Student Result Processing System

Introduction:\ The Student Result Processing System is a structured SQL-based solution that simplifies academic performance tracking. It handles student data, course enrollments, grades, and GPA calculations with a clean database schema and visual analysis using Power BI. This system was created to efficiently process student records for educational institutions.

Tools Used:

- MySQL Workbench for database creation and querying
- Power BI for dashboard and visualization
- MySQL EER Diagram for schema modeling

Steps Involved:

1. **Database Design:**
2. Created tables: `Students`, `Courses`, `Semesters`, and `Grades`
3. Used foreign keys to ensure referential integrity
4. Normalized the schema to 3NF for data consistency
5. **Sample Data Insertion:**
6. Added records for 10 students, 5 courses, 2 semesters, and 20+ grade entries
7. **SQL Logic & Views:**
8. Queries for GPA, pass/fail result, ranking using `RANK()` and `CASE` statements
9. Created reusable views: `StudentFullResult`, `SemesterTopperView`, `SemesterGPAView`, `AllStudentsSummaryView`, `FailedSubjects`
10. **Trigger Implementation:**
11. Designed a `BEFORE INSERT` trigger to auto-calculate GPA and Grade based on marks
12. **Power BI Dashboard:**
13. Visualized GPA trends by semester

14. Used donut chart to show grade distribution
15. Created KPIs and bar charts for quick insights into student performance

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Conclusion: This project demonstrates practical data analytics and SQL database skills by integrating backend logic and front-end visualizations. It has real-world use for academic result analysis and serves as a strong portfolio project for data roles.
