School Registration DBMS - SQL Schema & Sample Queries

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■SQL Table Definitions

```
-- Student Table
CREATE TABLE Student (
    student_id VARCHAR(10) PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    dob DATE,
    email VARCHAR(100),
    grade INT,
    contact_no VARCHAR(20)
);

-- Teacher Table
CREATE TABLE Teacher (
    teacher_id VARCHAR(10) PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    email VARCHAR(100),
    department VARCHAR(50),
    contact_no VARCHAR(20)
);

-- Course Table
CREATE TABLE Course (
    course_id VARCHAR(10) PRIMARY KEY,
    course_name VARCHAR(100),
    credits INT,
    description TEXT
);

-- Registration Table
CREATE TABLE Registration (
    registration_id VARCHAR(10) PRIMARY KEY,
    student_id VARCHAR(10),
    course_id VARCHAR(10),
    registration_date DATE,
    FOREIGN KEY (student_id) REFERENCES Student(student_id),
    FOREIGN KEY (course_id) REFERENCES Course(course_id)
);

-- ClassSchedule Table
CREATE TABLE ClassSchedule (
    schedule_id VARCHAR(10) PRIMARY KEY,
    course_id VARCHAR(10),
    teacher_id VARCHAR(10),
    day VARCHAR(20),
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    time TIME,
    room_no VARCHAR(10),
    FOREIGN KEY (course_id) REFERENCES Course(course_id),
    FOREIGN KEY (teacher_id) REFERENCES Teacher(teacher_id)
);

-- Grade Table
CREATE TABLE Grade (
    grade_id VARCHAR(10) PRIMARY KEY,
    student_id VARCHAR(10),
    course_id VARCHAR(10),
    grade CHAR(2),
    FOREIGN KEY (student_id) REFERENCES Student(student_id),
    FOREIGN KEY (course_id) REFERENCES Course(course_id)
);

-- Fee Table
CREATE TABLE Fee (
    fee_id VARCHAR(10) PRIMARY KEY,
    student_id VARCHAR(10),
    amount DECIMAL(10,2),
    due_date DATE,
    status VARCHAR(20),
    FOREIGN KEY (student_id) REFERENCES Student(student_id)
);
```

■Sample Data Insertions

```
-- Insert sample Students
INSERT INTO Student VALUES ('S001', 'John', 'Doe', '2008-05-10', 'john.doe@email.com', 8, '555-1234');
INSERT INTO Student VALUES ('S002', 'Alice', 'Johnson', '2007-03-15', 'alice.johnson@email.com', 9, '555-5678');

-- Insert sample Teachers
INSERT INTO Teacher VALUES ('T001', 'Mary', 'Smith', 'mary.smith@email.com', 'Math', '555-9876');
INSERT INTO Teacher VALUES ('T002', 'David', 'Lee', 'david.lee@email.com', 'Science', '555-6543');

-- Insert sample Courses
INSERT INTO Course VALUES ('C001', 'Algebra I', 3, 'Intro to Algebra');
INSERT INTO Course VALUES ('C002', 'Biology', 4, 'Basics of Biology');
```

■Example SQL Queries

```
-- 1) List all courses a student (S001) is registered for
SELECT c.course_id, c.course_name, c.description, c.credits
FROM Registration r
JOIN Course c ON r.course_id = c.course_id
WHERE r.student_id = 'S001';

-- 2) Get the teacher and schedule for a course (C001)
```

```
SELECT t.first_name, t.last_name, cs.day, cs.time, cs.room_no
FROM ClassSchedule cs
JOIN Teacher t ON cs.teacher_id = t.teacher_id
WHERE cs.course_id = 'C001';

-- 3) Retrieve all grades for a student (S001)
SELECT c.course_name, g.grade
FROM Grade g
JOIN Course c ON g.course_id = c.course_id
WHERE g.student_id = 'S001';

-- 4) Check fee payment status for a student (S001)
SELECT amount, due_date, status
FROM Fee
WHERE student_id = 'S001';

-- 5) Find all students registered for a course (C001)
SELECT s.student_id, s.first_name, s.last_name, s.email
FROM Registration r
JOIN Student s ON r.student_id = s.student_id
WHERE r.course_id = 'C001';
```