**Spring JPA Hands-On Exercise: University Management System**

**Objective**

The goal of this exercise is to implement a simple University Management System using Spring JPA. You will create entities for Student, Course, and Room, and set up the necessary repository and service layers. You will also demonstrate how to use these entities in the main application runner.

**Requirements**

1. **Entities and Relationships**
    - **Student**: Represents a student in the university.
    - **Course**: Represents a course that can be taken by students.
    - **Room**: Represents a room where courses are held.

Relationships:

- A Student can enroll in multiple Courses (Many-to-Many relationship).
- A Course is taught in one Room (Many-to-One relationship).
- A Room can be used for multiple Courses (One-to-Many relationship).

2. **Entity Definitions**

**Student**

- id (Long, Primary Key, Auto-generated)
- name (String)
- email (String)
- enrolledCourses (Set<Course>) - Many-to-Many relationship

**Course**

- id (Long, Primary Key, Auto-generated)
- title (String)
- description (String)
- room (Room) - Many-to-One relationship
- students (Set<Student>) - Many-to-Many relationship

**Room**

- id (Long, Primary Key, Auto-generated)
- roomNumber (String)
- building (String)

- courses (Set<Course>) - One-to-Many relationship

3. **Repository Layer**

Create repositories for each entity using Spring Data JPA.

- StudentRepository extends JpaRepository<Student, Long>
- CourseRepository extends JpaRepository<Course, Long>
- RoomRepository extends JpaRepository<Room, Long>

4. **Service Layer**

Implement services for each entity. Each service should provide basic CRUD operations and any additional business logic.

- StudentService - Methods for managing students
- CourseService - Methods for managing courses
- RoomService - Methods for managing rooms

5. **Main Application Runner**

In the main application runner, demonstrate how to use the repositories and services to create and manage the university's data. For example:

- Create instances of Student, Course, and Room.
- Save these instances to the database.
- Establish relationships between students and courses, and between courses and rooms.
- Fetch and display data from the database.