**Intermediate-Level SQL DDL Assignment**

**Scenario:**

You are a database administrator for a **university management system**. Your task is to design a database to store and manage information about students, courses, faculty members, and enrollments.

**Assignment Tasks:**

**1. Create a Database**

* Create a new database named UniversityDB.
* Use appropriate collation and storage options.

**2. Create Schemas**

* Define a schema named academic to store academic-related tables.
* Define a schema named administration for staff-related tables.

**3. Create Tables with Constraints**

**a) Students Table (academic schema)**

* Store student details (ID, name, email, date of birth, gender, phone, address, enrollment date).
* Use **studentID as the primary key**.
* Ensure email is unique.
* Ensure date of birth is valid (past dates only).
* Ensure enrollment date is automatically set to the current date when inserting data.

**b) Courses Table (academic schema)**

* Store details about courses (ID, course name, credits, department, description).
* Use **courseID as the primary key**.
* Ensure the number of credits is between 1 and 5.
* Ensure course names are unique.

**c) Faculty Table (administration schema)**

* Store faculty members (ID, name, email, phone, hire date, department).
* Use **facultyID as the primary key**.
* Ensure email is unique.
* Ensure hire date is automatically set to today’s date.

**d) Enrollments Table (academic schema)**

* Track which students are enrolled in which courses.
* Use **a composite primary key** (studentID, courseID).
* Use foreign keys to reference Students and Courses tables.
* Store the enrollment date (default to today).
* Ensure a student cannot enroll in the same course twice.

**4. Relationships & Foreign Keys**

* Each student can enroll in multiple courses, and each course can have multiple students (**many-to-many**).
* Each faculty member belongs to a **department**, and each department has multiple faculty members (**one-to-many**).
* Ensure **cascade delete** when deleting a student (so enrollments get deleted).

**5. Data Insertion & Handling**

* Insert **at least 5 students, 5 faculty members, and 5 courses**.
* Enroll **students into courses** with real-world logic (e.g., a student cannot enroll in two courses with the same schedule).
* Assign **faculty members to departments**.

**6. Additional Constraints & Enhancements**

* Ensure phone numbers follow a valid format.
* Add a status column in the Students table (Active, Graduated, Dropped Out), defaulting to Active.
* Ensure faculty members have a salary above a minimum threshold.

**Final Deliverables:**

1. **DDL SQL Statements** (Create database, schemas, tables, and relationships).
2. **Data Insertion Queries** (At least 5 records per table).
3. **Integrity Constraints & Indexes** (Primary keys, unique constraints, foreign keys, and check constraints).

**Bonus Challenge (Optional):**

* Create a table for **class schedules** where each course has a fixed weekly schedule.
* Ensure students cannot enroll in courses that have time conflicts.

This assignment reflects **real-world database design** scenarios, testing your knowledge of **schemas, relationships, constraints, and data integrity**. Let me know if you need more details! 🚀