Ans

```
        ┌─────────────┐
        │    Start    │
        └─────────────┘
               │
               ▼
      ┌──────────────────┐
      │     Display      │
      │ Registration Form│
      └──────────────────┘
               │
               ▼
      ┌──────────────────┐
      │ User Enters Details│
      │ (Name, Email, etc.)│
      └──────────────────┘
               │
               ▼
            ◇ Valid? ◇ ──── No ───▶ ┌──────────────────┐
                                     │  Display Error   │
               │                     │     Message      │
              Yes                    └──────────────────┘
               │
               ▼
      ┌──────────────────┐
      │  Store Data in   │
      │    Database      │
      └──────────────────┘
               │
               ▼
      ┌──────────────────┐
      │  Show Success    │
      │     Message      │
      └──────────────────┘
               │
               ▼
        ┌─────────────┐
        │     End     │
        └─────────────┘
```

44.how do flowcharts help in programming and system design?

ans..Flowcharts help in designing clear, error-free, and well-organized programs and systems.

==
===

The End..