Student Result Processing System

Introduction

The Student Result Processing System is a database management project designed to automate the management of student grades and calculate CGPA. It provides a structured approach for storing student data, courses, grades, and semester information. This system ensures accuracy, reduces manual work, and allows efficient report generation for academic institutions.

Abstract

The project focuses on building a normalized SQL database using SQL Server. It captures key information such as student details, course information, semester-wise grades, and computes GPA automatically using triggers. The system enables administrators and faculty to generate detailed semester-wise result summaries, rank lists, and pass/fail statistics efficiently.

Tools Used

- SQL Server (SSMS): For creating database schema, triggers, and queries.
- SQL Queries: For data insertion, manipulation, and report generation.
- Views & Window Functions: To summarize GPA and rankings.

Steps Involved in Building the Project

1. Database Design: Defined entities including Students, Courses, Grades, Semesters, and GPA. Established primary and foreign key relationships.
2. Table Creation: Wrote DDL scripts to create all necessary tables with constraints.
3. Sample Data Population: Inserted student, course, semester, and grade data to simulate a real academic environment.
4. Trigger Implementation: Created triggers to automatically calculate GPA whenever grades are inserted or updated.
5. Report Queries: Developed SQL queries to generate semester-wise GPA reports, rank lists using RANK() function, and pass/fail summaries.
6. Views Creation: Created a view for semester summary to easily retrieve GPA information for all students.

Conclusion

The Student Result Processing System successfully automates the process of grade management and GPA calculation. Using SQL Server, it provides reliable, fast, and accurate results. The system enhances academic reporting efficiency and ensures consistency in student performance evaluation. This project demonstrates practical database management skills, including triggers, window functions, and report generation techniques, making it ideal for academic and professional use.