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DATABASE DESIGN FOR SCHOOL

MANAGEMENT SYSTEM

# SCHOOL MANAGEMENT SYSTEM

Creating a school management system (SMS) involves designing a comprehensive database to handle various aspects of school operations.

This school management system database design provides a robust framework to manage student data, track academic progress, and streamline school operations efficiently. By focusing on relationships, normalization, and access control, you can create a scalable and maintainable system.

A school management system (SMS) database design is structured to effectively manage various aspects of school operations. It includes key entities such as Students, Teachers, Parents, Classes, Subjects, Grades, and Attendance, each with specific attributes. The design establishes relationships, allowing for multiple enrollments per student and multiple Subjects per teacher. Data normalization is employed to reduce redundancy and ensure integrity, while constraints like primary and foreign keys maintain accurate data. User roles are defined to control access: Admins have full management capabilities, Teachers can oversee their Subjects and grades, and Students can view their own information. Additionally, the system supports reporting for performance and attendance, alongside regular backups and recovery plans to safeguard against data loss, providing a comprehensive framework for school management.

Designing a database for school Management System includes different entities, attributes along with their relationships.

# ENTITIES:

* Students
* Teachers
* Classes
* Subjects
* Grades
* Attendance
* Parents

# ATTRIBUTES:

1. Students:

* Stu\_id
* Name
* DOB
* Ph\_no
* E\_mail
* Address
* Enroll\_date

1. Teachers:

* Teacher\_id
* Teacher\_name
* Teacher\_ph\_no
* Teacher\_e\_mail

1. Classes:
   * Class\_id
   * Class\_name
2. Subjects:
   * Sub\_id
   * Sub\_name
3. Grades:
   * Grade\_id
   * Grade\_value
4. Attendance:
   * + Att\_id
     + Att\_date
     + Status
5. Parents:
   * Parent\_id
   * Parent\_name
   * Parent\_ph\_no
   * Parent\_e\_mail

# ENTITY-RELATIONS

* *Students to classes:*

Many-to-one relationship (A student can belong to one class, but a class can have many students).

* *Teacher to classes:*

One-to-Many relationship (A teacher can teach multiple classes, but each class has one teacher).

* *Classes to Subjects:*

One-to-Many relationship (A class can have multiple subjects).

* *Students to Grades:*

Many-to-Many relationship (A student can have many grades, and a grade can be awarded to many students for different subjects).

* *Students to Attendance:*

Many-to-Many relationship (A student can have multiple attendance records).

* *Student to Parents:*

One-to-One relationship (A parent can have multiple children enrolled in the school).

* *Students to Subjects:*

Many-to-Many relationship (A student can have many Subjects, and

Subjects can be hold by Many students).

M M

subjects

have

Awards

Students

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classes

Parent

Grades

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Teacher

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have

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Attendance

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