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

1. Broadband

Broadband is a common internet connection in cities. It uses a telephone line (DSL) or cable line to give internet access.

Pros:

- Widely available in urban areas
- Relatively stable connection
- Good for normal use like browsing, video streaming, and downloading

Cons:

- Speed is lower compared to fiber
- Connection can slow down if many users are active at the same time
- Not great for heavy gaming or high-speed tasks

2. Fiber Optic Internet

Fiber uses light to transfer data through thin glass cables. It's the fastest and most modern internet type.

Pros:

- Super fast speeds (good for gaming, HD streaming, online work)
- Very stable connection
- No signal loss over distance

Cons:

- Not available everywhere, especially in rural areas
- Slightly more expensive compared to other types
- Needs proper setup and installation
-

3. Mobile Data (4G/5G)

Internet from SIM cards in our phones. Also used in dongles or hotspots.

Pros:

- Easily accessible, portable
- Works anywhere with network coverage
- Good speed in 4G/5G areas

Cons:

- Data plans can be costly
- Speed depends on signal strength
- Gets affected during bad weather or in crowded places

4. Satellite Internet

Uses satellites to provide internet, mainly in remote and rural areas.

Pros:

- Works where no cable or fiber is available
- Useful in hilly areas or remote villages

Cons:

- High latency (delay in response)
- Slower speed and expensive
- Affected by rain and cloud

5. Wi-Fi via Public Hotspots

Internet provided in cafes, airports, or colleges through public Wi-Fi.

Pros:

- Free or low-cost
- No need for mobile data

Cons:

- Not secure (can be hacked easily)
- Speed is slow if many people are connected
- Not reliable for work or study

LAB EXERCISE: Identify and classify 5 applications you use daily as either system software
Or application software

Software	Type
Windows 10	System Software
Google Chrome	Application Software
MS Word	Application Software
VLC Media Player	Application Software
MAC OS	System Software
Linux	System Software

LAB EXERCISE: Create a list of software you use regularly and classify them into the Following categories: system, application, and utility software

System Software

Name	Description
Microsoft Windows 10/11	Operating System
Linux Ubuntu	Open-source OS
Device Drivers	Hardware management software

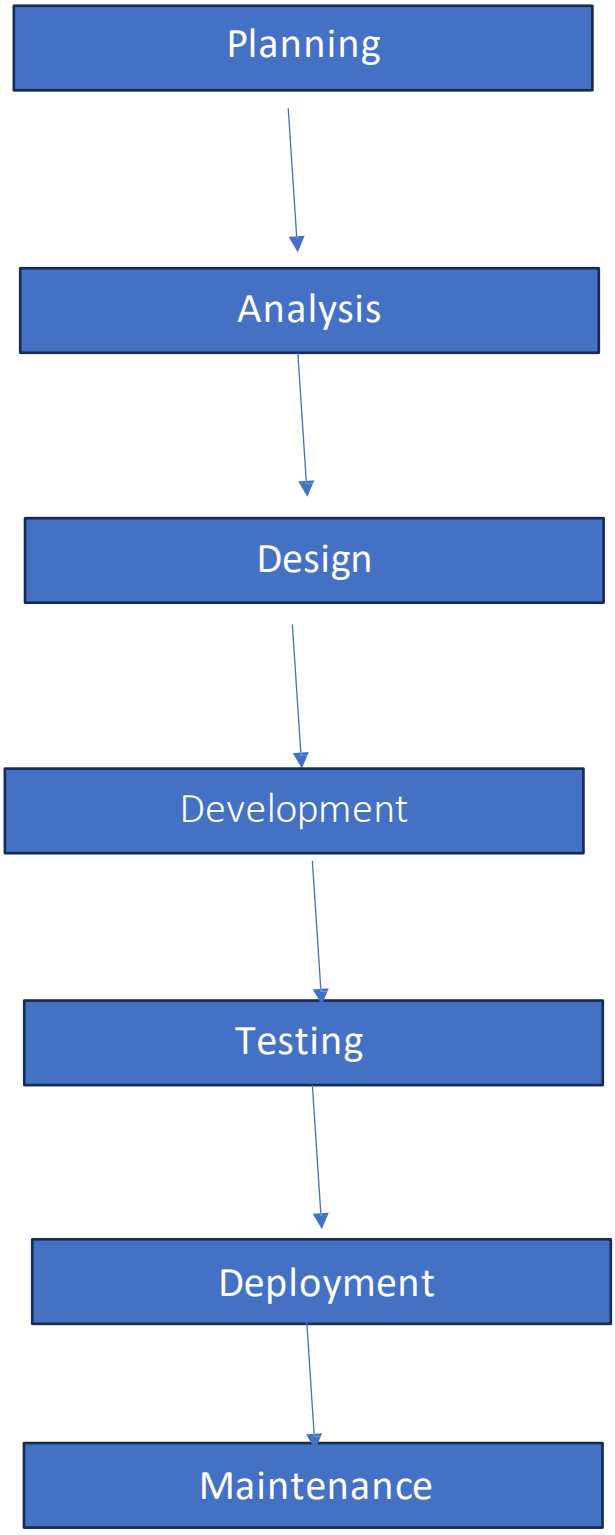
Application Software

Name	Description
Microsoft Word	Word processing
Google Chrome	Web browser
VLC Media Player	Media player
WhatsApp / Telegram	Social Media

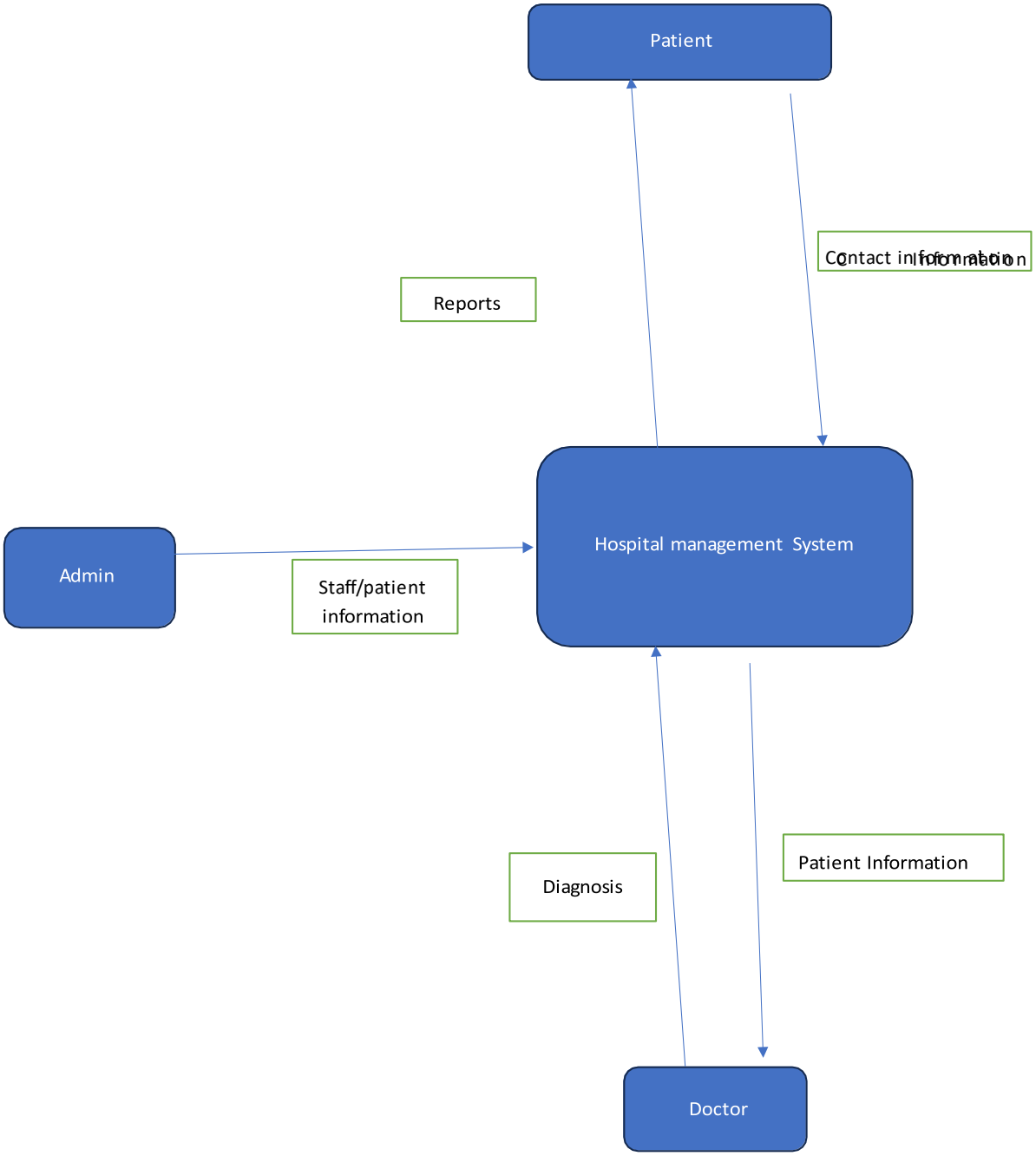
Utility Software

Software Name	Description
Windows Defender / Antivirus	Virus protection
WinRAR / 7-Zip	File compression
CCleaner	System cleanup and optimization

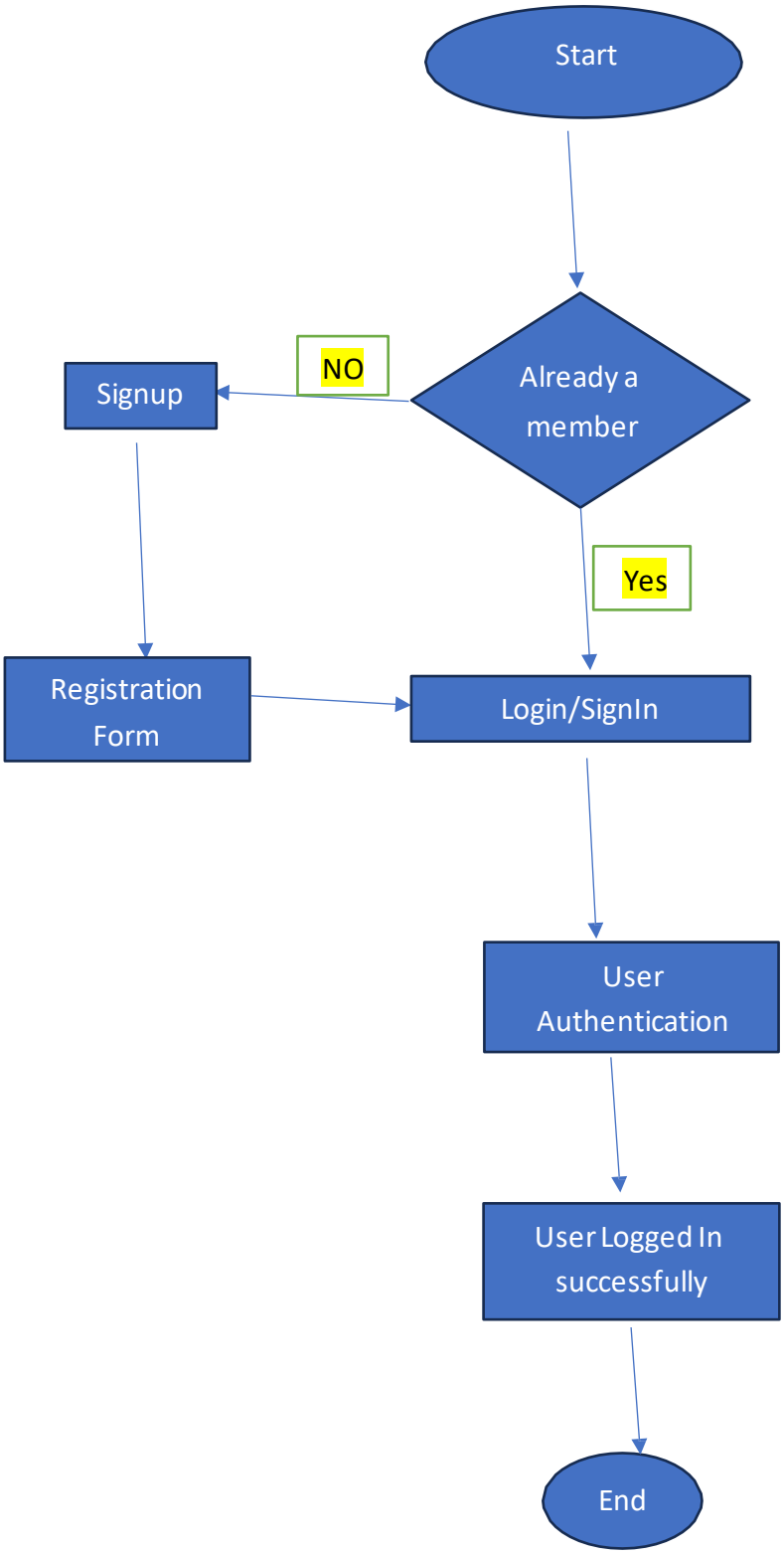
LAB EXERCISE: Create a flowchart representing the Software Development Life Cycle (SDLC)



LAB EXERCISE: Create a DFD for a hospital management system



LAB EXERCISE: Draw a flowchart representing the logic of a basic online registration system



LAB EXERCISE: Document a real-world case where a software application required critical maintenance.

Real-World Case: WhatsApp Server Crash (2017)

In 2017, WhatsApp faced a major global outage due to unexpected server overload. Millions of users couldn't send or receive messages for hours.

To fix this, the developers had to perform critical maintenance, which included:

- Restarting affected servers
- Updating load balancing settings
- Fixing bugs in server-side software

This case shows how important maintenance is for keeping widely-used applications running smoothly and avoiding user frustration

LAB EXERCISE: Write a requirement specification for a simple library management system.

Users

1) Librarian (Admin)
2) Students

Features Needed

1) Add new books and edit or remove old ones
2) Keep a list of all registered members
3) Allow the librarian to issue books to members and take them back when returned
4) Show if a book is available or not
5) Keep track of return dates and calculate fines if any

LAB EXERCISE: Write a report on the various types of application software and how they Improve productivity.

Report on Types of Application Software and Their Role in Improving Productivity

Application software means the programs we use to get specific tasks done on a computer or phone. These are not for running the system itself but for helping us do our work faster and better. There are different types of application software, and each one plays a role in increasing our productivity.

1. Word Processors

Like MS Word or Google Docs, they help us type and format documents easily. We don't have to write everything by hand, and editing is simple. Features like spelling check and templates save a lot of time.

2. Spreadsheets

Apps like Excel help in doing calculations, creating tables, and analyzing data. We can use formulas to do math quickly. This is very useful for students, office work, or managing money.

3. Presentation Software

PowerPoint and Google Slides let us prepare slides for speeches or classroom topics. They help us present information clearly and make it easier for others to understand what we are saying.

4. Communication Tools

Apps such as Zoom, Gmail, or Teams allow people to talk, email, and share files even if they are far away. This saves travel time and helps work to continue smoothly