## Student Result Processing System project work

**\*Introduction:\***

The Student Result Processing System is a database application designed to manage and process academic results of students. It enables the recording of student information, course details, grades, and semesters. The system computes GPA and CGPA, generates rank lists, and provides result summaries, improving the overall efficiency of academic record-keeping.

\***Abstract**:\*

This project involves designing a SQL-based backend system that automates student grade management. It covers schema creation, data insertion, GPA calculation, ranking using window functions, and result summary generation. The system can be used by educational institutions for efficient result processing and performance analysis.

**\*Tools Used:\***

\* MySQL

\* MySQL Workbench / DBeaver

\* SQL Queries

\*Steps Involved in Building the Project:\*

1. **\*Schema Design**:

--Students

CREATE TABLE Students (

student\_id INT PRIMARY KEY,

name VARCHAR(50),

enrollment\_year INT

);

CREATE TABLE Courses (

course\_id INT PRIMARY KEY,

course\_name VARCHAR(50),

credits INT

);

--Semester

CREATE TABLE Semesters (

semester\_id INT PRIMARY KEY,

semester\_name VARCHAR(20)

);

--Grades

CREATE TABLE Grades (

grade\_id INT AUTO\_INCREMENT PRIMARY KEY,

student\_id INT,

course\_id INT,

semester\_id INT,

marks DECIMAL(5,2),

FOREIGN KEY (student\_id) REFERENCES Students(student\_id),

FOREIGN KEY (course\_id) REFERENCES Courses(course\_id),

FOREIGN KEY (semester\_id) REFERENCES Semesters(semester\_id)

);

**2. \*Data Insertion:\***

INSERT INTO Students VALUES

(1, 'Alice', 2022),

(2, 'Bob', 2022),

(3, 'Charlie', 2022);

INSERT INTO Courses VALUES

(101, 'Mathematics', 4),

(102, 'Physics', 3),

(103, 'English', 2);

INSERT INTO Semesters VALUES

(1, 'Semester 1'),

(2, 'Semester 2');

INSERT INTO Grades (student\_id, course\_id, semester\_id, marks) VALUES

(1, 101, 1, 85),

(1, 102, 1, 78),

(1, 103, 1, 90),

(2, 101, 1, 72),

(2, 102, 1, 68),

(2, 103, 1, 80),

(3, 101, 1, 92),

(3, 102, 1, 88),

(3, 103, 1, 95);

**3. \*GPA Calculation:\***

SELECT

s.student\_id,

s.name,

ROUND(SUM(g.marks \* c.credits) / SUM(c.credits), 2) AS GPA

FROM

Grades g

JOIN Students s ON g.student\_id = s.student\_id

JOIN Courses c ON g.course\_id = c.course\_id

GROUP BY

s.student\_id, s.name;

\***Sample Output:\***

| student\\_id | name | GPA |

| ----------- | ------- | ----- |

| 1 | Alice | 83.89 |

| 2 | Bob | 72.44 |

| 3 | Charlie | 91.78 |