**ANP-C7971**

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Database Design for

Student Enrollment System

**In today’s fast-paced educational environment, effective management of student data is essential for fostering academic success and operational efficiency. A well-structured database plays a crucial role in this endeavor, providing a centralized system for tracking student enrollments, course offerings, faculty assignments, and academic performance. The Student Enrollment Database is designed to facilitate these processes, ensuring that all stakeholders—students, educators, and administrative staff—have access to the information they need for informed decision-making.**

**This database encompasses a variety of entities that encapsulate the essential components of an educational institution. By defining clear relationships among these entities, the database not only enhances data organization but also streamlines operations, ultimately contributing to a more effective learning environment. This introduction sets the stage for a detailed exploration of the database structure, its entities, attributes, and the relationships that underpin its functionality, demonstrating its significance in supporting the educational mission.**

### **Entities**

* **Students**
* **Enrollments**
* **Lecture**
* **Lecturers**
* **Subjects**

### **Entities Overview**

1. **Students**
   * **Description: This entity holds information about students enrolled in the institution.**
   * **Attributes:**
     + **Fname (First Name)**
       - **Type: CHAR(20)**
       - **Description: The first name of the student.**
     + **Lname (Last Name)**
       - **Type: CHAR(20)**
       - **Description: The last name of the student.**
     + **RID (Registration ID)**
       - **Type: NUMERIC**
       - **Description: A unique identifier for each student (Primary Key).**
     + **Address (Residential Address)**
       - **Type: VARCHAR(20)**
       - **Description: The home address of the student.**
     + **Bdate (Birth Date)**
       - **Type: DATE**
       - **Description: The birth date of the student.**
       - **Constraint: Check (Bdate between '2000-01-12' and '2003-02-19')**
2. **Enrollments**
   * **Description: This entity tracks the courses in which students are enrolled.**
   * **Attributes:**
     + **Student\_Num (Identifier for the Student)**
       - **Type: INT**
       - **Description: A unique number assigned to identify the student in this table.**
     + **RID (Registration ID)**
       - **Type: NUMERIC**
       - **Description: A foreign key referencing the RID in the Students table.**
     + **Date\_of\_Enrollments (Date of Enrollment)**
       - **Type: DATE**
       - **Description: The date when the student enrolled in the course.**
       - **Constraint: Check (Date\_of\_Enrollments between '2023-01-01' and '2023-08-30')**
     + **Course\_name (Name of the Course)**
       - **Type: CHAR(10)**
       - **Description: The name of the course the student is enrolled in.**
     + **Coursecommencement (Start Date of the Course)**
       - **Type: DATE**
       - **Description: The commencement date of the enrolled course.**
3. **Lecture**
   * **Description: This entity stores information about lectures being conducted.**
   * **Attributes:**
     + **Subject (Subject Name)**
       - **Type: VARCHAR(10)**
       - **Description: The name of the subject being taught.**
     + **lecturer\_name (Name of the Lecturer)**
       - **Type: CHAR(10)**
       - **Description: The name of the lecturer conducting the lecture.**
     + **lecture\_date (Date of the Lecture)**
       - **Type: DATE**
       - **Description: The date on which the lecture is scheduled.**
     + **time\_course (Time of the Course)**
       - **Type: TIME**
       - **Description: The time at which the course is held.**
     + **lecturer\_code (Unique Identifier for the Lecturer)**
       - **Type: INT**
       - **Description: A unique code assigned to each lecturer (Primary Key).**
4. **Lecturers**
   * **Description: This entity contains information about the lecturers teaching the courses.**
   * **Attributes:**
     + **Lectuere\_ID (Lecturer ID)**
       - **Type: INT**
       - **Description: A unique identifier for each lecturer.**
     + **lecturer\_code (Code referencing Lecture)**
       - **Type: INT**
       - **Description: A foreign key referencing the lecturer\_code in the Lecture table.**
     + **Fname (First Name of the Lecturer)**
       - **Type: CHAR(20)**
       - **Description: The first name of the lecturer.**
     + **Lname (Last Name of the Lecturer)**
       - **Type: CHAR(20)**
       - **Description: The last name of the lecturer.**
     + **email (Email Address)**
       - **Type: VARCHAR(30)**
       - **Description: The email address of the lecturer.**
       - **Constraint: Check (email contains '@gmail.com')**
     + **l\_Address (Address of the Lecturer)**
       - **Type: VARCHAR(20)**
       - **Description: The residential address of the lecturer.**
5. **Subjects**
   * **Description: This entity stores information about the subjects being taught and their corresponding lecturers.**
   * **Attributes:**
     + **Subject\_code (Unique Identifier for the Subject)**
       - **Type: INT**
       - **Description: A unique code assigned to each subject.**
     + **Lectuere\_ID (Foreign Key referencing Lecturers)**
       - **Type: INT**
       - **Description: A foreign key referencing the Lectuere\_ID in the Lecturers table.**
     + **subject\_unit (Content Outline of the Subject)**
       - **Type: VARCHAR(50)**
       - **Description: An outline or units covered in the subject.**
     + **subject\_author (Author of the Subject Material)**
       - **Type: CHAR(20)**
       - **Description: The author of the course material related to the subject.**

### **Entity Relationships:**

* **Students to Enrollments: One student can enroll in multiple courses (One-to-Many).**
* **Enrollments to Students: Each enrollment is linked to a single student.**
* **Lecturers to Lecture: One lecturer can deliver multiple lectures (One-to-Many).**
* **Subjects to Lecturers: Each subject is taught by one lecturer (One-to-Man**

**ER DIAGRAM FOR STUDENT ENROLLMENT**

**SYSTEM**

