**Student Database Schema Document**

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**Overview:**

* This document details the structure of a students database schema consisting of three tables: "student\_details”, “courses”, and “enrollments”.
* These tables store information about students, courses, and enrollments respectively.

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**Database Schema:**

***Table 1: student\_details***

This table contains the details of each student.

* **student\_id**: This column is the primary key for the student\_details table. It uniquely identifies each student.

***Data type: int.***

***Constraints: PRIMARY KEY.***

* **student\_name**: This column stores the name of the student.

***Data type: varchar (30).***

***Constraints: NOT NULL.***

* **age**: This column stores the age of the student. ***Data type: int.***

***Constraints: NOT NULL.***

* **gender**: This column stores the gender of the ***student. Data type: varchar (10).***

***Constraints: NOT NULL.***

* **major**: This column stores the major field of study of the student.

***Data type: varchar (50).***

***Constraints: NOT NULL.***

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***Table 2: courses***

This table contains the details of each course.

* **course\_id**: This column is the primary key for the courses table. It uniquely identifies each course.

***Data type: int.***

***Constraints: PRIMARY KEY.***

* **course\_name**: This column stores the name of the course.

***Data type: varchar (100).***

***Constraints: NOT NULL.***

* **department**: This column stores the department offering the course.

***Data type: varchar (50).***

***Constraints: NOT NULL.***

* **credits**: This column stores the number of credits for the course.

***Data type: int.***

***Constraints: NOT NULL.***

* **semester**: This column stores the semester during which the course is offered.

***Data type: varchar (20).***

***Constraints: NOT NULL.***

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***Table 3: enrollments***

This table records the enrollment of students in courses and is a parent table connecting student\_details and courses.

* **enrollment\_id**: This column is the primary key for the enrollments table. It uniquely identifies each enrollment record.

Data type: int.

Constraints: PRIMARY KEY.

* **student\_id**: This column is a foreign key referencing the student\_id in the student\_details table. It identifies the student who is enrolled.

Data type: int.

Constraints: FOREIGN KEY.

* **course\_id**: This column is a foreign key referencing the course\_id in the courses table. It identifies the course in which the student is enrolled.

Data type: int.

Constraints: FOREIGN KEY

* **enrollment\_date**: This column stores the date on which the student enrolled in the course.

Data type: date.

Constraints: NOT NULL.

* **grade**: This column stores the grade obtained by the student in the course.

Data type: varchar (2).

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***Data Types and Constraints Explanation:***

* **int**: This data type is used for integer values. It is suitable for primary keys and foreign keys because they are generally numeric and need to be unique.
* **varchar(length)**: This data type is used for variable-length character strings. It is suitable for text fields such as names, departments, and genders. The length parameter specifies the maximum number of characters allowed.
* **date**: This data type is used for date values, which include the year, month, and day.
* **NOT NULL**: This constraint ensures that the column cannot contain NULL values. It is used for columns that are mandatory and must have a value.
* **PRIMARY KEY**: This constraint uniquely identifies each record in the table. It ensures that the column contains unique values and cannot be NULL.
* **FOREIGN KEY**: This constraint ensures referential integrity by linking one table to another. It ensures that the value in the foreign key column must match a value in the primary key column of the referenced table.

ER Diagram:

<https://lucid.app/lucidchart/c8a810f7-39dc-4a54-8a18-b255ade92546/edit?view_items=4xwL7nak7NXS&invitationId=inv_0a7c9e80-d3d3-4be8-8ca6-474add18159b>