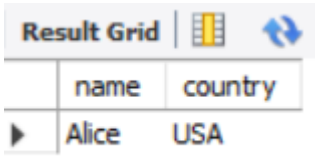
Task 4- SQL For Data Analysis

a. SELECT, WHERE, ORDER BY

```
SELECT name, country
FROM customers
WHERE country = 'USA'
ORDER BY name ASC;
```



name	country
Alice	USA

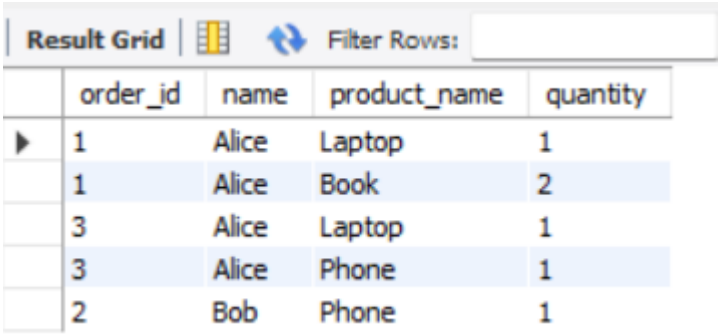
b. GROUP BY with Aggregate Functions

```
SELECT c.country, COUNT(o.order_id) AS total_orders
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
GROUP BY c.country;
```

country	total_orders
USA	2
UK	1

c. JOINs

```
-- INNER JOIN to get order details
SELECT o.order_id, c.name, p.product_name, od.quantity
FROM orders o
INNER JOIN customers c ON o.customer_id = c.customer_id
INNER JOIN order_details od ON o.order_id = od.order_id
INNER JOIN products p ON od.product_id = p.product_id;
```

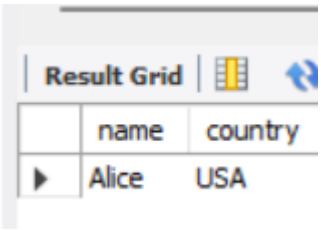


Result Grid | Filter Rows:

order_id	name	product_name	quantity
1	Alice	Laptop	1
1	Alice	Book	2
3	Alice	Laptop	1
3	Alice	Phone	1
2	Bob	Phone	1

d. Subquery

```
SELECT name, country
FROM customers
WHERE customer_id IN (
   SELECT customer_id
   FROM orders
   GROUP BY customer_id
   HAVING COUNT(order_id) > 1
);
```



Result Grid

name	country
Alice	USA

e. Create a View

```
CREATE VIEW customer_orders AS
SELECT c.name, p.product_name, od.quantity, p.price, (od.quantity * p.price) AS total_amount
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
JOIN order_details od ON o.order_id = od.order_id
JOIN products p ON od.product_id = p.product_id;
```

f. Optimize with Index

```
CREATE INDEX idx_customer_country ON customers(country);
```