

## **SQL queries with explanations.**

### **1. Students Table**

This table stores student details.

- student\_id: Unique identifier for each student (auto-incremented).
- first\_name, last\_name: Student's name (cannot be NULL).
- date\_of\_birth: Birthdate of the student.
- email: Unique email for each student.

### **2. Faculty Table**

This table stores information about faculty members.

- faculty\_id: Unique identifier (auto-incremented).
- first\_name, last\_name: Faculty member's name.
- email: Unique email for each faculty member.
- department\_id: Foreign key linking to the departments table.

### **3. Departments Table**

This table holds department information.

- department\_id: Unique identifier for each department.
- name: Name of the department (must be unique).

### **4. Courses Table**

This table keeps track of courses.

- course\_id: Unique identifier.
- course\_code: Unique course code.
- course\_name: Course title.
- faculty\_id: Foreign key linking to faculty to show who teaches the course.
- department\_id: Foreign key linking to departments to indicate which department offers the course.

## **5. Enrollments Table**

This table manages student enrollments.

- enrollment\_id: Unique identifier for each enrollment.
- student\_id: Foreign key linking to the students table.
- course\_id: Foreign key linking to the courses table.
- enrollment\_date: Date of enrollment.
- grade: Grade received (nullable).

### **Sample Data Insertions**

- Adds a student (Alice Johnson).
- Adds a Computer Science department.
- Adds faculty members assigned to the department.
- Adds courses assigned to faculty.
- Enrolls Alice in a course (CS101).

### **Queries for Data Retrieval**

1. **Find students enrolled in a specific course.**
2. **Find faculty members in a particular department.**
3. **List courses a student is enrolled in.**
4. **Find students who have not enrolled in any courses.**
5. **Calculate the average grade of students in a specific course.**