LIBRARY MANAGEMENT SYSTEM

MYSQL PROJECT

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OBJECTIVE

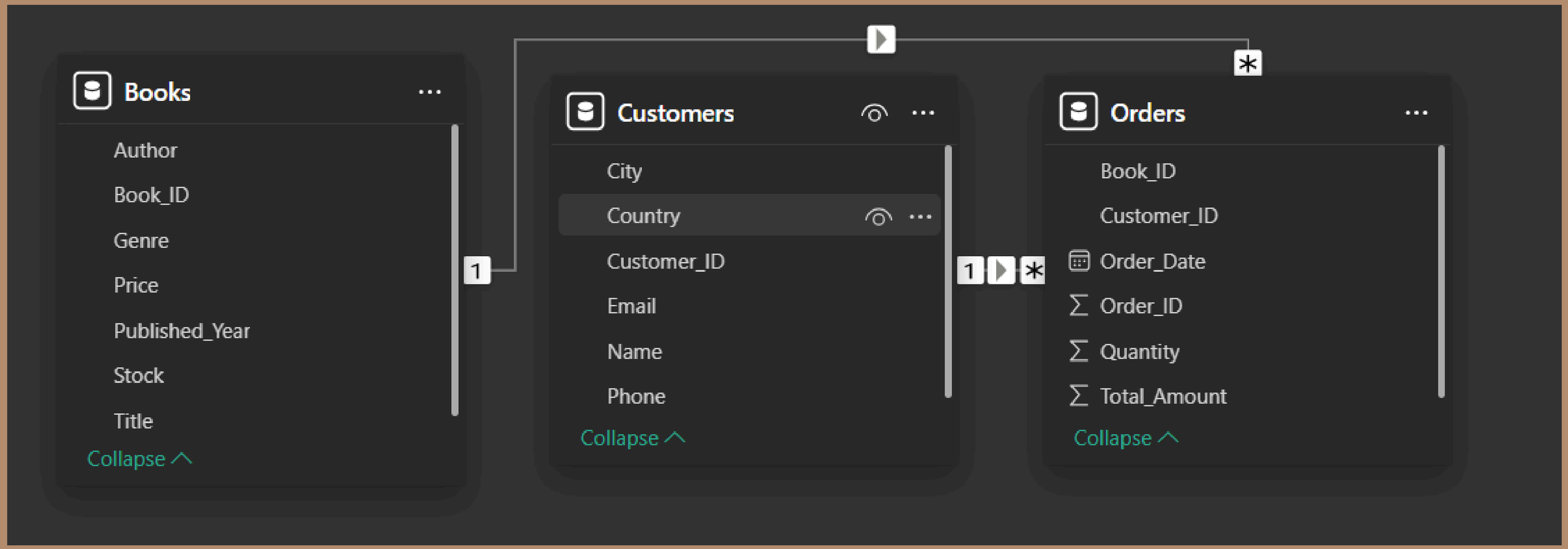
THIS SQL PROJECT AIMS TO ENHANCE DATABASE QUERYING SKILLS BY PERFORMING OPERATIONS USING VARIOUS SQL FUNCTIONS, INCLUDING AGGREGATE FUNCTIONS, JOINS, SUBQUERIES, STRING FUNCTIONS, AND DATETIME FUNCTIONS. THROUGH HANDS-ON EXECUTION OF THESE QUERIES, THE PROJECT EXPLORES DATA MANIPULATION, RETRIEVAL, AND TRANSFORMATION TECHNIQUES. THE OBJECTIVE IS TO DEVELOP A STRONG UNDERSTANDING OF SQL CONCEPTS AND THEIR PRACTICAL APPLICATIONS IN DATA ANALYSIS.

DATABASE DESCRIPTION

Tables Overview:

- Books Table: Contains details about books, including book name, price, and stock availability.
- Customers Table: Stores customer information such as customer name, city, and contact details.
- Orders Table: Records order details, including order date, quantity, and price.

MODEL DIAGRAM

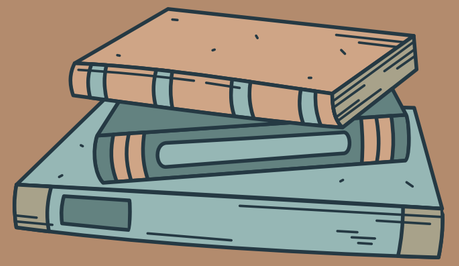


1) RETRIEVE ALL BOOKS IN THE "FICTION" GENRE

```
SELECT * from
Books WHERE genre = 'Fiction' ;
```

2) FIND BOOKS PUBLISHED AFTER THE YEAR 1950

```
SELECT * from
Books WHERE published_year > 1950;
```

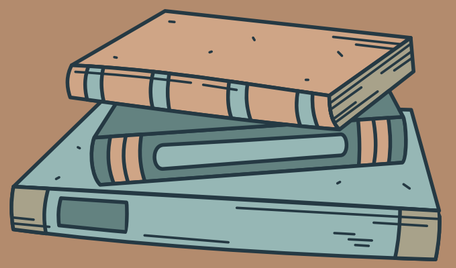


3)LIST ALL CUSTOMERS FROM THE CANADA

```
SELECT * from
Customers WHERE country  = 'Canada';
```

4) RETRIEVE THE TOTAL STOCK OF BOOKS AVAILABLE

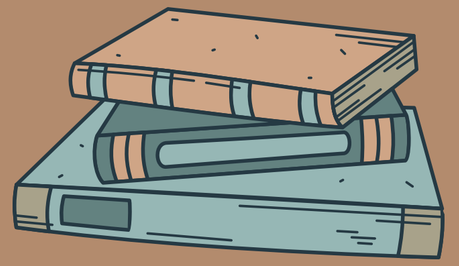
```
SELECT COUNT(stock)
as totalStock from books;
```



5) SHOW ORDERS PLACED IN NOVEMBER 2023 (USING BETWEEN OPERATOR AND YEAR,MONTH FUNCTION)

```
SELECT * from orders
WHERE Order_date BETWEEN '2023-11-01'
AND  '2023-11-30' ;;
```

```
SELECT * from orders WHERE
YEAR(Order_date)= 2023 AND
MONTH(Order_date)= 11;
```

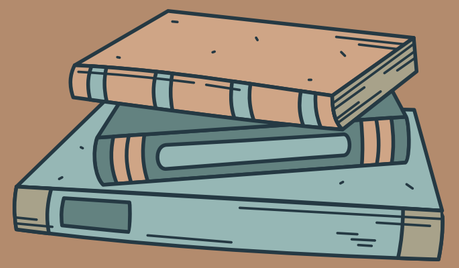


6)FIND THE DETAILS OF THE MOST EXPENSIVE BOOK

```
SELECT * from books WHERE price = (select
MAX(price) from books);
```

7)RETRIEVE ALL ORDERS WHERE THE TOTAL AMOUNT EXCEEDS $20

```
SELECT * from order
WHERE total_amount > 20;
```

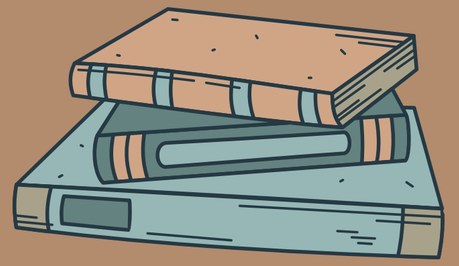


8)LIST ALL GENRES AVAILABLE IN THE BOOKS TABLE

```
SELECT  Distinct(genre) from books;
```

9)FIND THE BOOK WITH THE LOWEST STOCK

```
SELECT * from books
WHERE stock = (SELECT
MIN(stock) from books);
```

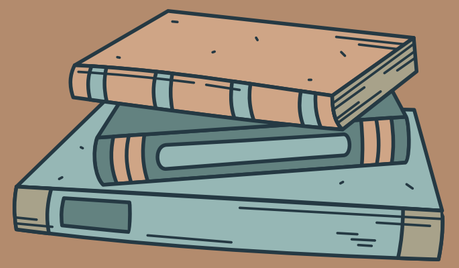


10)CALCULATE THE TOTAL REVENUE GENERATED FROM ALL ORDERS

```
SELECT  SUM(total_amount) AS
total_revenue from orders;
```

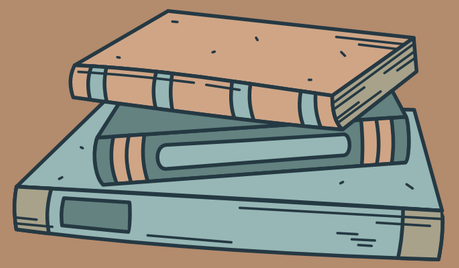
11)FIND THE AVERAGE PRICE OF BOOKS IN THE "FANTASY" GENRE

```
SELECT genre, AVG(Price) AS
Average_Price from books
WHERE  genre = 'Fantasy';
```



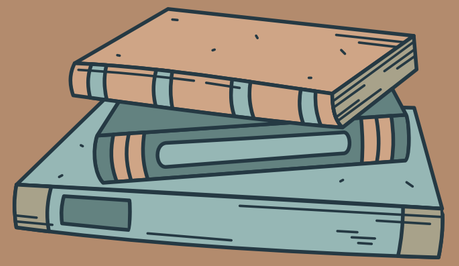
12)SELECT SUM(TOTAL_AMOUNT) AS TOTAL_REVENUE FROM ORDERS;

```
SELECT c.Customer_id , c.name ,
o.order_id,o.book_id ,o.order_date , o.quantity
FROM customers as c join orders AS o
ON c.customer_id = o.customer_id
WHERE  quantity >1;
```



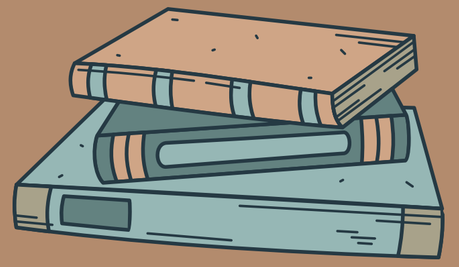
13)RETRIEVE THE TOTAL NUMBER OF BOOKS SOLD FOR EACH GENRE

```
SELECT b.genre , SUM(o.quantity) AS
total_books_sold FROM books as b JOIN orders as o
 ON b.book_id = o.book_id
 GROUP BY genre
ORDER BY total_books_sold DESC;
```



14)FIND THE MOST FREQUENTLY ORDERED BOOK

```
SELECT b.title , COUNT(order_id) AS order_count
FROM books b JOIN orders o
 ON b.book_id = o.book_id
 GROUP BY o.book_id ,b.title
 ORDER BY order_count DESC  LIMIT 1;
```

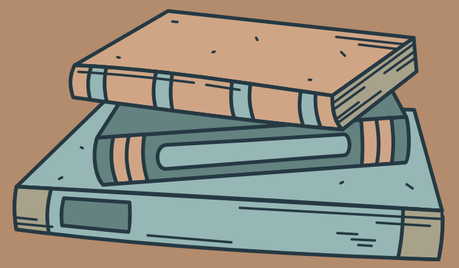


15)LIST CUSTOMERS WHO HAVE PLACED AT LEAST 2 ORDERS

```
SELECT Customer_id ,COUNT(order_id) AS order_count
FROM orders GROUP BY customer_id HAVING
COUNT(order_id) >=2;
```

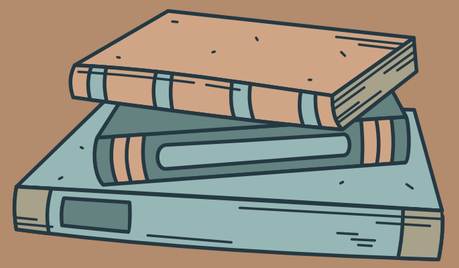
16)SHOW THE TOP 3 MOST EXPENSIVE BOOKS OF 'FANTASY' GENRE

```
SELECT book_id, title, Price  FROM books
WHERE genre = 'Fantasy'
ORDER BY price DESC LIMIT 3 ;
```



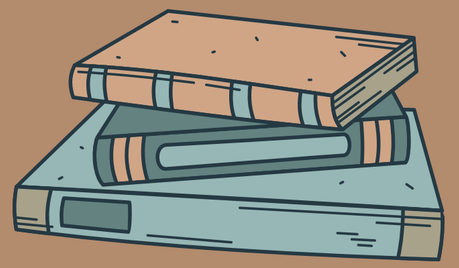
17)RETRIEVE THE TOTAL QUANTITY OF BOOKS SOLD BY EACH AUTHOR

```
SELECT b.author ,SUM(o.quantity) AS total_books_sold
FROM orders o
JOIN books b ON o.book_id = b.book_id
GROUP BY b.author
ORDER BY b.author ;
```



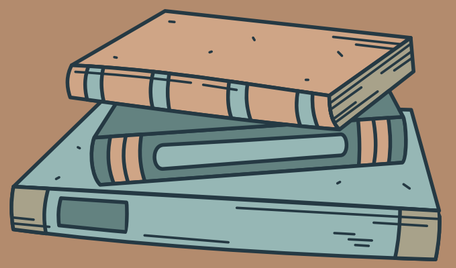
18)LIST THE CITIES WHERE CUSTOMERS WHO SPENT OVER $3
ARE LOCATED

```
SELECT c.customer_id , c.city,c.name ,o.total_amount
FROM customers c JOIN orders o
ON c.customer_id= o.customer_id
WHERE o.total_a
ORDER BY o.total_amount ;
```



19)FIND THE CUSTOMER WHO SPENT THE MOST ON ORDERS

```
SELECT c.customer_id,c.name , SUM(o.total_amount)as
total_spent  FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
GROUP BY c.customer_id,c.name
ORDER BY total_spent DESC LIMIT 1;
```



CONCLUSION

- GAINED HANDS-ON EXPERIENCE IN SQL QUERYING FOR DATA MANIPULATION, RETRIEVAL, AND TRANSFORMATION.
- APPLIED VARIOUS SQL FUNCTIONS, INCLUDING AGGREGATE FUNCTIONS, JOINS, SUBQUERIES, STRING FUNCTIONS, AND DATETIME FUNCTIONS.
- EXPLORED DATA RELATIONSHIPS ACROSS THE BOOKS, CUSTOMERS, AND ORDERS TABLES TO EXTRACT MEANINGFUL INSIGHTS.
- STRENGTHENED UNDERSTANDING OF SQL CONCEPTS AND THEIR REAL-WORLD APPLICATIONS IN DATA ANALYSIS.
- DEVELOPED SKILLS IN EFFICIENT DATABASE MANAGEMENT AND QUERY OPTIMIZATION..