# HOSPITAL PATIENT DATA MANAGEMENT SYSTEM USING JAVA OBJECT-ORIENTED PROGRAMMING

Java programming language

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# INTRODUCTION

**Objective of the project:**

"This project aims to develop a system to manage the data of patients, doctors, and nurses in the hospital using object-oriented programming in Java"

**Project problem:**

"Manual data management can be inefficient and prone to errors

This system aims to improve accuracy and efficiency"

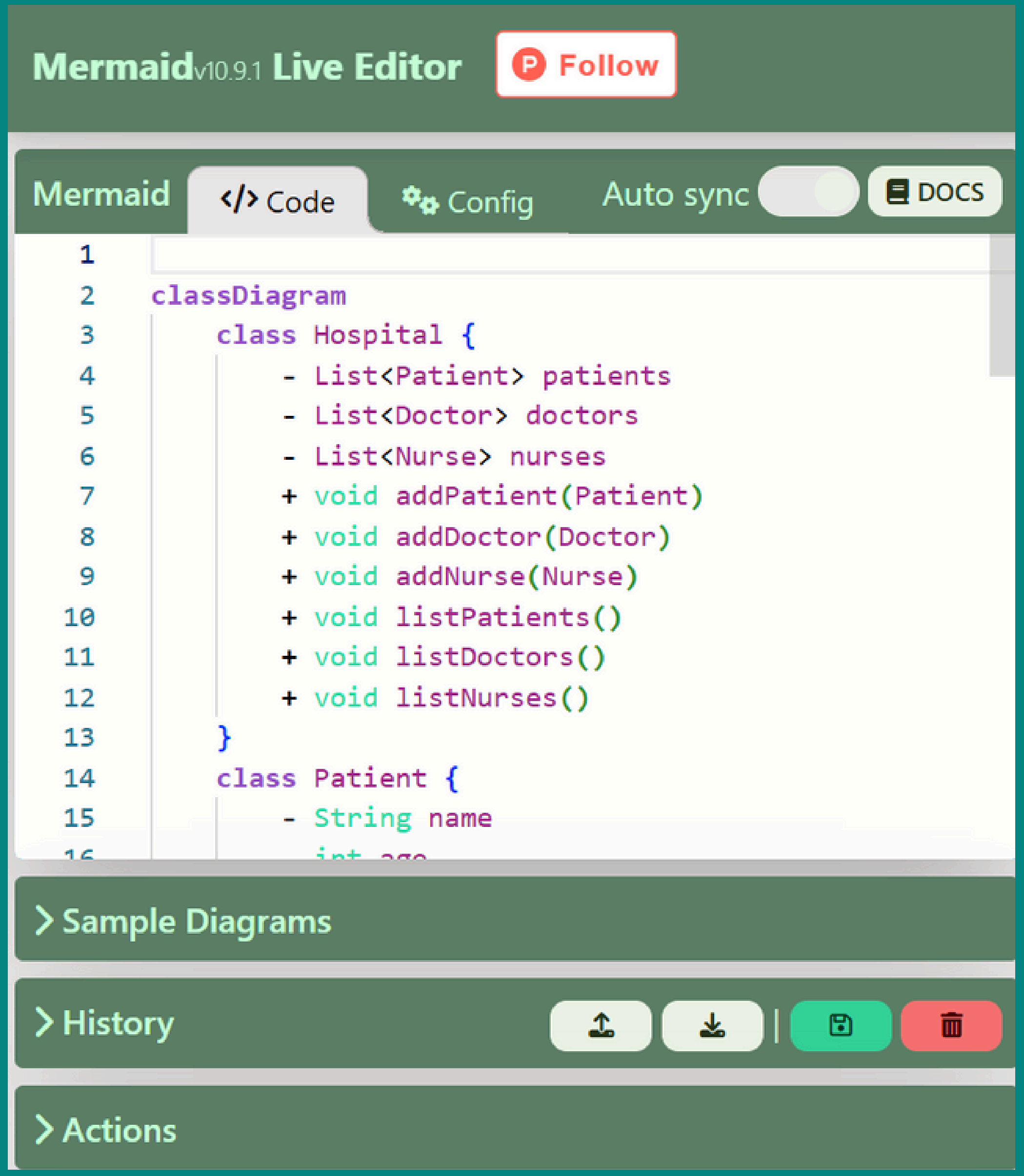
# SYSTEM OVERVIEW

**General description of the system:**

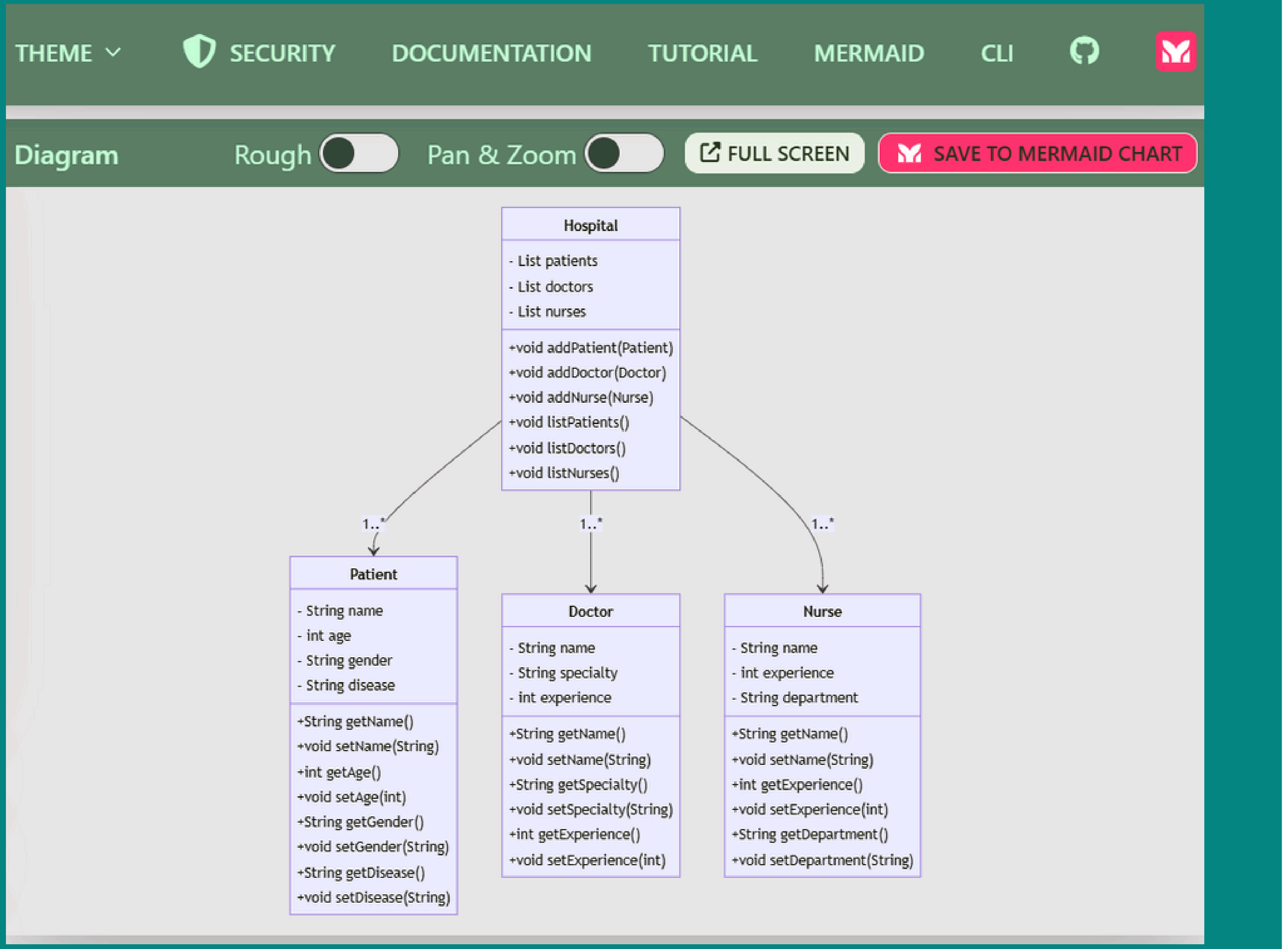
- In modern hospitals, managing the data of patients, doctors, and nurses is a vital task.
- This project aims to develop an integrated hospital data management system using the Java programming language and Object Programming Principles (OOP)
- The system will help improve accuracy and efficiency in data management and reduce errors caused by manual processes

# SYSTEM DIAGRAM

A diagram showing the general structure of the system and the relationships between objects



```
classDiagram
    class Hospital {
        - List<Patient> patients
        - List<Doctor> doctors
        - List<Nurse> nurses
        + void addPatient(Patient)
        + void addDoctor(Doctor)
        + void addNurse(Nurse)
        + void listPatients()
        + void listDoctors()
        + void listNurses()
    }
    class Patient {
        - String name
        - int age
```

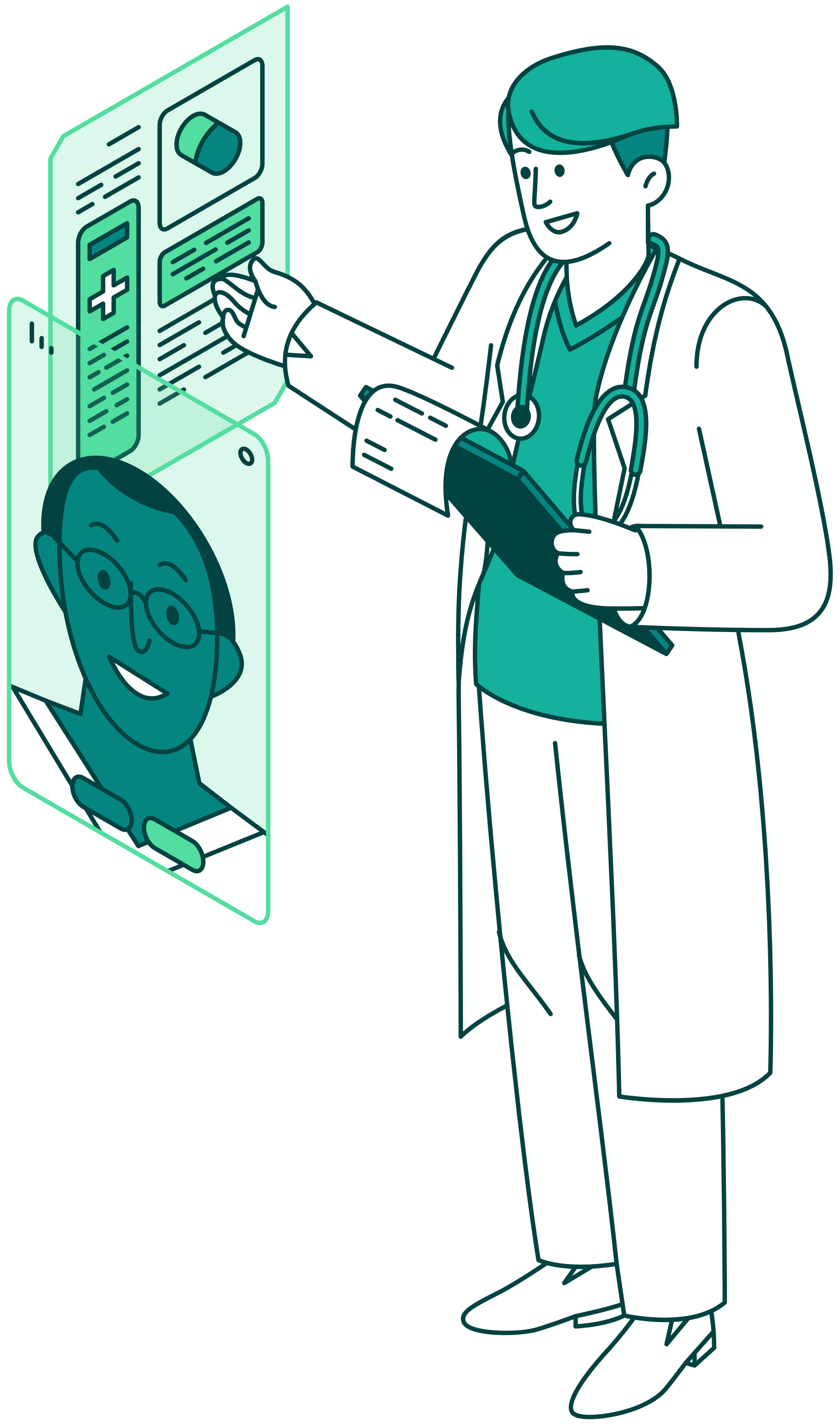


Hospital
- List patients
- List doctors
- List nurses
+void addPatient(Patient)
+void addDoctor(Doctor)
+void addNurse(Nurse)
+void listPatients()
+void listDoctors()
+void listNurses()

Patient
- String name
- int age
- String gender
- String disease
+String getName()
+void setName(String)
+int getAge()
+void setAge(int)
+String getGender()
+void setGender(String)
+String getDisease()
+void setDisease(String)

Doctor
- String name
- String specialty
- int experience
+String getName()
+void setName(String)
+String getSpecialty()
+void setSpecialty(String)
+int getExperience()
+void setExperience(int)

Nurse
- String name
- int experience
- String department
+String getName()
+void setName(String)
+int getExperience()
+void setExperience(int)
+String getDepartment()
+void setDepartment(String)



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# TECHNIQUES USED

- Java as the main platform for software development.
- Object-oriented programming (OOP) to organize data and processes.
- Java lists (Lists) for data management and storage.
- JDK to develop and run Java applications.
- IDE to facilitate the writing and compilation of code.
- Version control systems (such as Git) for code management.
- Documentation and planning tools to document and organize the project.
- These technologies contribute to building an integrated, reliable, and easy-to-use patient data management system in the hospital.

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# ARCHITECTURAL DESIGN

The system consists of major categories such as Patient, Doctor, Nurse, and Hospital

### HOSPITAL

- Manages
- patients data
- doctors data
- nurses data

### PATIENT

- Includes information
- Name
- lifetime
- Sex
- Disease

### DOCTOR

- Includes information
- Name
- Specialization
- Years of Experience

### NURSE

- Includes information
- Name
- Years of Experience
- section

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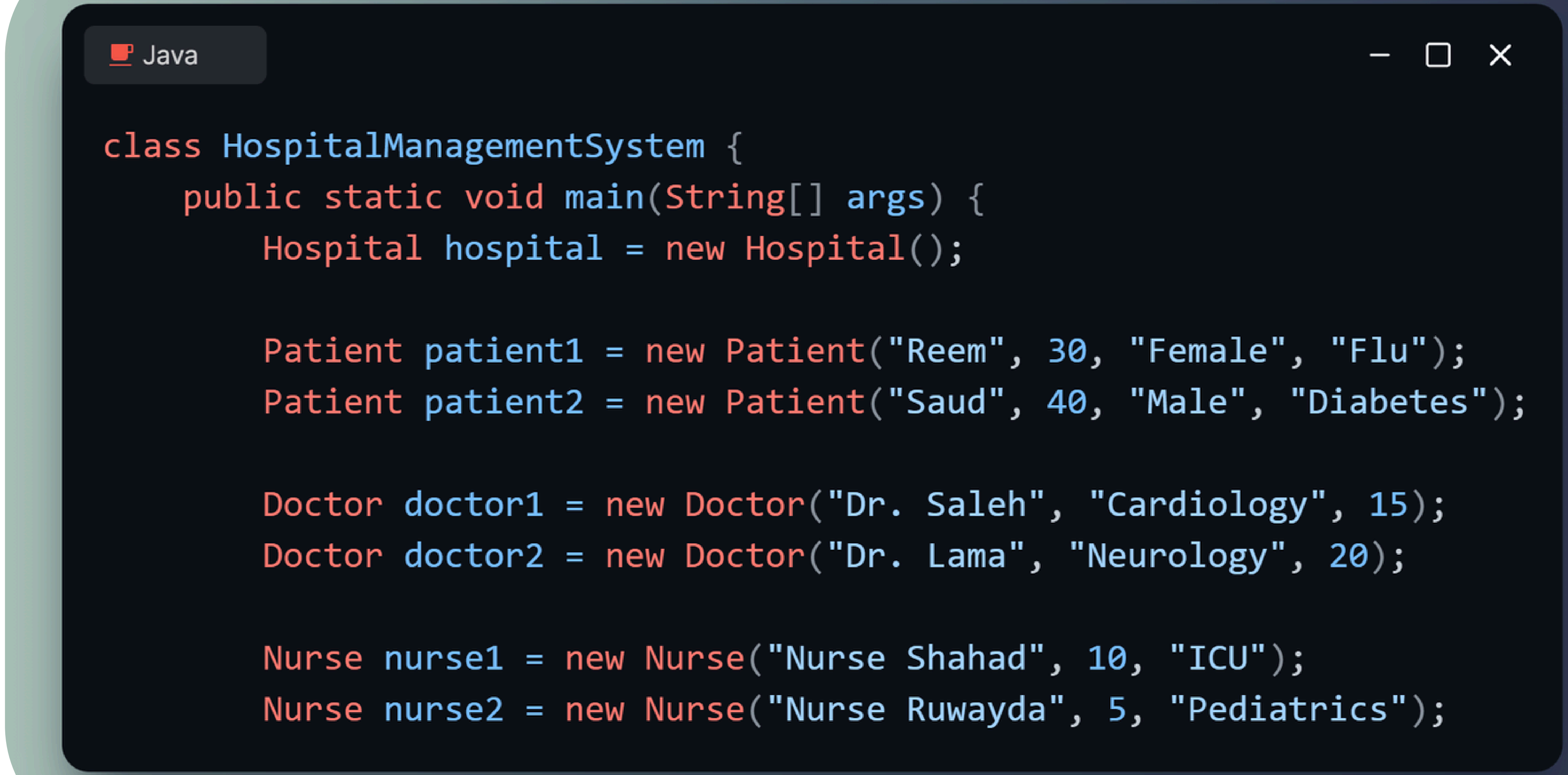
# SOURCE CODE

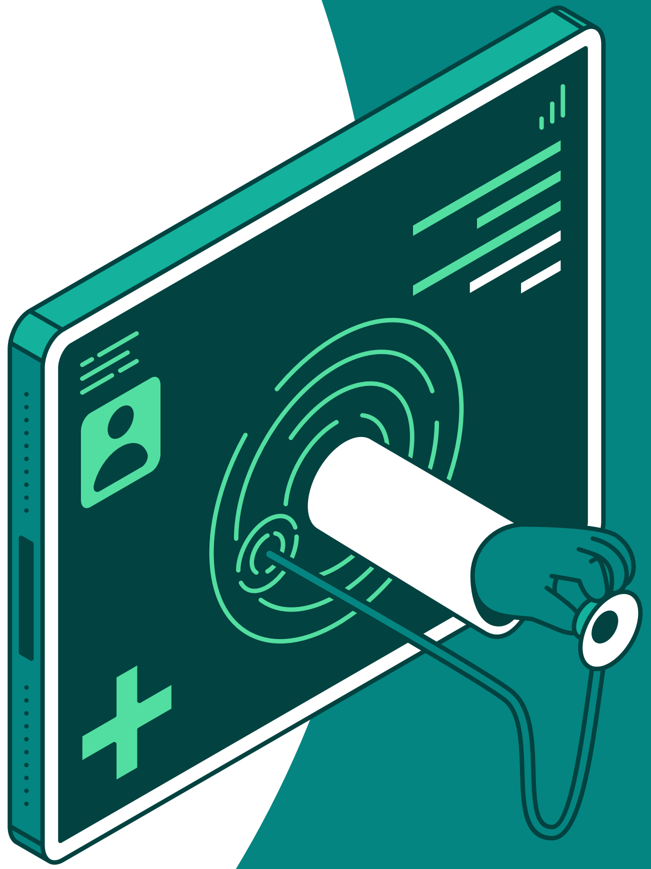


```java
class HospitalManagementSystem {
    public static void main(String[] args) {
        Hospital hospital = new Hospital();

        Patient patient1 = new Patient("Reem", 30, "Female", "Flu");
        Patient patient2 = new Patient("Saud", 40, "Male", "Diabetes");

        Doctor doctor1 = new Doctor("Dr. Saleh", "Cardiology", 15);
        Doctor doctor2 = new Doctor("Dr. Lama", "Neurology", 20);

        Nurse nurse1 = new Nurse("Nurse Shahad", 10, "ICU");
        Nurse nurse2 = new Nurse("Nurse Ruwayda", 5, "Pediatrics");
```



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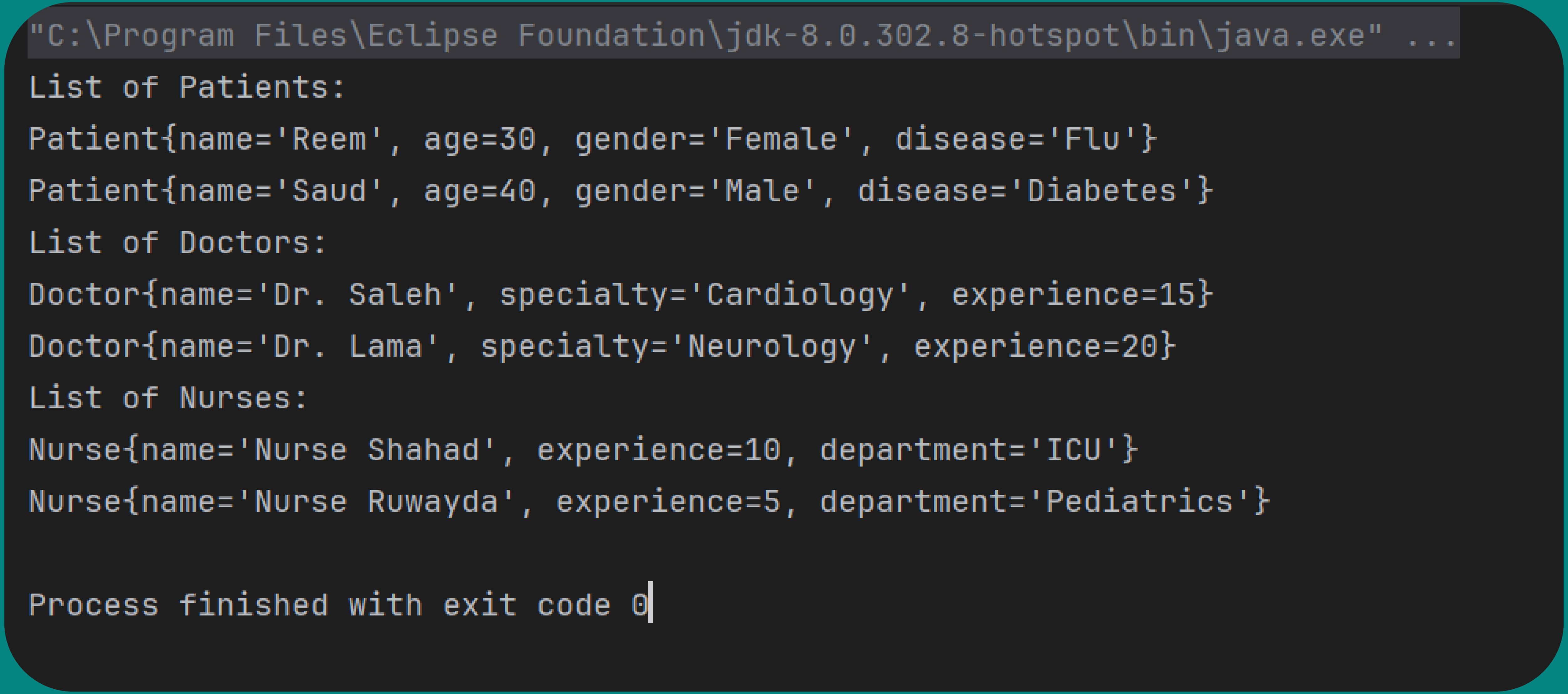
# PROJECT IMPLEMENTATION

To use the project, it must be compiled using javac and run using java



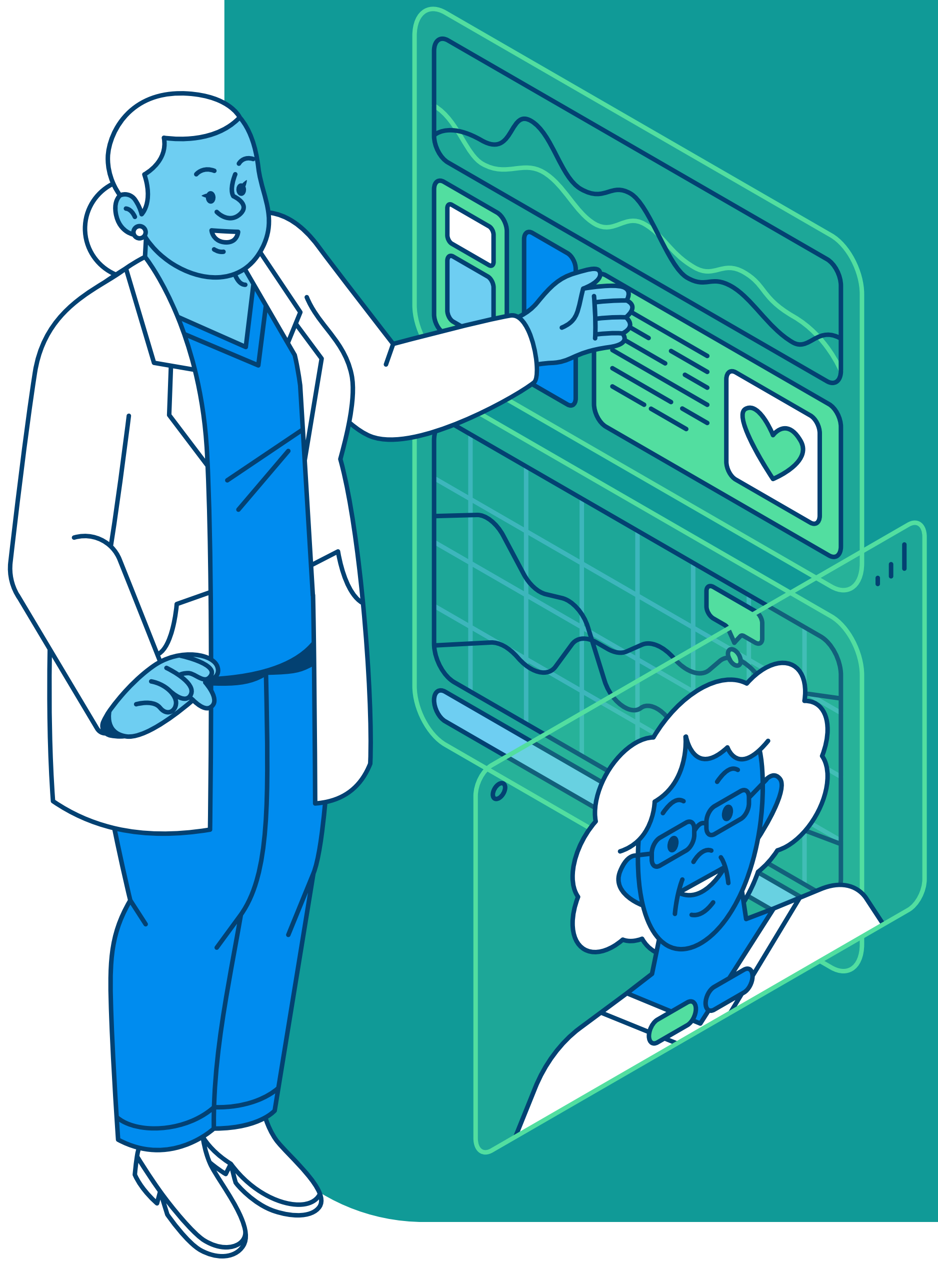
```
"C:\Program Files\Eclipse Foundation\jdk-8.0.302.8-hotspot\bin\java.exe" ...
List of Patients:
Patient{name='Reem', age=30, gender='Female', disease='Flu'}
Patient{name='Saud', age=40, gender='Male', disease='Diabetes'}
List of Doctors:
Doctor{name='Dr. Saleh', specialty='Cardiology', experience=15}
Doctor{name='Dr. Lama', specialty='Neurology', experience=20}
List of Nurses:
Nurse{name='Nurse Shahad', experience=10, department='ICU'}
Nurse{name='Nurse Ruwayda', experience=5, department='Pediatrics'}

Process finished with exit code 0
```

# CONCLUSIONS AND FUTURE DEVELOPMENT

**Expected results:**
"Improving the efficiency and accuracy of data management in the hospital"

**Future Development:**
"Add a graphical user interface (GUI) and integration with a database"



# THANK YOU!