



DATA STRUCTURES AND  
ALGORITHMS WITH JAVA

# Healthcare System

...

Transforming Healthcare,  
Innovations and Challenges in  
Modern Medicine

29.12.2023 (Friday)



# FITFINITY TEAM



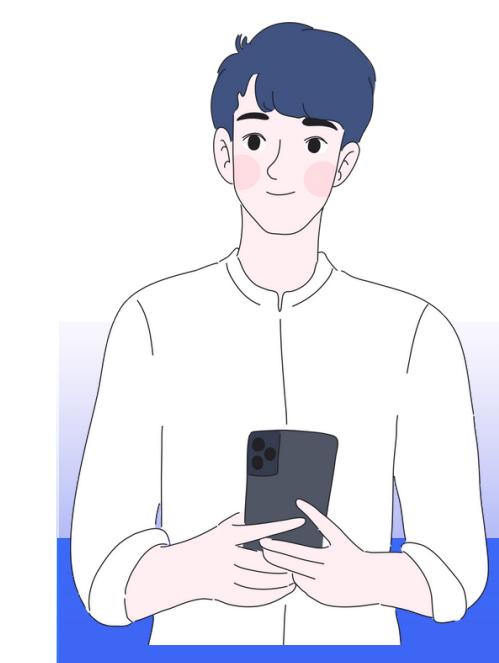
Aung Kaung Myat



Htet Paing Linn



Pyae Linn

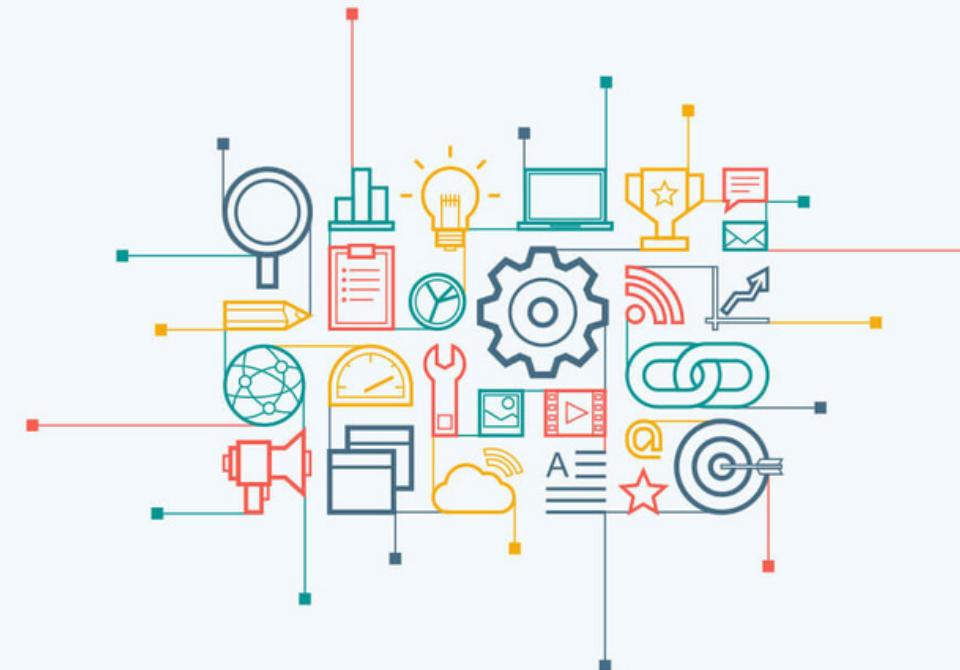


Htet Myet Zaw



Thaw Waiyan  
Hein

 Data Structures & Algorithms



# Data Structure

# Data Structures: The organization, storage, and retrieval of data.

# Algorithms

Step-by-step  
procedures or  
formulas for  
solving problem

# Efficiency

Optimal data  
structures and  
algorithms  
improve program  
efficiency.

# Scalability

Crucial for handling larger datasets and growing user bases.

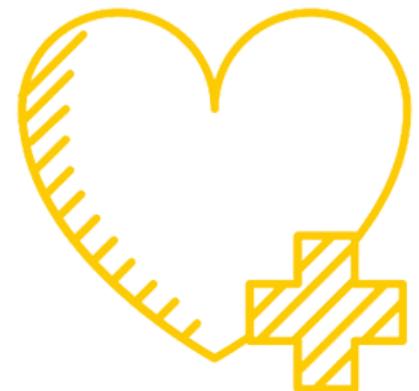
# Problem Solving

Essential for  
solving complex  
computational  
problems

# Software Development



"DATA STRUCTURES AND ALGORITHMS WITH JAVA"



# Fitfinity Healthcare

*Health for Everyone*

## Group 2

1. Pyae Linn
2. Htet Paing Linn
3. Htet Myet Zaw
4. Aung Kaung Myat
5. Thaw Wai Yan Hein



29.12.2023 (Friday)



# Objectives



- Optimizing Appointment Scheduling
- Efficient Patient Data Management
- Effective Doctor Management and Specialties
- Dynamic Department and Specialties Handling
- Pharmacy and Inventory Management
- Room Management and Doctor's Timetable
- Scalability and Performance Optimization



## Patient & Doctor

Doctors access patient records efficiently, while patients manage appointments easily



## Pharmacy

The Pharmacy role handles prescriptions and inventory efficiently.



# Project Scope



The Java web application for healthcare strives to offer an effective, user-friendly platform for comprehensive healthcare facility management. Key features encompass patient online booking, data management, doctor and department oversight, appointment scheduling, pharmacy control, room administration, and doctor timetables.



**Doctor**  
Data Management  
Appointment Management  
KPI Calculation



**Patient**  
Online Booking  
Data Management  
Pharmacy Procurement



**Pharmacist**  
Data Management  
Pharmacy Sale





# Doctor module

## Data Management

Doctor registration and profile management, Assignment to departments and specialties

## New doctor adding and doctor deleting

Implementation the functionalities for adding and deleting doctors from the database

## Doctor Salary and KPI calculation

According to number of appointments, calculate the salary and KPI and sort the popularity of doctors

## Appointment Management

Due to online patient booking, set the doctor's schedules and view the doctor

# Patient Module

based on online patient booking system



## Pharmacy Procurement

Searching pharmacy, add to cart and submit

## Signup for new patient

Create new account and add patient data and medical report and storing database

## Login patient

Login to existing account to access the current status of medical reports

## Booking system

Find specialty, select available doctor and make a appointment

## View medical reports

Personal Information, Health Metrics, Medical History, Appointments, Emergency Contact Information

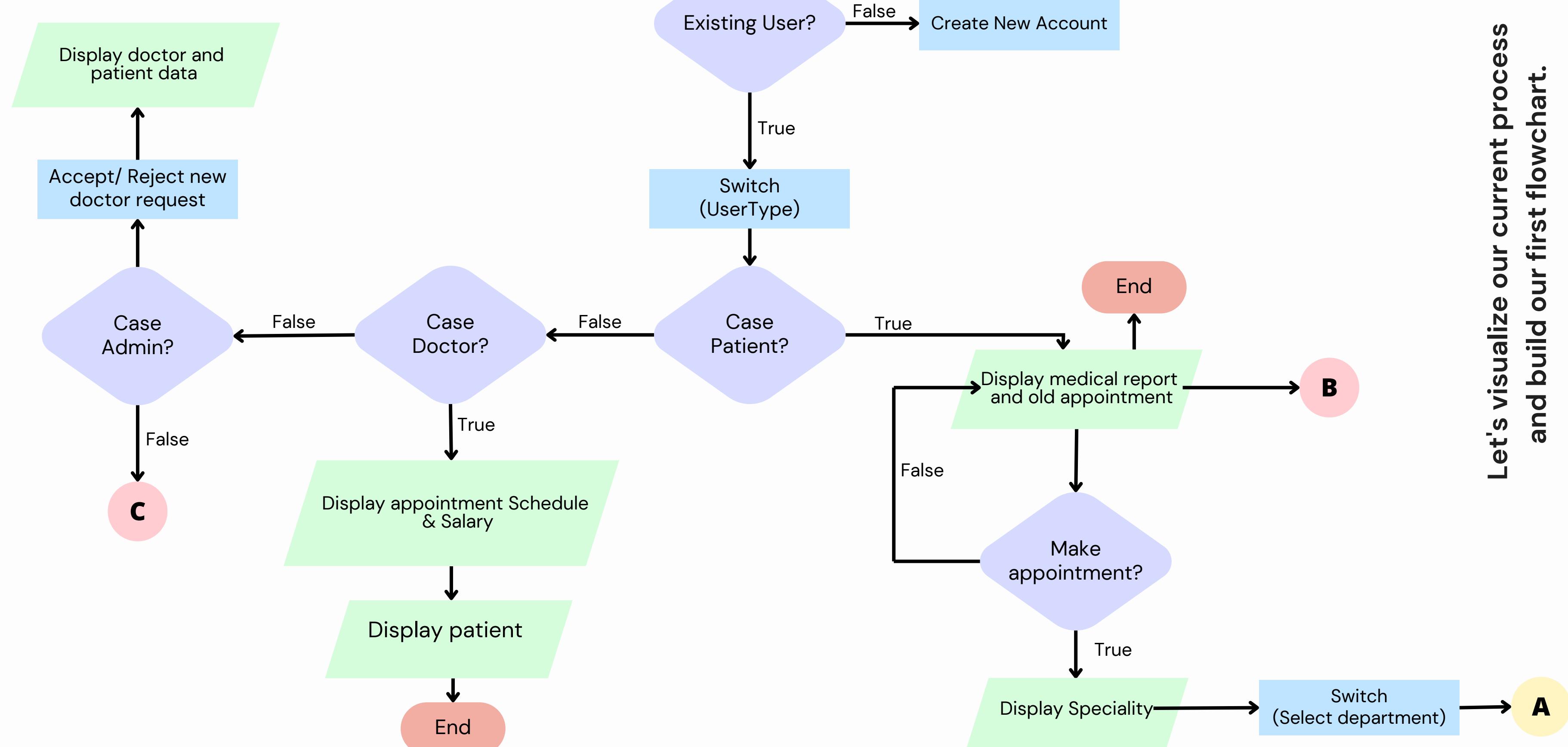


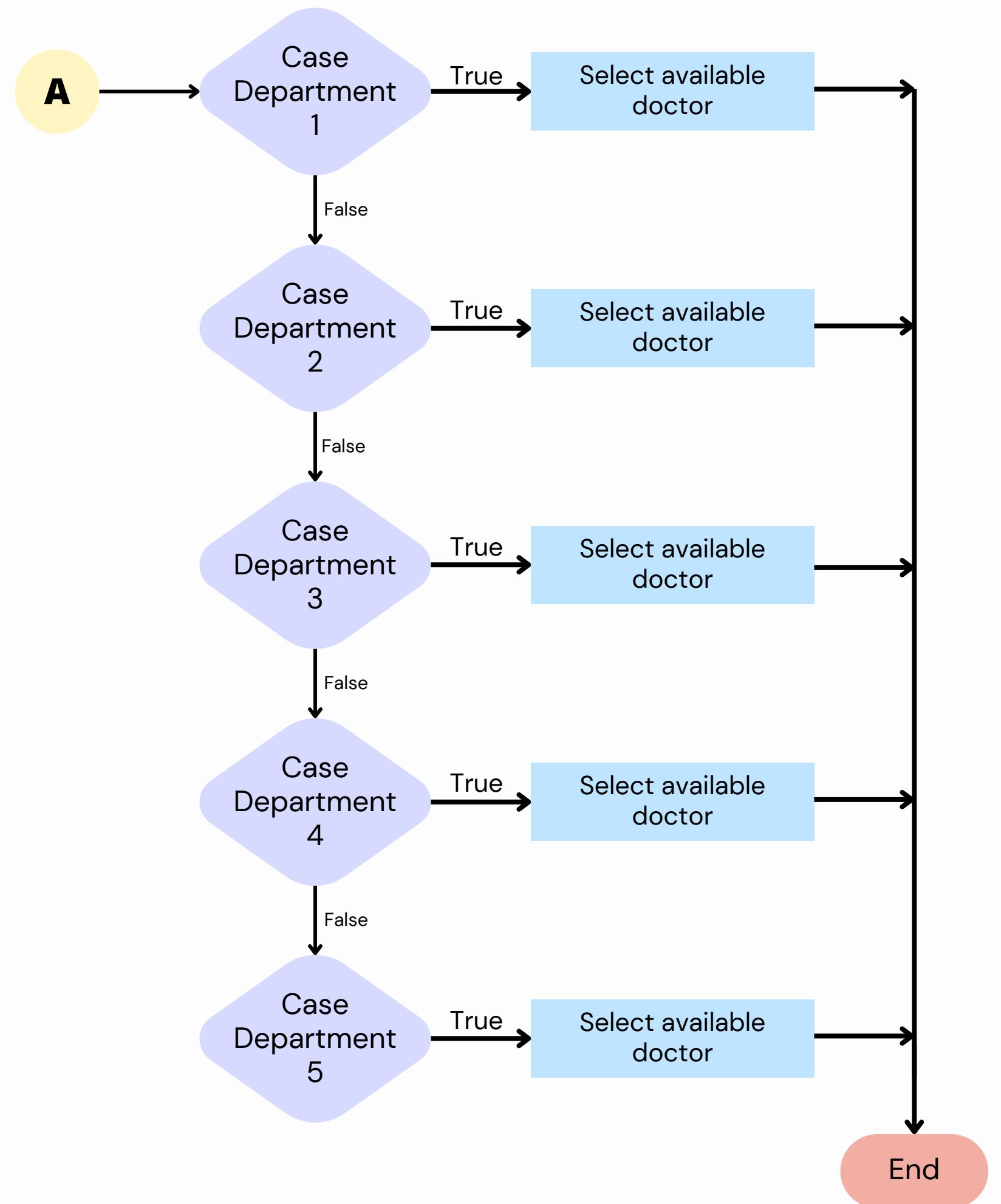
## Pharmacist Module

Medication Database: Maintain a database of available medications with details such as name, dosage, expiration date, and manufacturer information.

Order process : Enable patients and healthcare providers find the pharmacy and order to add to cart

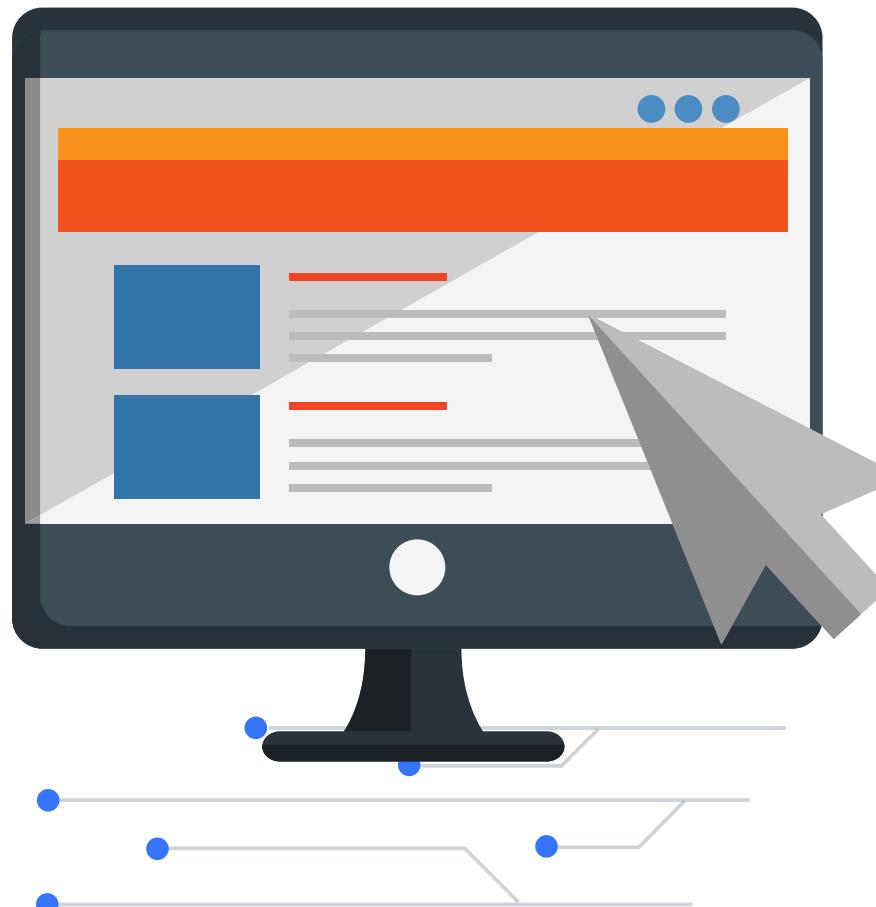
# Project Architecture







# Problem Statements



## Data handling

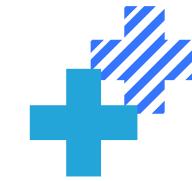
Healthcare system has complex data and is hard to maintain in real time.

**Need more systematic control for healthcare providers**  
fast and accurate human resources

## Pharmacy Procurement

Need to change digitalization to offer supply and demand

# Why Choose This Project?



## Industry Relevance

Building a healthcare system meets the industry's demand for tech-driven solutions improving efficiency and patient care



## Technical Challenge

Building a healthcare system involves complex data management and user interactions.



## Real World Impact

This project impacts lives by improving patient-doctor interactions and medication management in healthcare.



## Application of Data Structures & Algorithms

Practical application of data structures and algorithms, optimizing data management, search functionalities, and prescription handling for efficiency and accuracy



## Integration of Multiple Components

The project integrates patient booking, data management, doctor scheduling, and pharmacy operations.



# BENEFITS OF USING DATA STRUCTURES & ALGORITHMS

## Performance & Efficiency

- Enhance the efficiency of searching, sorting and retrieval of information



## Faster Processing

- Facilitate rapid data processing
- Ensuring quick responses to patient inquiries



## Security

Java offers robust security features, including:

- Memory management
- Access controls
- These safeguards protect sensitive backend data and operations



## Digital Transformation

Enables efficient patient data recording and real-time monitoring of pharmacy inventory, replacing manual ledger entries and accurate management.



## Reduced Redundancy

Eliminate duplicate data and optimize storage, ensuring data consistency and reliability within the system.





## SYSTEM TECH STACK



### Frontend



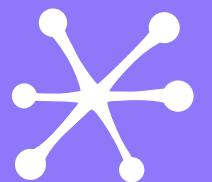
HTML,CSS,Bootstrap,JSP  
(JavaServer Pages)

### Backend



Java J2EE (Servlet), JDBC (Java Database Connectivity)

### Database



MySQL

### Server



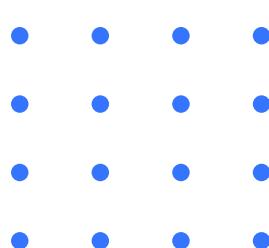
Apache Tomcat

## TOOLS

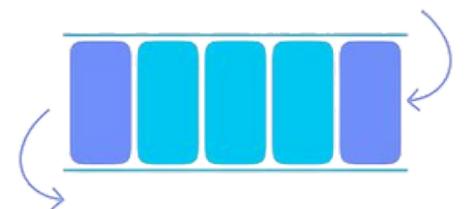


1. INTELLIJ IDEA

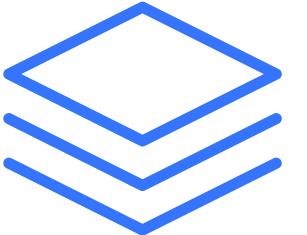
2. MYSQL WORKBENCH



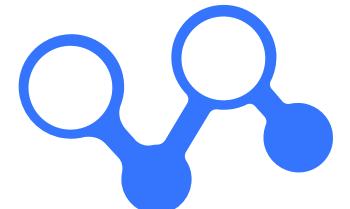
# Data Structures In The Project



**Queues**



**Stacks**



**Lists**



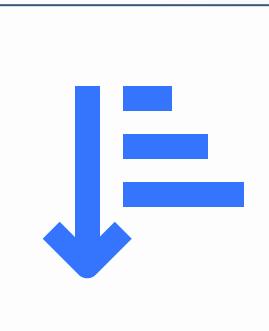
**Arrays**

# Algorithms In The Project



## Searching Algorithm

Efficient search algorithms like Binary Search or Hashing could be used for quick access to patient records, medications, or specific doctors' information.



## Sorting Algorithm

The sorting algorithm arranges doctors based on patient count in descending order, determining popularity among them.



## Appointment Scheduling Algorithm

maximizes efficiency by optimizing doctor availability, patient urgency, and appointment duration to minimize wait times



# Expected Achievements & Success



**Improved Patient Care**



**Better Resource Management**



**Long-term Health Monitoring**



**Partnerships and Collaborations**



**Remote Healthcare Services**



**Patient Satisfaction & Engagement**

Group II - Section A, Batch 9

# THANKS FOR WATCHING

Fitfinity Healthcare System

