Mini Project: Online Bookstore Sales Analysis with SQL

Problem Statement:

This SQL mini project involves analyzing an online bookstore database to extract insights related to books, customer behavior, orders, and revenue. The dataset contains tables such as `Books`, `Customers`, and `Orders`. Students are required to write SQL queries of increasing complexity to understand the dataset and derive meaningful conclusions.

Dataset Link:

https://drive.google.com/file/d/1QmBUoKOqJIlAuibh768RcnwIJcFfUhxz/view?usp=sharing

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Guidelines for Students:

Data Understanding:

- Explore the structure of the database by examining tables like `Books`, `Orders`, and `Customers`.
- Understand key attributes such as book titles, genres, prices, customer locations, and order details.

Data Exploration:

- Write SQL queries to extract basic information like available genres, books in stock, or customers by country.
- Use filtering conditions (e.g., `WHERE`, `BETWEEN`) to slice the data meaningfully.

Advanced Analysis:

- Use `JOIN`, `GROUP BY`, and aggregation functions to perform deeper analysis like revenue by genre or top-spending customers.
- Solve real-world questions like inventory updates after sales or identifying best-selling authors.

Optimization & Interpretation:

- Ensure your queries are optimized and readable.
- Interpret query results to reveal insights about trends in customer behavior, sales, and inventory.

Project Questions:

Basic Level:

1. **Retrieve all books in the “Fiction” genre.**
2. **Find books published after the year 1950.**
3. **List all customers from Canada.**
4. **Show orders placed in November 2023.**
5. **Retrieve the total stock of books available.**
6. **Find the details of the most expensive book.**
7. **Show all customers who ordered more than 1 quantity of a book.**

8. **Retrieve all orders where the total amount exceeds $20.**

9. **List all distinct genres in the bookstore.**

10. **Find the book with the lowest stock available.**

11. **Calculate the total revenue from all orders.**

Intermediate Level:

12. **Retrieve the total number of books sold for each genre.**

13. **Find the average price of books in the “Fantasy” genre.**

14. **List customers who have placed at least 2 orders.**

15. **Find the most frequently ordered book.**

16. **Show the top 3 most expensive books of the “Fantasy” genre.**

Advanced Level:

17. **Retrieve the total quantity of books sold by each author.**

18. **List the cities of customers who spent over $30.**

19. **Find the customer who spent the most on orders.**

20. **Calculate the stock remaining after fulfilling all orders.**

Expected Outcomes:

- **Basic:** Students will become comfortable using `SELECT`, `WHERE`, `ORDER BY`, and `LIMIT` clauses for filtering and sorting.
- **Intermediate:** Students will learn to use `JOIN`, `GROUP BY`, and `HAVING` to analyze relationships across tables.
- **Advanced:** Students will demonstrate proficiency in building analytical queries, calculating derived values, and simulating business metrics like stock updates and customer lifetime value.