

# SQL TASK – 5 - Student Performance Analysis using SQL

## Overview

This project analyzes student performance using SQL queries. It includes assigning academic grades based on total scores and evaluating subject-wise pass/fail status.

## Table Structure

Column Name	Data Type	Description
StudentID	INT	Unique identifier for each student
TotalScore	INT	Combined score of all subjects
MathScore	INT	Score in Mathematics
ScienceScore	INT	Score in Science

## 1. Create Database and Table

### SQL Query:

```
1 • USE Students_New;
2 • CREATE TABLE StudentScores (
3     StudentID INT,
4     TotalScore INT,
5     MathScore INT,
6     ScienceScore INT
7 );
```

**Purpose:** Creates a new database and a table for storing student academic data.

**Observation:** Establishes the structure to store detailed student information.

## 2. Insert Sample Records

*SQL Query:*

---

```
8 • INSERT INTO StudentScores (StudentID, TotalScore, MathScore, ScienceScore)
9 VALUES
10 (1, 95, 45, 50),
11 (2, 85, 35, 60),
12 (3, 75, 40, 30),
13 (4, 65, 25, 20);
14
```

**Purpose:** Populates the Students table with 4 records for analysis.

**Observation:** Data is varied by math, science and total scores.

## 3. Task 1: Assign Grades Based on Total Scores

*SQL Query:*

---

```
15 • SELECT StudentID, TotalScore,
16 CASE
17     WHEN TotalScore >= 90 THEN 'A'
18     WHEN TotalScore >= 80 THEN 'B'
19     WHEN TotalScore >= 70 THEN 'C'
20     ELSE 'D (Fail)'
21 END AS Grade
22 FROM StudentScores;
23
```

**Purpose:** Assigns academic grades to students based on their total scores.

**Observation:** Effectively groups students by performance level, helping identify top and low performers.

**Query Explanation:** Uses a CASE statement to categorize total scores into grade ranges.

**Result:**

StudentID	TotalScore	Grade
1	95	A
2	85	B
3	75	C
4	65	D (Fail)

#### 4. Task 2: Identify Pass/Fail Status in Subjects

*SQL Query:*

```
24 • SELECT StudentID, MathScore, ScienceScore,
25     CASE
26         WHEN MathScore >= 40 THEN 'Pass'
27         ELSE 'Fail'
28     END AS Math_Status,
29     CASE
30         WHEN ScienceScore >= 40 THEN 'Pass'
31         ELSE 'Fail'
32     END AS Science_Status
33 FROM StudentScores;
```

**Purpose:** Determines whether students passed or failed in Math and Science.

**Observation:** Helps in identifying students who need improvement in specific subjects.

**Query Explanation:** Applies CASE logic to compare each subject score against the pass mark (40).

**Result:**

StudentID	MathScore	ScienceScore	Math_Status	Science_Status
1	45	50	Pass	Pass
2	35	60	Fail	Pass
3	40	30	Pass	Fail
4	25	20	Fail	Fail