2. Database Structure

The database consists of the following tables:

Customers: Stores customer information.

Products: Stores product details.

Categories: Stores product category information.

Orders: Stores order details.

OrderItems: Stores details about items in each order.

Suppliers: Stores supplier information.

ProductSuppliers: Links products to their suppliers.

Reviews: Stores customer reviews of products.

4. Data Types and Restrictions

CustomerID, ProductID, CategoryID, OrderID, OrderItemID, SupplierID, ReviewID: INT

FirstName, LastName, ProductName, CategoryName, SupplierName, ContactName, ReviewText: NVARCHAR with varying lengths

Email: NVARCHAR(100), unique constraint

PhoneNumber: NVARCHAR(15)

Price, TotalAmount, UnitPrice: DECIMAL(10, 2)

Stock, Quantity, Rating: INT

OrderDate, ReviewDate: DATETIME

11. System Stored Procedures

sp\_help: Provides details about database objects.

sp\_rename: Renames a database object.

sp\_columns: Returns column information.

sp\_tables: Lists tables and views.

sp\_databases: Lists databases on the server.

sp\_depends: Shows object dependencies.

sp\_helpindex: Lists indexes for a table.

sp\_helpconstraint: Lists constraints for a table.

sp\_spaceused: Displays space usage of the database.

sp\_who: Shows information about current users, sessions, and processes.

12. Roles and Permissions

Admin: Full access to all database operations.

Manager: Access to most operations except for user management and critical data modifications.

User: Read-only access to most tables and the ability to insert/update personal data.

This project involved designing and implementing a normalized database for an online store. The database ensures data integrity, supports efficient queries, and provides various functionalities through views, procedures, and triggers. Future extensions could include more detailed analytics, enhanced user roles, and integration with other systems.

Potential Extensions and Problems Encountered

Future Extensions:

-Implementing more advanced analytics and reporting.

-Adding support for multiple languages and currencies.

-Enhancing security measures and audit logging.

Problems Encountered:

-Ensuring data integrity with complex relationships.

-Optimizing queries for performance.

-Managing backup and recovery efficiently.