

Coding Challenge: Hospital Management System

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- **Modules Implementation**

- **Patient Management**

- Patient registration with details like name, age, gender, and contact information.

- View, update, and delete patient records.

- **Doctor Management**

- Register and manage doctors with specialization, experience, and availability.

- List doctors by specialization.

- **Appointment Scheduling**

- Book, view, and cancel appointments between patients and doctors.

- Check availability of doctors before booking.

- **Treatment Record**

- Add treatment details after appointments.

- Maintain history of treatments for each patient.

- **Technologies Used**

- Programming Language: Java
 - Database: MySQL
 - IDE: Eclipse
 - Design Pattern: DAO (Data Access Object)

- **DAO Interfaces & Implementations**

- HospitalService & HospitalServiceImpl

- **Exception Handling**

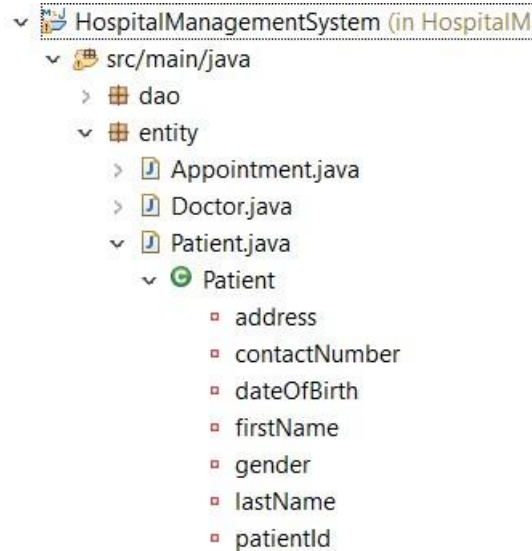
- Custom exceptions created:
 - PatientNotFoundException
 - DoctorNotFoundException
 - AppointmentNotFoundException
 - Used try-catch blocks to handle SQL and input errors gracefully.

- **Utility Classes**

- DBConnectionUtil – Manages database connections.
 - ValidationUtil – Input validations.
 - DateUtil – Formats and parses date inputs.

1. Define 'Patient' class with the following confidential attributes:

- a. patientId
- b. firstName
- c. lastName;
- d. dateOfBirth
- e. gender
- f. contactNumber
- g. address



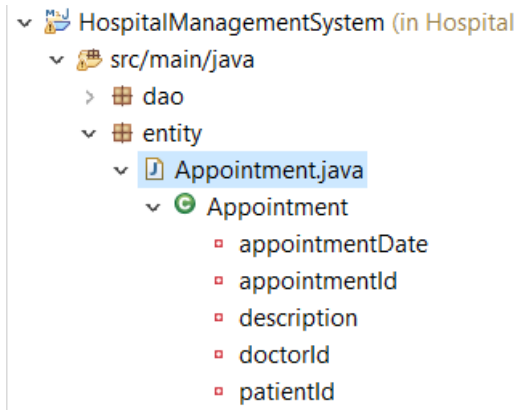
2. Define 'Doctor' class with the following confidential attributes:

- a. doctorId
- b. firstName
- c. lastName
- d. specialization
- e. contactNumber

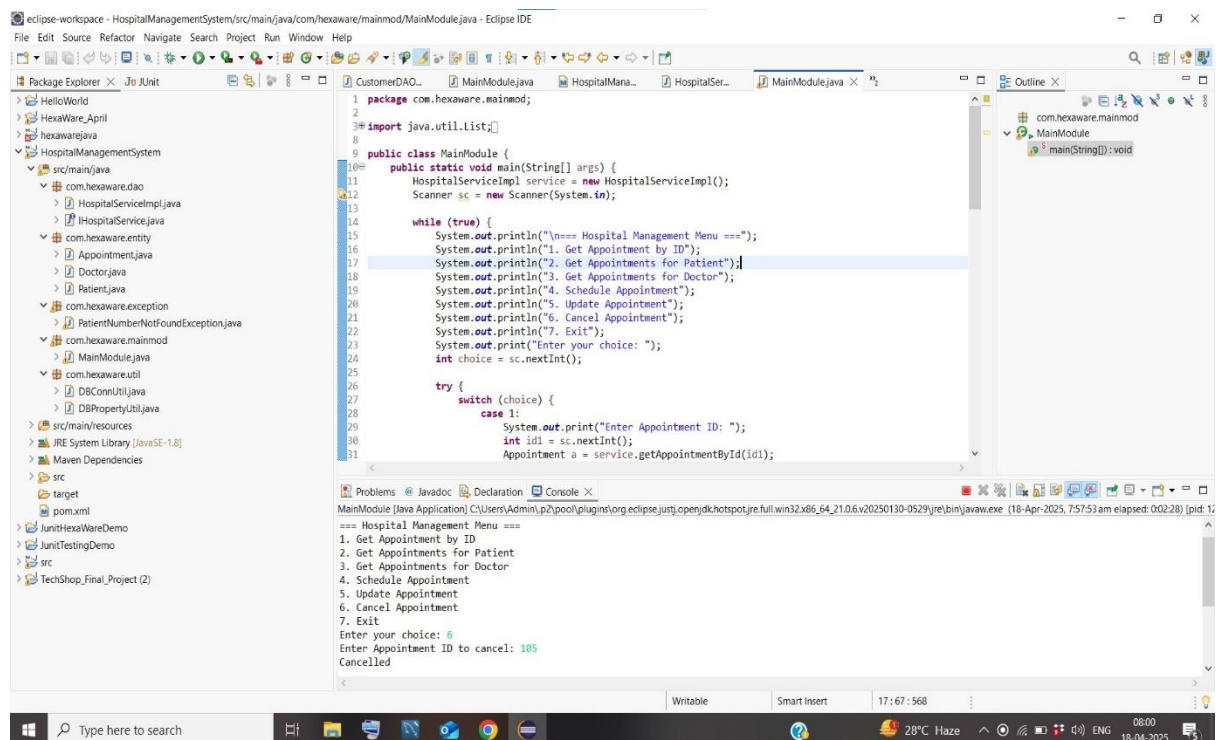


3. Appointment Class:

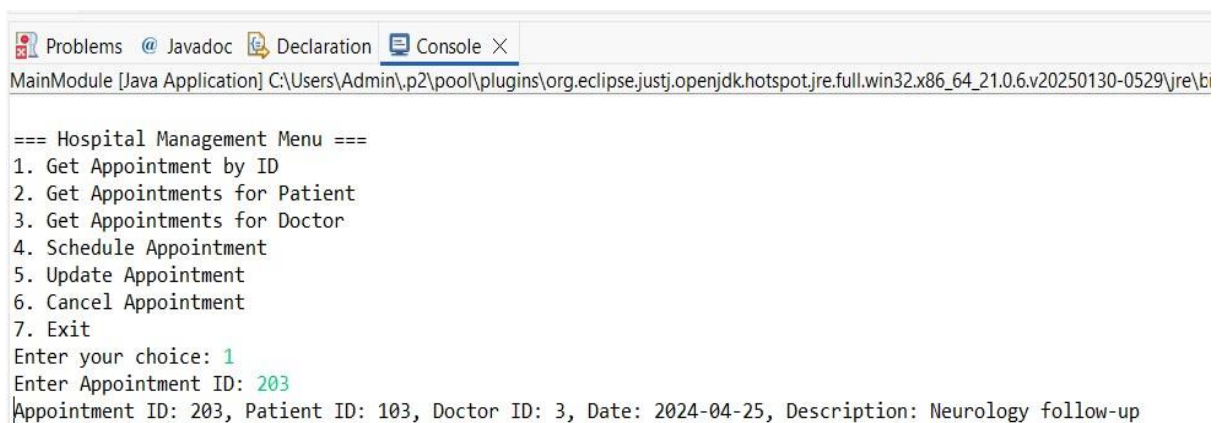
- a. appointmentId
- b. patientId
- c. doctorId
- d. appointmentDate
- e. description



- **Project Outputs:**



- **Get Appointment by ID**



- **Get Appointment by ID**

```
=== Hospital Management Menu ===
1. Get Appointment by ID
2. Get Appointments for Patient
3. Get Appointments for Doctor
4. Schedule Appointment
5. Update Appointment
6. Cancel Appointment
7. Exit
Enter your choice: 2
Enter Patient ID: 102
Appointment ID: 105, Patient ID: 102, Doctor ID: 3, Date: 2025-05-08, Description: Normal Checkup
Appointment ID: 202, Patient ID: 102, Doctor ID: 2, Date: 2024-04-22, Description: Pediatric consultation
```

- **Get Appointments for Doctor**

```
=== Hospital Management Menu ===
1. Get Appointment by ID
2. Get Appointments for Patient
3. Get Appointments for Doctor
4. Schedule Appointment
5. Update Appointment
6. Cancel Appointment
7. Exit
Enter your choice: 3
Enter Doctor ID: 3
Appointment ID: 105, Patient ID: 102, Doctor ID: 3, Date: 2025-05-08, Description: Normal Checkup
Appointment ID: 203, Patient ID: 103, Doctor ID: 3, Date: 2024-04-25, Description: Neurology follow-up
```

- **Schedule Appointment**

```
=== Hospital Management Menu ===
1. Get Appointment by ID
2. Get Appointments for Patient
3. Get Appointments for Doctor
4. Schedule Appointment
5. Update Appointment
6. Cancel Appointment
7. Exit
Enter your choice: 4
Enter Appointment ID: 106
Enter Patient ID: 102
Enter Doctor ID: 2
Enter Date: 2025-07-10
Enter Description: blood test
Scheduled
```

- **Update Appointment**

```
=== Hospital Management Menu ===
1. Get Appointment by ID
2. Get Appointments for Patient
3. Get Appointments for Doctor
4. Schedule Appointment
5. Update Appointment
6. Cancel Appointment
7. Exit
Enter your choice: 5
Enter Appointment ID to Update: 106
Enter new Patient ID: 102
Enter new Doctor ID: 2
Enter new Date: 2025-11-12
Enter new Description: x-ray
Updated
```

- **Cancel Appointment**

```
=== Hospital Management Menu ===
1. Get Appointment by ID
2. Get Appointments for Patient
3. Get Appointments for Doctor
4. Schedule Appointment
5. Update Appointment
6. Cancel Appointment
7. Exit
Enter your choice: 6
Enter Appointment ID to cancel: 106
Cancelled
```