

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

1. Broadband (Cable)

- What it is: Uses cables (like those for TV) to connect to the internet.
- Good Points:
 - Fast speeds (can be very quick).
 - Available in most cities and towns.
 - Great for watching videos and playing games.
- Bad Points:
 - Can slow down when many people are online at the same time.
 - Sometimes you need a cable TV subscription.

2. Fiber Optic

- What it is: Uses thin glass wires to send data as light.
- Good Points:
 - Super-fast speeds (even faster than cable).
 - Works well even when lots of people are online.
 - Very reliable and doesn't lose quality over long distances.
- Bad Points:
 - Not available everywhere, especially in the countryside.
 - Can be more expensive.

3. DSL (Digital Subscriber Line)

- What it is: Uses regular phone lines to connect to the internet.
- Good Points:
 - Available in many places, even rural areas.
 - Usually cheaper than cable and fiber.
- Bad Points:
 - Slower speeds compared to cable and fiber.
 - Speed gets worse the farther you are from the provider.

4. Satellite

- What it is: Uses satellites in space to connect to the internet.
- Good Points:
 - Works almost anywhere, even in remote areas.
 - Good option if other types aren't available.
- Bad Points:
 - Slower speeds than cable and fiber.
 - Can be affected by bad weather (like rain or snow).

5. Mobile (4G/5G)

- What it is: Uses cell phone networks to connect to the internet.
- Good Points:
 - Very portable; you can use it on your phone or a hotspot anywhere there's cell service.
 - 5G is super fast!
- Bad Points:
 - Data limits (you might run out of data and have to pay more).
 - Coverage can be spotty in some areas.

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

WhatsApp	(Application software)
Android	(System Software) A mobile operating system developed by Google, used on many smartphones and tablets.
Spotify	(Application software) A music streaming application.
Adobe Photoshop	(Application software) An image editing software for photos and graphic designing.
iOS	(System Software) Created by Apple for its iPhone and iPad devices.
Canva	(Application software) A graphic design platform that allows users to create social media graphics, presentations and posters.

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

1. System Software's:

- Microsoft Windows
- macOS
- Linux,
- Android
- iOS

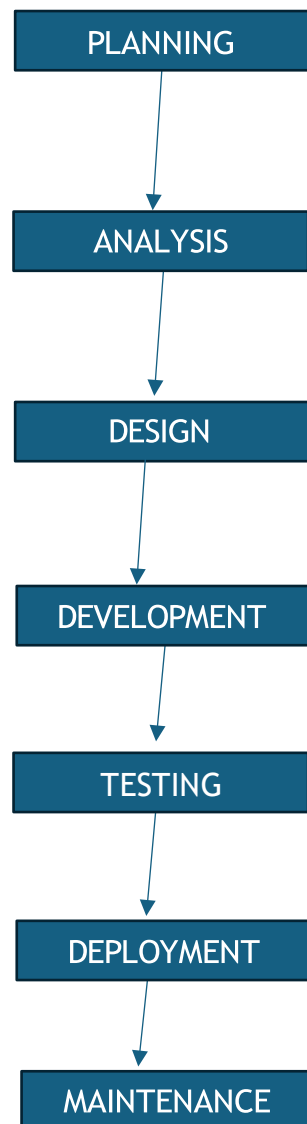
2. Application Software's:

- Microsoft Office Suite
- Google Chrome
- Adobe Acrobat Reader
- Spotify
- Zoom
- WhatsApp
- Slack
- Canva

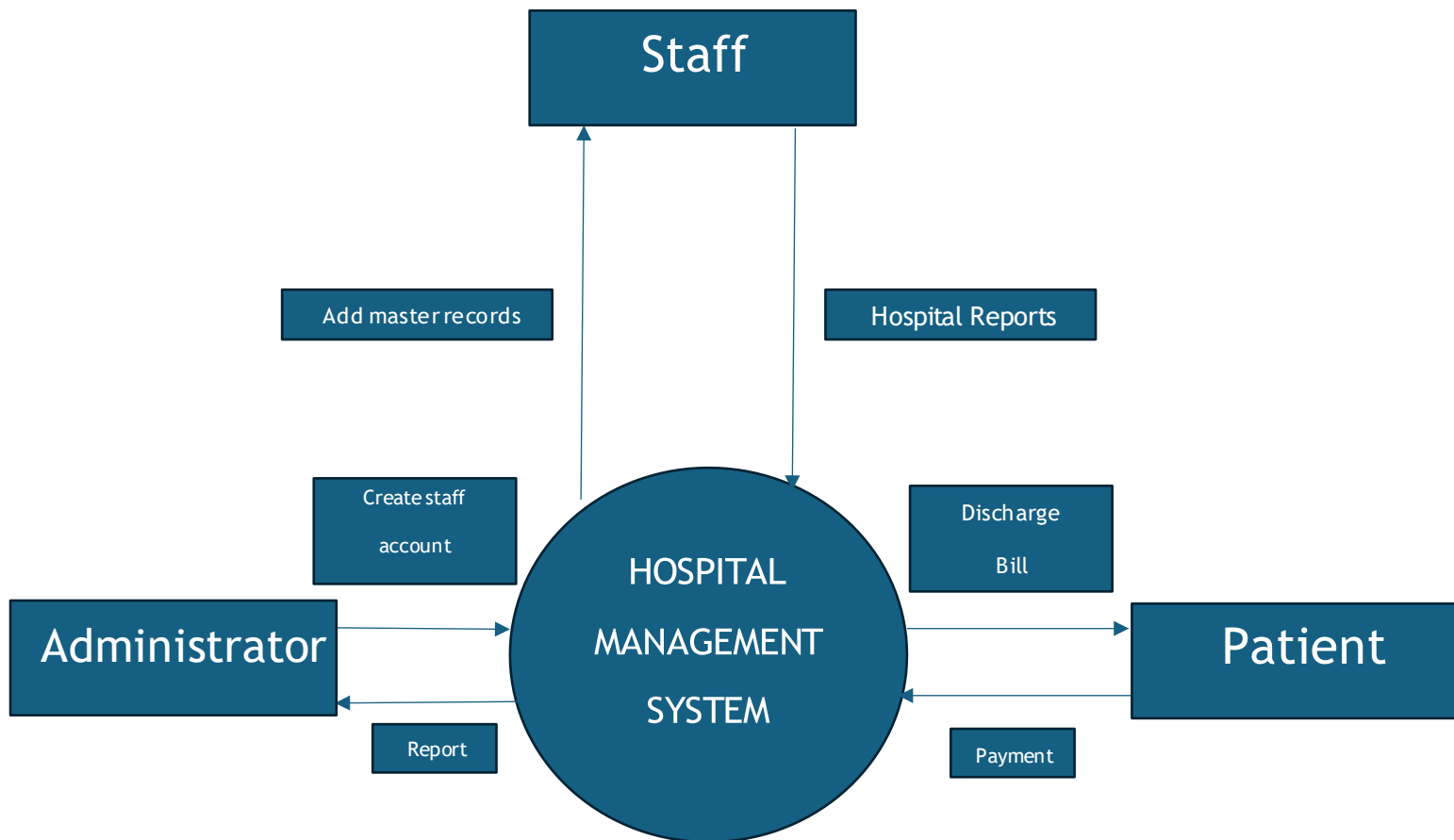
3. Utility Software's:

- Antivirus Software (e.g., Norton, McAfee)
- Disk Cleanup Tools
- File Compression Software (e.g., WinRAR)
- Backup Software (e.g., Backblaze)
- System Monitoring Tools

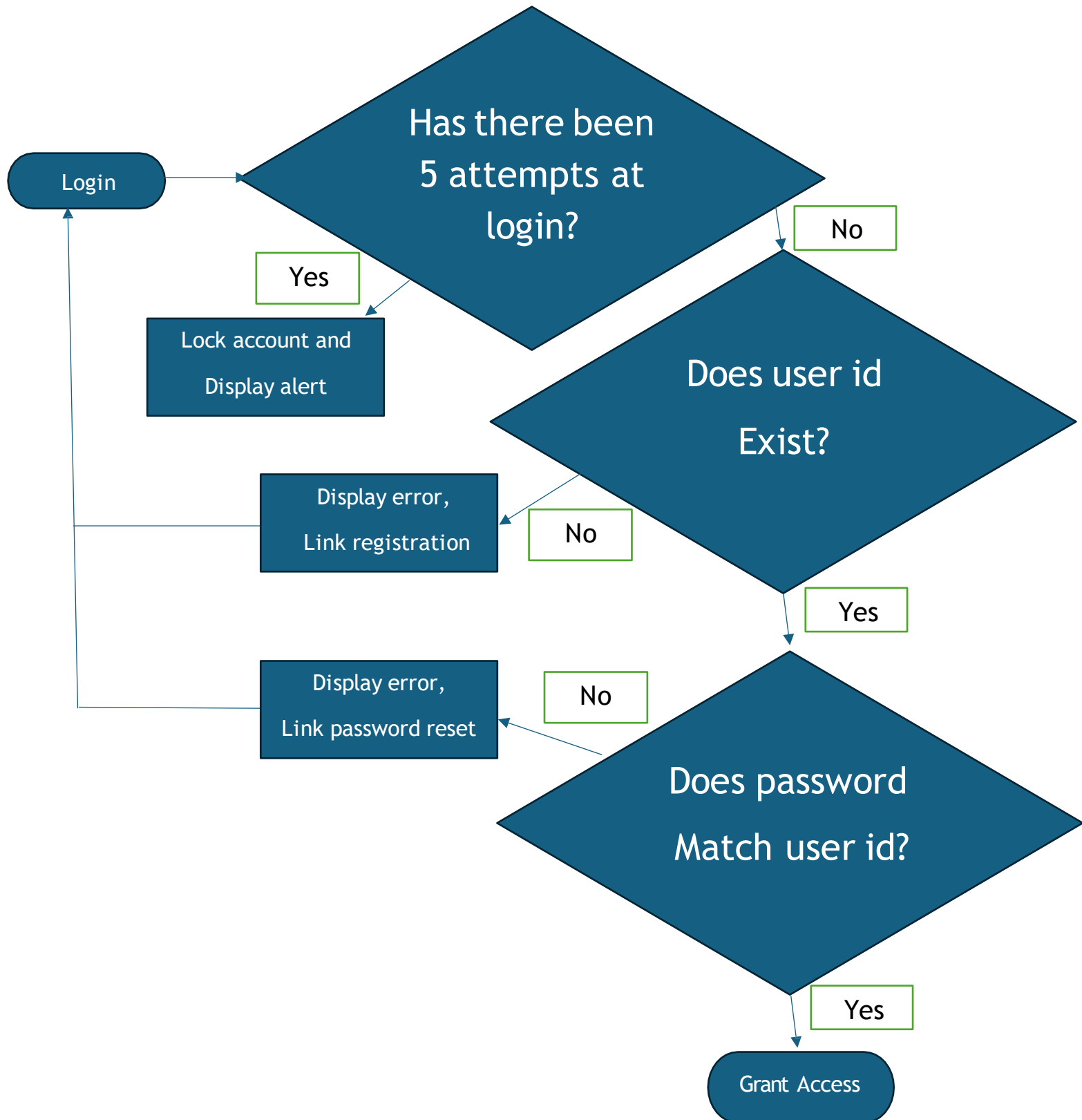
LAB EXERCISE: Create a flowchart representing the Software Development Life Cycle (SDLC).



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

Case: Zoom Server Outage (2020)

During 2020, Zoom faced a service disruption due to unexpected usage surges during the COVID-19 pandemic. Millions were affected, especially during meetings and online classes.

Actions Taken:

- Increased server capacity
- Adjusted server load management rules
- Optimized database queries for scalability

Lesson: Essential services need scalable and proactive maintenance to meet user demands.

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

Users:

1. Librarian (Admin)
2. Library Members

Requirements:

1. Add, delete, or update book entries
2. Maintain a list of registered students or users
3. Librarian can issue and return books
4. System should show availability status of each book
5. System should track return dates and calculate late fees

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

Report on Application Software and Productivity Benefits

Application software refers to programs designed to help users perform specific activities. These tools streamline tasks, saving time and improving output quality.

1. **Word Processing Tools**

Programs like LibreOffice Writer and MS Word help with writing, formatting, and editing text. Built-in grammar checkers and templates boost speed and accuracy.

2. **Spreadsheet Programs**

Google Sheets and MS Excel are useful for handling numbers, creating charts, and running financial analysis using formulas.

3. **Presentation Software**

Apps like Prezi and PowerPoint help users make visual presentations for education or business. They help explain concepts clearly.

4. **Communication Software**

Apps like Skype, Slack, and Microsoft Teams make it easier to collaborate, hold meetings, and send messages across distances.