📜 Project Structure Overview – SMECompany (SQL)

This project is designed to simulate how a small-to-medium enterprise (SME) might manage and analyze its business data using SQL. The project is structured in stages that reflect a real-world data management workflow:

1. **Database Creation**
    - A database called smecompany is created to store all the tables and business data.
2. **Table Design and Creation**
    - Several tables are created to represent key parts of the business:
        - customers: stores customer details like name, email, and phone number.
        - orders: stores order information such as order date and total amount.
        - products: contains product information, pricing, and inventory.
        - employees: holds employee records like names, titles, and hire dates.
        - Temporary and error tables are also included to demonstrate more advanced SQL use cases.
3. **Data Insertion and Modification**
    - Sample data is inserted into each table.
    - Operations like updating, deleting, and truncating data are demonstrated.
4. **Data Cleaning and Transformation**
    - Techniques like trimming, replacing values, and formatting are applied to clean messy data.
5. **Data Retrieval and Analysis**
    - SQL queries are written to:
        - Filter and sort data.
        - Perform grouping and aggregation.
        - Use CASE WHEN logic for categorizing customers and sales.
        - Join multiple tables to combine data for analysis.
        - Create calculated fields like discounts and customer types.
6. **Advanced SQL Features**

- Common Table Expressions (CTEs) and Window Functions are used for more complex analysis.
- Temporary tables are created for intermediate steps and reusable queries.

7. **Stored Procedures**
    - Basic stored procedures are written to automate tasks like displaying customer data or inserting values into temp tables.
8. **Insights**
    - Queries provide insights like:
        - Which customers spend the most?
        - Customer order trends.
        - How product categories perform.
        - Sales patterns over time.
9. **Report and Documentation**
    - A technical report was written to explain everything for technical stakeholders.
    - A README file summarizes the project for GitHub.
    - Key SQL queries are included to demonstrate the logic behind the analysis.