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This project was created to practice and understand different SQL concepts through step-by-step goals.

Each goal includes queries related to selecting, filtering, joining, grouping, and managing data in a database.

It also covers advanced topics like stored procedures, indexes, and transactions.

The main aim of this work was to get hands-on experience with SQL queries and learn how to use them effectively for data handling.

| Goal | Project  | Status     |
|------|--|------------|
| 1.   | Create the Database Schema                     | Completed  |
| 2.   | Populate with Realistic Sample Data            | Completed  |
| 3.   | Basic Information Retrieval Queries            | Completed  |
| 4.   | Statistical Summaries and Aggregation          | Completed  |
| 5.   | Multi-Table Joins and Analysis                 | Completed  |
| 6.   | Subqueries and Common Table Expressions        | Completed  |
| 7.   | Set Operations and Combined Results            | Completed  |
| 8.   | Window Functions for Ranking and Analytics     | Completed  |
| 9.   | Create Stored Procedures and Functions (BONUS) | Completed  |
| 10.  | Implement Triggers for Data Integrity (BONUS)  | Incomplete |
| 11.  | Optimize Query Performance (BONUS)             | Completed  |
| 12.  | Transaction Management (BONUS)                 | Completed  |

### Challenges:-

- Remembering the correct syntax for complex queries.
- Understanding the difference between Different types of JOIN.
- Handling syntax errors.
- Handling transaction rollback properly.

### Solutions:-

- Practiced each concept using simple examples first.
- Reviewed MySQL documentation for clarity.
- Debugged and tested each query step by step.

### Key Learning:-

- How to create and execute SQL queries confidently.
- Improved logical thinking and problem-solving using SQL.
- How to organize and manage data efficiently in a database.
- How indexes can speed up data retrieval.