Hospital Management System – Project Documentation

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Hospital Management System

The Hospital Management System is designed to manage the administrative and operational tasks of a hospital. This system includes functionalities for managing patients, staff, appointments, and billing for improving efficiency and accuracy in hospital operations.

Introduction

In modern healthcare, efficient management of hospital operations is crucial. The Hospital Management System aims to fulfil this need by providing a efficient solution for managing various hospital activities. This report details the design, implementation, and features of the system.

Objectives

- To develop a system that manages patient information efficiently.
- To provide efficient staff management, including doctors and nurses.
- To automate appointment scheduling and management.
- To automate the billing process.

System Design

Interfaces

The system is designed using interfaces. The interfaces follow the interface segregation principle. The key interfaces are:

- **IPatientManagement**: Manages patient-related operations.
- **IStaffManagement**: Manages staff-related operations.
- **IAppointmentManagement**: Manages appointment scheduling and updates.
- **IBillingManagement**: Manages billing and payment processing.

Classes

The system includes several classes, each class follows single responsibility principle (SRP).

- **Patient**: Represents patient information.
- **Staff**: Represents general staff information.
- **Doctor**: Inherits from Staff and includes doctor-specific attributes.
- **Nurse**: Inherits from Staff and includes nurse-specific attributes.
- **Appointment**: Manages appointment details.
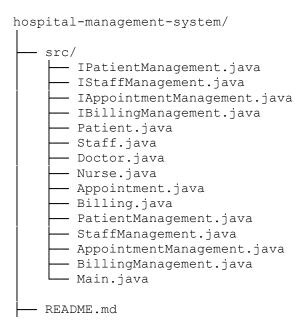- **Billing**: Manages billing and payment details.

Methods

Each interface and class includes methods to perform various operations. For example:

- **addPatient()**: Adds a new patient to the system.
- **scheduleAppointment()**: Schedules a new appointment.
- **generateBill()**: Generates a bill for a patient.

Implementation

The system is implemented in Java, following object-oriented principles. The project structure is as follows:

```
hospital-management-system/
│
├── src/
│   ├── IPatientManagement.java
│   ├── IStaffManagement.java
│   ├── IAppointmentManagement.java
│   ├── IBillingManagement.java
│   ├── Patient.java
│   ├── Staff.java
│   ├── Doctor.java
│   ├── Nurse.java
│   ├── Appointment.java
│   ├── Billing.java
│   ├── PatientManagement.java
│   ├── StaffManagement.java
│   ├── AppointmentManagement.java
│   ├── BillingManagement.java
│   └── Main.java
│
├── README.md
```

Key Components

- **PatientManagement**: Implements IPatientManagement to handle patient operations.
- **StaffManagement**: Implements IStaffManagement to handle staff operations.
- **AppointmentManagement**: Implements IAppointmentManagement to handle appointments.
- **BillingManagement**: Implements IBillingManagement to handle billing.

Conclusion

The Hospital Management System successfully meets the objectives of managing hospital operations efficiently. The modular design ensures ease of maintenance and scalability. Future enhancements could be added properly.