SQL Stored Procedures and Functions for Business Reporting & Automation

Project Title:

SQL Stored Procedures and Functions for Business Reporting & Automation

Overview:

This project demonstrates your ability to design robust and modular SQL logic using stored procedures, scalar functions, and table-valued functions (TVFs). Built on top of a realistic sales and customer dataset, the challenges simulate common reporting, lookup, error-handling, and performance tracking scenarios.

Skills Demonstrated:

- Stored Procedures with input/output parameters

- Conditional business logic with CASE and error handling

- Scalar Functions for loyalty scoring, discount classification, customer tiers

- Table-Valued Functions for filtering, ranking, and regional product analysis

- TRY...CATCH for runtime error handling (division by zero, invalid conversions)

- Nested error logging using custom log tables

- Clean procedure-based automation for reporting and decision support

Key Highlights:

1. Procedures to get customer, product, region summaries using output params.

2. Scalar functions to categorize customers by loyalty and purchase profile.

3. Table-valued functions to filter and return top-N products by sales.

4. Error-safe procedures using TRY...CATCH for division by zero and invalid input.

5. Logging framework to capture and store runtime issues in a custom error table.

6. Simulation of real business scenarios like promotions, loyalty programs, and region-wise performance tracking.

Ideal For:

Clients looking to automate reporting, encapsulate SQL logic into reusable procedures, build dashboards, or implement rule-based analytics in their data pipelines.