# School Management System

**Project By- Miss. Runali Madhukar Bawaskar**

**Guided By- Mr. Samir warsolkar Sir**

## Abstract

The School Management System is designed to streamline the management of school operations. It facilitates the organization of student and teacher data, course scheduling, enrollment processes, and tracking of student attendance. Implementing this system reduces manual labor and minimizes errors, enhancing the efficiency of educational administration.

Runalibawaskar1998@gmail.com

Batch ID: qqqkjs4

# School management system
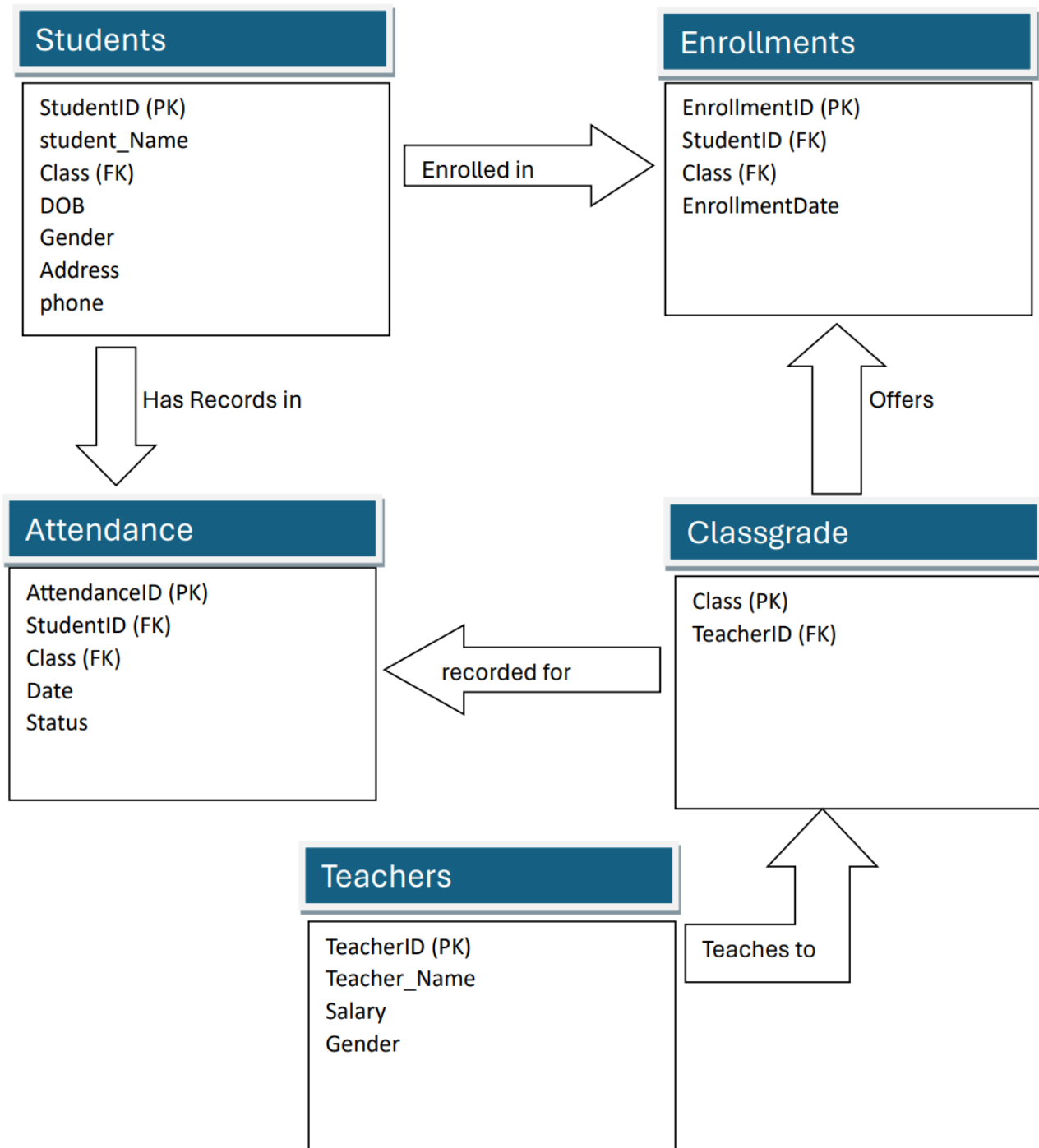
## Project for SQL module

## 1.Discription

The database schema is crafted to serve as the backend for a school management application. This relational database will handle tasks such as student enrollment, class management, teacher assignments, and attendance tracking, offering benefits over traditional manual systems. This includes easier updates to student and course information, efficient management of teacher assignments, and automated processes like attendance tracking all of which reduce the likelihood of human error.

This database contains 5 tables:

1. Student

2. Teachers

3. ClassGrade

4. Enrollment

5. Attendance

How these tables/entities are related to each other is shown pictorially on next page through ER diagram, i.e., Entity Relationship Diagram

# 2. ER-Diagram (Entity Relation – Diagram) for School Management System:

## Students

StudentID (PK)
student_Name
Class (FK)
DOB
Gender
Address
phone

**Enrolled in** →

## Enrollments

EnrollmentID (PK)
StudentID (FK)
Class (FK)
EnrollmentDate

↓ **Has Records in**

↑ **Offers**

## Attendance

AttendanceID (PK)
StudentID (FK)
Class (FK)
Date
Status

← **recorded for**

## Classgrade

Class (PK)
TeacherID (FK)

## Teachers

TeacherID (PK)
Teacher_Name
Salary
Gender

**Teaches to** ↑

# 3. Table Descriptions:

## 1. Teacher

| Field | Type | Null | Key | Default | Extra |
|---|---|---|---|---|---|
| TeacherID | int(11) | NO | PRI | NULL | auto_increment |
| Teacher_Name | varchar(100) | NO | | NULL | |
| salary | int(11) | NO | | NULL | |
| gender | varchar(10) | YES | | NULL | |

## 2. ClassGrade

| Field | Type | Null | Key | Default | Extra |
|---|---|---|---|---|---|
| Class | varchar(20) | NO | PRI | NULL | |
| TeacherID | int(11) | YES | MUL | NULL | |

## 3. Students

| Field | Type | Null | Key | Default | Extra |
|---|---|---|---|---|---|
| StudentID | int(11) | NO | PRI | NULL | auto_increment |
| Student_Name | varchar(100) | NO | | NULL | |
| Class | varchar(20) | YES | MUL | NULL | |
| DOB | date | YES | | NULL | |
| Gender | varchar(10) | YES | | NULL | |
| Address | varchar(255) | YES | | NULL | |
| Phone | varchar(100) | YES | | NULL | |

## 4. Enrollments

| Field | Type | Null | Key | Default | Extra |
|---|---|---|---|---|---|
| EnrollmentID | int(11) | NO | PRI | NULL | |
| StudentID | int(11) | YES | MUL | NULL | |
| Class | varchar(20) | YES | MUL | NULL | |
| EnrollmentDate | date | YES | | NULL | |

## 5.Attendance

| Field | Type | Null | Key | Default | Extra |
|---|---|---|---|---|---|
| Attendanceid | int(11) | NO | PRI | NULL | auto_increment |
| StudentID | int(11) | YES | MUL | NULL | |
| Class | varchar(20) | YES | MUL | NULL | |
| Date | date | YES | | NULL | |
| Status | varchar(10) | YES | | NULL | |

# 4.commands

- Create database school;
- Use school;

- CREATE TABLE Teachers (
    TeacherID INT PRIMARY KEY auto_increment,
    Teacher_Name VARCHAR (100) not null,
    salary int not null,
    gender varchar (10)
    );

- desc teachers;

- CREATE TABLE Classgrade (
    Class varchar (20) PRIMARY KEY,
    TeacherID INT,
    FOREIGN KEY (TeacherID) REFERENCES Teachers(TeacherID)
    );

- desc Classgrade;

- CREATE TABLE Students (
    StudentID INT PRIMARY KEY auto_increment,
    Student_Name VARCHAR(100) not null,
    Class varchar(20),
    DOB DATE,
    Gender VARCHAR(10),
    Address VARCHAR(255),
    Phone VARCHAR(100),
    FOREIGN KEY (class) REFERENCES Classgrade(class)
    );

- Desc students;

- CREATE TABLE Enrollments (
    EnrollmentID INT PRIMARY KEY,
    StudentID INT,
    Class varchar(20),
    EnrollmentDate DATE,
    FOREIGN KEY (StudentID) REFERENCES Students(StudentID),
    FOREIGN KEY (Class) REFERENCES Classgrade(Class)
    );

- desc enrollments;

- CREATE TABLE Attendance (

    Attendanceid int primary key auto_increment
    StudentID INT,
    Class varchar(20),
    Date DATE,
    Status VARCHAR(10),
    FOREIGN KEY (StudentID) REFERENCES Students(StudentID),
    FOREIGN KEY (Class) REFERENCES Classgrade(Class)
    );

- desc attendance;

- INSERT INTO Teachers (TeacherID, Teacher_Name, Salary, Gender) VALUES
    (1001, 'John Smith', 50000, 'Male'),
    (1002, 'Emily Jones', 48000, 'Female'),
    (1003, 'Michael Brown', 52000, 'Male'),
    (1004, 'Sarah Lee', 51000, 'Female'),
    (1005, 'David Clark', 49000, 'Male'),
    (1006, 'Emma Taylor', 47000, 'Female');


- INSERT INTO Classgrade (Class, TeacherID) VALUES
    ('Grade 1', 1001),
    ('Grade 2', 1002),
    ('Grade 3', 1003),
    ('Grade 4', 1004),
    ('Grade 5', 1005);


- INSERT INTO Students (StudentID, Student_Name, Class, DOB, Gender, Address, Phone)  VALUES
    (1, 'Alice Smith', 'Grade 1', '2009-03-15', 'Female', '123 Main St', '123-456-7890'),
    (2, 'Bob Johnson', 'Grade 1', '2009-05-20', 'Male', '456 Elm St', '456-789-0123'),
    (3, 'Emma Brown', 'Grade 1', '2009-01-10', 'Female', '789 Oak St', '789-012-3456'),
    (4, 'James Williams', 'Grade 1', '2009-08-05', 'Male', '321 Pine St', '321-654-9870'),
    (5, 'Olivia Davis', 'Grade 1', '2009-05-25', 'Female', '456 Maple St', '456-987-6543'),
    (6, 'William Wilson', 'Grade 1', '2009-02-15', 'Male', '987 Cedar St', '987-654-3210'),
    (7, 'Sophia Martinez', 'Grade 1', '2009-11-20', 'Female', '654 Birch St', '654-321-0987'),
    (8, 'Liam Jones', 'Grade 1', '2009-04-30', 'Male', '147 Pineapple St', '147-258-3690'),
    (9, 'Charlotte Garcia', 'Grade 1', '2009-09-12', 'Female', '852 Cherry St', '852-963-7410'),
    (10, 'Ethan Rodriguez', 'Grade 1', '2009-07-08', 'Male', '369 Lemon St', '369-147-2580'),
    (11, 'Ava Hernandez', 'Grade 2', '2010-03-17', 'Female', '741 Orange St', '741-852-9630'),
    (12, 'Noah Martinez', 'Grade 2', '2010-11-22', 'Male', '852 Apple St', '852-963-7410'),
    (13, 'Isabella Lopez', 'Grade 2', '2010-10-14', 'Female', '963 Grape St', '963-852-7410'),
    (14, 'Mason Perez', 'Grade 2', '2010-08-30', 'Male', '123 Peach St', '123-456-7890'),
    (15, 'Sophia Thompson', 'Grade 2', '2010-06-03', 'Female', '456 Banana St', '456-789-0123'),
    (16, 'Liam Smith', 'Grade 2', '2010-04-18', 'Male', '789 Mango St', '789-012-3456'),
    (17, 'Isabella White', 'Grade 2', '2010-12-12', 'Female', '321 Pear St', '321-654-9870'),

(18, 'Oliver Martin', 'Grade 2', '2010-02-28', 'Male', '654 Watermelon St', '654-987-6543'),
(19, 'Amelia Thompson', 'Grade 2', '2010-09-05', 'Female', '987 Kiwi St', '987-654-3210'),
(20, 'Elijah Harris', 'Grade 2', '2010-05-19', 'Male', '147 Strawberry St', '147-258-3690'),
(21, 'Avery Garcia', 'Grade 3', '2011-04-07', 'Female', '852 Raspberry St', '852-963-7410'),
(22, 'Ethan Johnson', 'Grade 3', '2011-03-22', 'Male', '369 Blueberry St', '369-147-2580'),
(23, 'Aria Hernandez', 'Grade 3', '2011-09-16', 'Female', '741 Blackberry St', '741-852-9630'),
(24, 'Benjamin Lopez', 'Grade 3', '2011-07-11', 'Male', '852 Cranberry St', '852-963-7410'),
(25, 'Amelia Perez', 'Grade 3', '2011-10-29', 'Female', '963 Gooseberry St', '963-852-7410'),
(26, 'Lucas Martinez', 'Grade 3', '2011-12-25', 'Male', '123 Cherry St', '123-456-7890'),
(27, 'Charlotte Taylor', 'Grade 3', '2011-06-21', 'Female', '456 Strawberry St', '456-789-0123'),
(28, 'Mia Brown', 'Grade 3', '2011-04-14', 'Male', '789 Raspberry St', '789-012-3456'),
(29, 'Mason Wilson', 'Grade 3', '2011-05-07', 'Female', '321 Blueberry St', '321-654-9870'),
(30, 'Ava Jones', 'Grade 3', '2011-01-23', 'Male', '654 Blackberry St', '654-987-6543'),
(31, 'William Johnson', 'Grade 4', '2012-08-27', 'Female', '987 Gooseberry St', '987-654-3210'),
(32, 'Harper Smith', 'Grade 4', '2012-07-03', 'Male', '147 Kiwi St', '147-258-3690'),
(33, 'Aiden Garcia', 'Grade 4', '2012-09-09', 'Female', '741 Cranberry St', '741-852-9630'),
(34, 'Ella Perez', 'Grade 4', '2012-11-24', 'Male', '852 Raspberry St', '852-963-7410'),
(35, 'Jackson Martinez', 'Grade 4', '2012-01-11', 'Female', '369 Blackberry St', '369-147-2580'),
(36, 'Scarlett Lopez', 'Grade 4', '2012-02-28', 'Male', '741 Blueberry St', '741-852-9630'),
(37, 'Aiden Wilson', 'Grade 4', '2012-06-14', 'Female', '987 Strawberry St', '987-654-3210'),
(38, 'Olivia Taylor', 'Grade 4', '2012-05-19', 'Male', '147 Blueberry St', '147-258-3690'),
(39, 'Elijah Brown', 'Grade 4', '2012-03-04', 'Female', '741 Blackberry St', '741-852-9630'),
(40, 'Evelyn Smith', 'Grade 4', '2012-07-30', 'Male', '852 Cranberry St', '852-963-7410'),
(41, 'Carter Garcia', 'Grade 5', '2013-11-11', 'Female', '963 Raspberry St', '963-852-7410'),
(42, 'Mia Perez', 'Grade 5', '2013-12-22', 'Male', '123 Strawberry St', '123-456-7890'),
(43, 'Liam Johnson', 'Grade 5', '2013-09-09', 'Female', '456 Blueberry St', '456-789-0123'),
(44, 'Avery Wilson', 'Grade 5', '2013-02-14', 'Male', '789 Blackberry St', '789-012-3456'),
(45, 'Harper Brown', 'Grade 5', '2013-04-25', 'Female', '321 Gooseberry St', '321-654-9870'),
(46, 'Ethan Taylor', 'Grade 5', '2013-08-12', 'Male', '654 Cranberry St', '654-987-6543'),
(47, 'Scarlett Garcia', 'Grade 5', '2013-07-01', 'Female', '987 Strawberry St', '987-654-3210'),
(48, 'Jackson Davis', 'Grade 5', '2013-06-11', 'Male', '147 Blueberry St', '147-258-3690'),
(49, 'Aria Williams', 'Grade 5', '2013-05-02', 'Female', '741 Blackberry St', '741-852-9630'),
(50, 'Michael Wilson', 'Grade 5', '2013-02-28', 'Male', '852 Cranberry St', '852-963-7410');


- INSERT INTO Enrollments (EnrollmentID, StudentID, Class, EnrollmentDate) VALUES
  (201, 1, 'Grade 1', '2024-04-01'),
  (202, 2, 'Grade 1', '2024-04-01'),
  (203, 3, 'Grade 1', '2024-04-01'),
  (204, 4, 'Grade 1', '2024-04-01'),
  (205, 5, 'Grade 1', '2024-04-01'),
  (206, 6, 'Grade 1', '2024-04-01'),
  (207, 7, 'Grade 1', '2024-04-01'),
  (208, 8, 'Grade 1', '2024-04-01'),
  (209, 9, 'Grade 1', '2024-04-01'),
  (210, 10, 'Grade 1', '2024-04-01'),
  (211, 11, 'Grade 2', '2024-04-02'),
  (212, 12, 'Grade 2', '2024-04-02'),
  (213, 13, 'Grade 2', '2024-04-02'),

(214, 14, 'Grade 2', '2024-04-02'),
(215, 15, 'Grade 2', '2024-04-02'),
(216, 16, 'Grade 2', '2024-04-02'),
(217, 17, 'Grade 2', '2024-04-02'),
(218, 18, 'Grade 2', '2024-04-02'),
(219, 19, 'Grade 2', '2024-04-02'),
(220, 20, 'Grade 2', '2024-04-02'),
(221, 21, 'Grade 3', '2024-04-03'),
(222, 22, 'Grade 3', '2024-04-03'),
(223, 23, 'Grade 3', '2024-04-03'),
(224, 24, 'Grade 3', '2024-04-03'),
(225, 25, 'Grade 3', '2024-04-03'),
(226, 26, 'Grade 3', '2024-04-03'),
(227, 27, 'Grade 3', '2024-04-03'),
(228, 28, 'Grade 3', '2024-04-03'),
(229, 29, 'Grade 3', '2024-04-03'),
(230, 30, 'Grade 3', '2024-04-03'),
(231, 31, 'Grade 4', '2024-04-04'),
(232, 32, 'Grade 4', '2024-04-04'),
(233, 33, 'Grade 4', '2024-04-04'),
(234, 34, 'Grade 4', '2024-04-04'),
(235, 35, 'Grade 4', '2024-04-04'),
(236, 36, 'Grade 4', '2024-04-04'),
(237, 37, 'Grade 4', '2024-04-04'),
(238, 38, 'Grade 4', '2024-04-04'),
(239, 39, 'Grade 4', '2024-04-04'),
(240, 40, 'Grade 4', '2024-04-04'),
(241, 41, 'Grade 5', '2024-04-05'),
(242, 42, 'Grade 5', '2024-04-05'),
(243, 43, 'Grade 5', '2024-04-05'),
(244, 44, 'Grade 5', '2024-04-05'),
(245, 45, 'Grade 5', '2024-04-05'),
(246, 46, 'Grade 5', '2024-04-05'),
(247, 47, 'Grade 5', '2024-04-05'),
(248, 48, 'Grade 5', '2024-04-05'),
(249, 49, 'Grade 5', '2024-04-05'),
(250, 50, 'Grade 5', '2024-04-05');

- INSERT INTO Attendance (AttendanceID, StudentID, Class, Date, Status) VALUES
  (501, 1, 'Grade 1', '2024-04-15', 'Present'),
  (502, 2, 'Grade 1', '2024-04-15', 'Present'),
  (503, 3, 'Grade 1', '2024-04-15', 'Absent'),
  (504, 4, 'Grade 1', '2024-04-15', 'Present'),
  (505, 5, 'Grade 1', '2024-04-15', 'Present'),
  (506, 6, 'Grade 1', '2024-04-15', 'Absent'),
  (507, 7, 'Grade 1', '2024-04-15', 'Present'),
  (508, 8, 'Grade 1', '2024-04-15', 'Present'),
  (509, 9, 'Grade 1', '2024-04-15', 'Absent'),

```
(510, 10, 'Grade 1', '2024-04-15', 'Present'),
(511, 11, 'Grade 2', '2024-04-15', 'Present'),
(512, 12, 'Grade 2', '2024-04-15', 'Present'),
(513, 13, 'Grade 2', '2024-04-15', 'Absent'),
(514, 14, 'Grade 2', '2024-04-15', 'Present'),
(515, 15, 'Grade 2', '2024-04-15', 'Present'),
(516, 16, 'Grade 2', '2024-04-15', 'Absent'),
(517, 17, 'Grade 2', '2024-04-15', 'Present'),
(518, 18, 'Grade 2', '2024-04-15', 'Present'),
(519, 19, 'Grade 2', '2024-04-15', 'Absent'),
(520, 20, 'Grade 2', '2024-04-15', 'Present'),
(521, 21, 'Grade 3', '2024-04-15', 'Present'),
(522, 22, 'Grade 3', '2024-04-15', 'Present'),
(523, 23, 'Grade 3', '2024-04-15', 'Absent'),
(524, 24, 'Grade 3', '2024-04-15', 'Present'),
(525, 25, 'Grade 3', '2024-04-15', 'Present'),
(526, 26, 'Grade 3', '2024-04-15', 'Absent'),
(527, 27, 'Grade 3', '2024-04-15', 'Present'),
(528, 28, 'Grade 3', '2024-04-15', 'Present'),
(529, 29, 'Grade 3', '2024-04-15', 'Absent'),
(530, 30, 'Grade 3', '2024-04-15', 'Present'),
(531, 31, 'Grade 4', '2024-04-15', 'Present'),
(532, 32, 'Grade 4', '2024-04-15', 'Present'),
(533, 33, 'Grade 4', '2024-04-15', 'Absent'),
(534, 34, 'Grade 4', '2024-04-15', 'Present'),
(535, 35, 'Grade 4', '2024-04-15', 'Present'),
(536, 36, 'Grade 4', '2024-04-15', 'Absent'),
(537, 37, 'Grade 4', '2024-04-15', 'Present'),
(538, 38, 'Grade 4', '2024-04-15', 'Present'),
(539, 39, 'Grade 4', '2024-04-15', 'Absent'),
(540, 40, 'Grade 4', '2024-04-15', 'Present'),
(541, 41, 'Grade 5', '2024-04-15', 'Present'),
(542, 42, 'Grade 5', '2024-04-15', 'Present'),
(543, 43, 'Grade 5', '2024-04-15', 'Absent'),
(544, 44, 'Grade 5', '2024-04-15', 'Present'),
(545, 45, 'Grade 5', '2024-04-15', 'Present'),
(546, 46, 'Grade 5', '2024-04-15', 'Absent'),
(547, 47, 'Grade 5', '2024-04-15', 'Present'),
(548, 48, 'Grade 5', '2024-04-15', 'Present'),
(549, 49, 'Grade 5', '2024-04-15', 'Absent'),
(550, 50, 'Grade 5', '2024-04-15', 'Present'),
(551, 1, 'Grade 1', '2024-04-16', 'Present'),
(552, 2, 'Grade 1', '2024-04-16', 'Present'),
(553, 3, 'Grade 1', '2024-04-16', 'Absent'),
(554, 4, 'Grade 1', '2024-04-16', 'Present'),
(555, 5, 'Grade 1', '2024-04-16', 'Present'),
(556, 6, 'Grade 1', '2024-04-16', 'Absent'),
(557, 7, 'Grade 1', '2024-04-16', 'Present'),
(558, 8, 'Grade 1', '2024-04-16', 'Present'),
```

(559, 9, 'Grade 1', '2024-04-16', 'Absent'),
(560, 10, 'Grade 1', '2024-04-16', 'Present'),
(561, 11, 'Grade 2', '2024-04-16', 'Present'),
(562, 12, 'Grade 2', '2024-04-16', 'Present'),
(563, 13, 'Grade 2', '2024-04-16', 'Absent'),
(564, 14, 'Grade 2', '2024-04-16', 'Present'),
(565, 15, 'Grade 2', '2024-04-16', 'Present'),
(566, 16, 'Grade 2', '2024-04-16', 'Absent'),
(567, 17, 'Grade 2', '2024-04-16', 'Present'),
(568, 18, 'Grade 2', '2024-04-16', 'Present'),
(569, 19, 'Grade 2', '2024-04-16', 'Absent'),
(570, 20, 'Grade 2', '2024-04-16', 'Present'),
(571, 21, 'Grade 3', '2024-04-16', 'Present'),
(572, 22, 'Grade 3', '2024-04-16', 'Present'),
(573, 23, 'Grade 3', '2024-04-16', 'Absent'),
(574, 24, 'Grade 3', '2024-04-16', 'Present'),
(575, 25, 'Grade 3', '2024-04-16', 'Present'),
(576, 26, 'Grade 3', '2024-04-16', 'Absent'),
(577, 27, 'Grade 3', '2024-04-16', 'Present'),
(578, 28, 'Grade 3', '2024-04-16', 'Present'),
(579, 29, 'Grade 3', '2024-04-16', 'Absent'),
(580, 30, 'Grade 3', '2024-04-16', 'Present'),
(581, 31, 'Grade 4', '2024-04-16', 'Present'),
(582, 32, 'Grade 4', '2024-04-16', 'Present'),
(583, 33, 'Grade 4', '2024-04-16', 'Absent'),
(584, 34, 'Grade 4', '2024-04-16', 'Present'),
(585, 35, 'Grade 4', '2024-04-16', 'Present'),
(586, 36, 'Grade 4', '2024-04-16', 'Absent'),
(587, 37, 'Grade 4', '2024-04-16', 'Present'),
(588, 38, 'Grade 4', '2024-04-16', 'Present'),
(589, 39, 'Grade 4', '2024-04-16', 'Absent'),
(590, 40, 'Grade 4', '2024-04-16', 'Present'),
(591, 41, 'Grade 5', '2024-04-16', 'Present'),
(592, 42, 'Grade 5', '2024-04-16', 'Present'),
(593, 43, 'Grade 5', '2024-04-16', 'Absent'),
(594, 44, 'Grade 5', '2024-04-16', 'Present'),
(595, 45, 'Grade 5', '2024-04-16', 'Present'),
(596, 46, 'Grade 5', '2024-04-16', 'Absent'),
(597, 47, 'Grade 5', '2024-04-16', 'Present'),
(598, 48, 'Grade 5', '2024-04-16', 'Present'),
(599, 49, 'Grade 5', '2024-04-16', 'Absent'),
(600, 50, 'Grade 5', '2024-04-16', 'Present'),
(601, 1, 'Grade 1', '2024-04-17', 'Present'),
(602, 2, 'Grade 1', '2024-04-17', 'Present'),
(603, 3, 'Grade 1', '2024-04-17', 'Absent'),
(604, 4, 'Grade 1', '2024-04-17', 'Present'),
(605, 5, 'Grade 1', '2024-04-17', 'Present'),
(606, 6, 'Grade 1', '2024-04-17', 'Absent'),
(607, 7, 'Grade 1', '2024-04-17', 'Present'),

```
(608, 8, 'Grade 1', '2024-04-17', 'Present'),
(609, 9, 'Grade 1', '2024-04-17', 'Absent'),
(610, 10, 'Grade 1', '2024-04-17', 'Present'),
(611, 11, 'Grade 2', '2024-04-17', 'Present'),
(612, 12, 'Grade 2', '2024-04-17', 'Present'),
(613, 13, 'Grade 2', '2024-04-17', 'Absent'),
(614, 14, 'Grade 2', '2024-04-17', 'Present'),
(615, 15, 'Grade 2', '2024-04-17', 'Present'),
(616, 16, 'Grade 2', '2024-04-17', 'Absent'),
(617, 17, 'Grade 2', '2024-04-17', 'Present'),
(618, 18, 'Grade 2', '2024-04-17', 'Present'),
(619, 19, 'Grade 2', '2024-04-17', 'Absent'),
(620, 20, 'Grade 2', '2024-04-17', 'Present'),
(621, 21, 'Grade 3', '2024-04-17', 'Present'),
(622, 22, 'Grade 3', '2024-04-17', 'Present'),
(623, 23, 'Grade 3', '2024-04-17', 'Absent'),
(624, 24, 'Grade 3', '2024-04-17', 'Present'),
(625, 25, 'Grade 3', '2024-04-17', 'Present'),
(626, 26, 'Grade 3', '2024-04-17', 'Absent'),
(627, 27, 'Grade 3', '2024-04-17', 'Present'),
(628, 28, 'Grade 3', '2024-04-17', 'Present'),
(629, 29, 'Grade 3', '2024-04-17', 'Absent'),
(630, 30, 'Grade 3', '2024-04-17', 'Present'),
(631, 31, 'Grade 4', '2024-04-17', 'Present'),
(632, 32, 'Grade 4', '2024-04-17', 'Present'),
(633, 33, 'Grade 4', '2024-04-17', 'Absent'),
(634, 34, 'Grade 4', '2024-04-17', 'Present'),
(635, 35, 'Grade 4', '2024-04-17', 'Present'),
(636, 36, 'Grade 4', '2024-04-17', 'Absent'),
(637, 37, 'Grade 4', '2024-04-17', 'Present'),
(638, 38, 'Grade 4', '2024-04-17', 'Present'),
(639, 39, 'Grade 4', '2024-04-17', 'Absent'),
(640, 40, 'Grade 4', '2024-04-17', 'Present'),
(641, 41, 'Grade 5', '2024-04-17', 'Present'),
(642, 42, 'Grade 5', '2024-04-17', 'Present'),
(643, 43, 'Grade 5', '2024-04-17', 'Absent'),
(644, 44, 'Grade 5', '2024-04-17', 'Present'),
(645, 45, 'Grade 5', '2024-04-17', 'Present'),
(646, 46, 'Grade 5', '2024-04-17', 'Absent'),
(647, 47, 'Grade 5', '2024-04-17', 'Present'),
(648, 48, 'Grade 5', '2024-04-17', 'Present'),
(649, 49, 'Grade 5', '2024-04-17', 'Absent'),
(650, 50, 'Grade 5', '2024-04-17', 'Present'),
(651, 1, 'Grade 1', '2024-04-18', 'Present'),
(652, 2, 'Grade 1', '2024-04-18', 'Present'),
(653, 3, 'Grade 1', '2024-04-18', 'Absent'),
(654, 4, 'Grade 1', '2024-04-18', 'Present'),
(655, 5, 'Grade 1', '2024-04-18', 'Present'),
(656, 6, 'Grade 1', '2024-04-18', 'Absent'),
```

```
(657, 7, 'Grade 1', '2024-04-18', 'Present'),
(658, 8, 'Grade 1', '2024-04-18', 'Present'),
(659, 9, 'Grade 1', '2024-04-18', 'Absent'),
(660, 10, 'Grade 1', '2024-04-18', 'Present'),
(661, 11, 'Grade 2', '2024-04-18', 'Present'),
(662, 12, 'Grade 2', '2024-04-18', 'Present'),
(663, 13, 'Grade 2', '2024-04-18', 'Absent'),
(664, 14, 'Grade 2', '2024-04-18', 'Present'),
(665, 15, 'Grade 2', '2024-04-18', 'Present'),
(666, 16, 'Grade 2', '2024-04-18', 'Absent'),
(667, 17, 'Grade 2', '2024-04-18', 'Present'),
(668, 18, 'Grade 2', '2024-04-18', 'Present'),
(669, 19, 'Grade 2', '2024-04-18', 'Absent'),
(670, 20, 'Grade 2', '2024-04-18', 'Present'),
(671, 21, 'Grade 3', '2024-04-18', 'Present'),
(672, 22, 'Grade 3', '2024-04-18', 'Present'),
(673, 23, 'Grade 3', '2024-04-18', 'Absent'),
(674, 24, 'Grade 3', '2024-04-18', 'Present'),
(675, 25, 'Grade 3', '2024-04-18', 'Present'),
(676, 26, 'Grade 3', '2024-04-18', 'Absent'),
(677, 27, 'Grade 3', '2024-04-18', 'Present'),
(678, 28, 'Grade 3', '2024-04-18', 'Present'),
(679, 29, 'Grade 3', '2024-04-18', 'Absent'),
(680, 30, 'Grade 3', '2024-04-18', 'Present'),
(681, 31, 'Grade 4', '2024-04-18', 'Present'),
(682, 32, 'Grade 4', '2024-04-18', 'Present'),
(683, 33, 'Grade 4', '2024-04-18', 'Absent'),
(684, 34, 'Grade 4', '2024-04-18', 'Present'),
(685, 35, 'Grade 4', '2024-04-18', 'Present'),
(686, 36, 'Grade 4', '2024-04-18', 'Absent'),
(687, 37, 'Grade 4', '2024-04-18', 'Present'),
(688, 38, 'Grade 4', '2024-04-18', 'Present'),
(689, 39, 'Grade 4', '2024-04-18', 'Absent'),
(690, 40, 'Grade 4', '2024-04-18', 'Present'),
(691, 41, 'Grade 5', '2024-04-18', 'Present'),
(692, 42, 'Grade 5', '2024-04-18', 'Present'),
(693, 43, 'Grade 5', '2024-04-18', 'Absent'),
(694, 44, 'Grade 5', '2024-04-18', 'Present'),
(695, 45, 'Grade 5', '2024-04-18', 'Present'),
(696, 46, 'Grade 5', '2024-04-18', 'Absent'),
(697, 47, 'Grade 5', '2024-04-18', 'Present'),
(698, 48, 'Grade 5', '2024-04-18', 'Present'),
(699, 49, 'Grade 5', '2024-04-18', 'Absent'),
(700, 50, 'Grade 5', '2024-04-18', 'Present');
```

# 5.Sub-Queries

**1. Identify students who have never been absent**

> **Query:**
> SELECT studentID, Student_Name
> FROM Students
> WHERE StudentID NOT IN (SELECT StudentID FROM Attendance WHERE Status = 'Absent');

## Result:

| studentID | Student_Name |
|---|---|
| 1 | Alice Smith |
| 2 | Bob Johnson |
| 4 | James Williams |
| 5 | Olivia Davis |
| 7 | Sophia Martinez |
| 8 | Liam Jones |
| 10 | Ethan Rodriguez |
| 11 | Ava Hernandez |
| 12 | Noah Martinez |
| 14 | Mason Perez |
| 15 | Sophia Thompson |
| 17 | Isabella White |
| 18 | Oliver Martin |
| 20 | Elijah Harris |
| 21 | Avery Garcia |
| 22 | Ethan Johnson |
| 24 | Benjamin Lopez |
| 25 | Amelia Perez |
| 27 | Charlotte Taylor |
| 28 | Mia Brown |
| 30 | Ava Jones |
| 31 | William Johnson |
| 32 | Harper Smith |
| 34 | Ella Perez |
| 35 | Jackson Martinez |
| 37 | Aiden Wilson |
| 38 | Olivia Taylor |
| 40 | Evelyn Smith |
| 41 | Carter Garcia |

| | |
|---|---|
| 42 | Mia Perez |
| 44 | Avery Wilson |
| 45 | Harper Brown |
| 47 | Scarlett Garcia |
| 48 | Jackson Davis |
| 50 | Michael Wilson |

## 2. List the names of students who are enrolled in the same class as 'Alice Smith'

Query:
SELECT studentID, Student_Name
FROM Students
WHERE Class = (SELECT Class FROM Students WHERE Student_Name = 'Alice Smith');

## Result:

| studentID | Student_Name |
|---|---|
| 1 | Alice Smith |
| 2 | Bob Johnson |
| 3 | Emma Brown |
| 4 | James Williams |
| 5 | Olivia Davis |
| 6 | William Wilson |
| 7 | Sophia Martinez |
| 8 | Liam Jones |
| 9 | Charlotte Garcia |
| 10 | Ethan Rodriguez |

## 3. Find the teacher with the highest salary using a subquery

**Query:**
SELECT Teacher_Name, salary
FROM Teachers
WHERE Salary = (SELECT MAX(Salary) FROM Teachers);

## Result:

| Teacher_Name | salary |
|---|---|
| Michael Brown | 52000 |

## 4. Display the student with the earliest date of birth

**Query:**
SELECT Student_Name, DOB
FROM Students
WHERE DOB = (SELECT MIN(DOB) FROM Students);

## Result:

| Student_Name | DOB |
|---|---|
| Emma Brown | 10-01-2009 |

## 5. display studentID along with their enrollmentID and enrollmentDate who enrolled for the latest enrollment date.

**Query:**
SELECT enrollmentID,StudentID,EnrollmentDate FROM Enrollments
WHERE EnrollmentDate = (SELECT MAX(EnrollmentDate) FROM Enrollments);

## Result:

| enrollmentID | StudentID | EnrollmentDate |
|---|---|---|
| 241 | 41 | 05-04-2024 |
| 242 | 42 | 05-04-2024 |
| 243 | 43 | 05-04-2024 |
| 244 | 44 | 05-04-2024 |

| | | |
|---|---|---|
| 245 | 45 | 05-04-2024 |
| 246 | 46 | 05-04-2024 |
| 247 | 47 | 05-04-2024 |
| 248 | 48 | 05-04-2024 |
| 249 | 49 | 05-04-2024 |
| 250 | 50 | 05-04-2024 |

# 5.Joins

**1. Show the names of students and their attendance records.**

Query:
SELECT students.Student_Name, attendance.Date, attendance.Status
FROM Students
JOIN Attendance on students.StudentID = attendance.StudentID
where attendance.Date = "2024-04-15";

## Result:

| Student_Name | Date | Status |
|---|---|---|
| Alice Smith | 15-04-2024 | Present |
| Bob Johnson | 15-04-2024 | Present |
| Emma Brown | 15-04-2024 | Absent |
| James Williams | 15-04-2024 | Present |
| Olivia Davis | 15-04-2024 | Present |
| William Wilson | 15-04-2024 | Absent |
| Sophia Martinez | 15-04-2024 | Present |
| Liam Jones | 15-04-2024 | Present |
| Charlotte Garcia | 15-04-2024 | Absent |
| Ethan Rodriguez | 15-04-2024 | Present |
| Ava Hernandez | 15-04-2024 | Present |
| Noah Martinez | 15-04-2024 | Present |
| Isabella Lopez | 15-04-2024 | Absent |
| Mason Perez | 15-04-2024 | Present |
| Sophia Thompson | 15-04-2024 | Present |
| Liam Smith | 15-04-2024 | Absent |
| Isabella White | 15-04-2024 | Present |
| Oliver Martin | 15-04-2024 | Present |

| Name | Date | Status |
|---|---|---|
| Amelia Thompson | 15-04-2024 | Absent |
| Elijah Harris | 15-04-2024 | Present |
| Avery Garcia | 15-04-2024 | Present |
| Ethan Johnson | 15-04-2024 | Present |
| Aria Hernandez | 15-04-2024 | Absent |
| Benjamin Lopez | 15-04-2024 | Present |
| Amelia Perez | 15-04-2024 | Present |
| Lucas Martinez | 15-04-2024 | Absent |
| Charlotte Taylor | 15-04-2024 | Present |
| Mia Brown | 15-04-2024 | Present |
| Mason Wilson | 15-04-2024 | Absent |
| Ava Jones | 15-04-2024 | Present |
| William Johnson | 15-04-2024 | Present |
| Harper Smith | 15-04-2024 | Present |
| Aiden Garcia | 15-04-2024 | Absent |
| Ella Perez | 15-04-2024 | Present |
| Jackson Martinez | 15-04-2024 | Present |
| Scarlett Lopez | 15-04-2024 | Absent |
| Aiden Wilson | 15-04-2024 | Present |
| Olivia Taylor | 15-04-2024 | Present |
| Elijah Brown | 15-04-2024 | Absent |
| Evelyn Smith | 15-04-2024 | Present |
| Carter Garcia | 15-04-2024 | Present |
| Mia Perez | 15-04-2024 | Present |
| Liam Johnson | 15-04-2024 | Absent |
| Avery Wilson | 15-04-2024 | Present |
| Harper Brown | 15-04-2024 | Present |
| Ethan Taylor | 15-04-2024 | Absent |
| Scarlett Garcia | 15-04-2024 | Present |
| Jackson Davis | 15-04-2024 | Present |
| Aria Williams | 15-04-2024 | Absent |
| Michael Wilson | 15-04-2024 | Present |

**2. List all teachers and their assigned grades, including those without students.**

Query:
SELECT teachers.Teacher_Name, classGrade.Class
FROM Teachers
LEFT JOIN Classgrade ON teachers.TeacherID = classGrade.TeacherID;

## Result:

| Teacher_Name | Class |
|---|---|
| John Smith | Grade 1 |
| Emily Jones | Grade 2 |
| Michael Brown | Grade 3 |
| Sarah Lee | Grade 4 |
| David Clark | Grade 5 |
| Emma Taylor | NULL |

**3. Show each teacher and a count of students they teach, including teachers with no students.**

Query:
SELECT teachers.Teacher_Name, COUNT(students.StudentID) as Student_Count
FROM Teachers
LEFT JOIN Classgrade  ON teachers.TeacherID = classGrade.TeacherID
LEFT JOIN Students  ON classGrade.Class = students.Class
GROUP BY teachers.Teacher_Name;

## Result:

| Teacher_Name | Student_Count |
|---|---|
| David Clark | 10 |
| Emily Jones | 10 |
| Emma Taylor | 0 |
| John Smith | 10 |
| Michael Brown | 10 |
| Sarah Lee | 10 |

**4. List all the students who are in classes taught only by male teachers.**

Query:
SELECT students.student_name, students.class,teachers.teacher_name
FROM students
JOIN classgrade ON students.class = classgrade.class
JOIN teachers  ON classgrade.teacherid = teachers.teacherid
WHERE teachers.gender = 'male';

## Result:

| student_name | class | teacher_name |
|---|---|---|
| Alice Smith | Grade 1 | John Smith |
| Bob Johnson | Grade 1 | John Smith |
| Emma Brown | Grade 1 | John Smith |
| James Williams | Grade 1 | John Smith |
| Olivia Davis | Grade 1 | John Smith |
| William Wilson | Grade 1 | John Smith |
| Sophia Martinez | Grade 1 | John Smith |
| Liam Jones | Grade 1 | John Smith |
| Charlotte Garcia | Grade 1 | John Smith |
| Ethan Rodriguez | Grade 1 | John Smith |
| Avery Garcia | Grade 3 | Michael Brown |
| Ethan Johnson | Grade 3 | Michael Brown |
| Aria Hernandez | Grade 3 | Michael Brown |
| Benjamin Lopez | Grade 3 | Michael Brown |
| Amelia Perez | Grade 3 | Michael Brown |
| Lucas Martinez | Grade 3 | Michael Brown |
| Charlotte Taylor | Grade 3 | Michael Brown |
| Mia Brown | Grade 3 | Michael Brown |
| Mason Wilson | Grade 3 | Michael Brown |
| Ava Jones | Grade 3 | Michael Brown |
| Carter Garcia | Grade 5 | David Clark |
| Mia Perez | Grade 5 | David Clark |
| Liam Johnson | Grade 5 | David Clark |
| Avery Wilson | Grade 5 | David Clark |
| Harper Brown | Grade 5 | David Clark |
| Ethan Taylor | Grade 5 | David Clark |
| Scarlett Garcia | Grade 5 | David Clark |
| Jackson Davis | Grade 5 | David Clark |
| Aria Williams | Grade 5 | David Clark |
| Michael Wilson | Grade 5 | David Clark |

**5. List student names along with their address and phone number who enrolled on date '2024-04-02'**

Query:
SELECT students.student_name, students.phone,students.address,
enrollments.enrollmentdate
FROM students
JOIN enrollments ON students.studentID = enrollments.studentID
WHERE enrollments.enrollmentDate = '2024-04-02';

## Result:

| student_name | phone | address | enrollmentdate |
|---|---|---|---|
| Ava Hernandez | 741-852-9630 | 741 Orange St | 02-04-2024 |
| Noah Martinez | 852-963-7410 | 852 Apple St | 02-04-2024 |
| Isabella Lopez | 963-852-7410 | 963 Grape St | 02-04-2024 |
| Mason Perez | 123-456-7890 | 123 Peach St | 02-04-2024 |
| Sophia Thompson | 456-789-0123 | 456 Banana St | 02-04-2024 |
| Liam Smith | 789-012-3456 | 789 Mango St | 02-04-2024 |
| Isabella White | 321-654-9870 | 321 Pear St | 02-04-2024 |
| Oliver Martin | 654-987-6543 | 654 Watermelon St | 02-04-2024 |
| Amelia Thompson | 987-654-3210 | 987 Kiwi St | 02-04-2024 |
| Elijah Harris | 147-258-3690 | 147 Strawberry St | 02-04-2024 |

# 5.Other Queries

**1. Calculate the average salary of all teachers.**

Query:
select avg(salary) as avg_salary from teachers;

## Result:

| avg_salary |
|---|
| 51975 |

## 2. Find the maximum and minimum date of birth among all students to determine the oldest and youngest student.

Query:
select max(DOB) as oldest_student , min(DOB) AS Youngest_student from students;

## Result:

| oldest_student | Youngest_student |
|---|---|
| 22-12-2013 | 10-01-2009 |

## 3. Show the number of students in each class, ordered by the class size descending.

Query:
select class, count(*) as no_of_students from students group by class order by no_of_students desc;

## Result:

| class | no_of_students |
|---|---|
| Grade 1 | 10 |
| Grade 4 | 10 |
| Grade 2 | 10 |
| Grade 5 | 10 |
| Grade 3 | 10 |

## 4. List the five most recent enrollments.

Query:
select studentID, enrollmentID  from enrollments order by enrollmentdate desc limit 5;

## Result:

| studentID | enrollmentID |
|---|---|
| 44 | 244 |
| 41 | 241 |
| 45 | 245 |
| 50 | 250 |
| 43 | 243 |

**5. Find all students whose names start with 'A'.**

**Query:**

select student_name from students where student_name like'A%';

## Result:

| student_name |
| --- |
| Alice Smith |
| Ava Hernandez |
| Amelia Thompson |
| Avery Garcia |
| Aria Hernandez |
| Amelia Perez |
| Ava Jones |
| Aiden Garcia |
| Aiden Wilson |
| Avery Wilson |
| Aria Williams |

# 5.Conclusion

In conclusion, the school management SQL project successfully addressed the complex needs of managing teacher, student, attendance, class, and enrollment data. Through comprehensive utilization of SQL queries, the system efficiently tracked student enrollments in classes, maintained attendance records, and facilitated teacher assignments to classes. The project demonstrated the effectiveness of structured database management in streamlining administrative tasks within educational institutions.

# Thank You!