TASK 2

DATA ANALYSIS WITH COMPLEX QUERIES

Tables:

1.customers

customer_id (INT, Primary Key)

name (VARCHAR)

region (VARCHAR)

signup_date (DATE)

2. products

product_id (INT, Primary Key)

product_name (VARCHAR)

category (VARCHAR)

price (DECIMAL)

3. sales

sale_id (INT, Primary Key)

customer_id (INT, Foreign Key)

product_id (INT, Foreign Key)

quantity (INT)

sale_date (DATE)

total_amount (DECIMAL)

EXAMPLES

1. Top 5 Customers with Highest Total Spending

CODE: SELECT customer_id, name, total_spent

FROM (

SELECT c.customer_id, c.name, SUM(s.total_amount) AS total_spent

FROM customers c

JOIN sales s ON c.customer_id = s.customer_id

GROUP BY c.customer_id, c.name

) customer_spending

ORDER BY total_spent DESC

LIMIT 5;

Sample Output:

customer_id	name	total_spent
101	Alice	12,500
203	Bob	9,750
315	Charlie	8,200
420	David	7,600
528	Emma	7,100

2. Running Total of Sales Per Month

CODE: SELECT

DATE_FORMAT(sale_date, '%Y-%m') AS month,

SUM(total_amount) AS monthly_sales,

SUM(SUM(total_amount)) OVER (ORDER BY DATE_FORMAT(sale_date, '%Y-%m')) AS running_total

FROM sales

GROUP BY month;

Sample Output:

month	monthly_sales	running_total
2024-01	15,000	15,000
2024-02	18,500	33,500
2024-03	12,200	45,700
2024-04	20,000	65,700
2024-05	17,500	83,200

3. Most Popular Product Category

CODE:

```
WITH category_sales AS (
    SELECT p.category, SUM(s.quantity) AS total_sold
    FROM sales s
    JOIN products p ON s.product_id = p.product_id
    GROUP BY p.category
)
SELECT category FROM category_sales
ORDER BY total_sold DESC
LIMIT 1;
```