The queries and The Outputs:

-- All products price highest → lowest

```
SELECT product_name, price
FROM products
ORDER BY price DESC;
```

Output:

product_name	price
Apple MacBook Air	99999.00
iPhone 15	79999.00
Samsung Galaxy S23	69999.00
HP Laptop	59999.00
Boat Headphones	1999.00

-- Customers from Andhra Pradesh

```
SELECT customer_name, city
FROM customers
WHERE state = 'Andhra Pradesh';
```

Output:

customer_name	city
Arjun Reddy	Vijayawada

-- B. Aggregation + GROUP BY

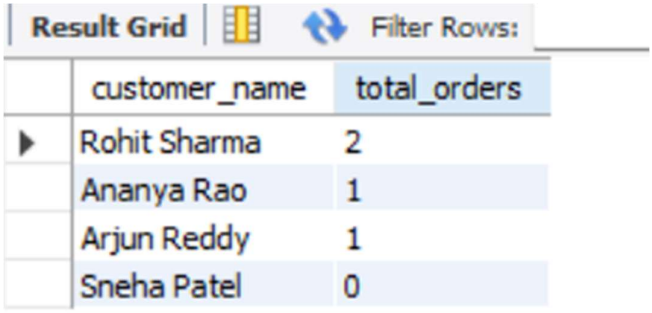
-- Total revenue generated per product

```
SELECT p.product_name,
    SUM(oi.quantity * p.price) AS total_revenue
FROM order_items oi
JOIN products p ON oi.product_id = p.product_id
GROUP BY p.product_name
ORDER BY total_revenue DESC;
```

-- Total number of orders per customer

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

Output:



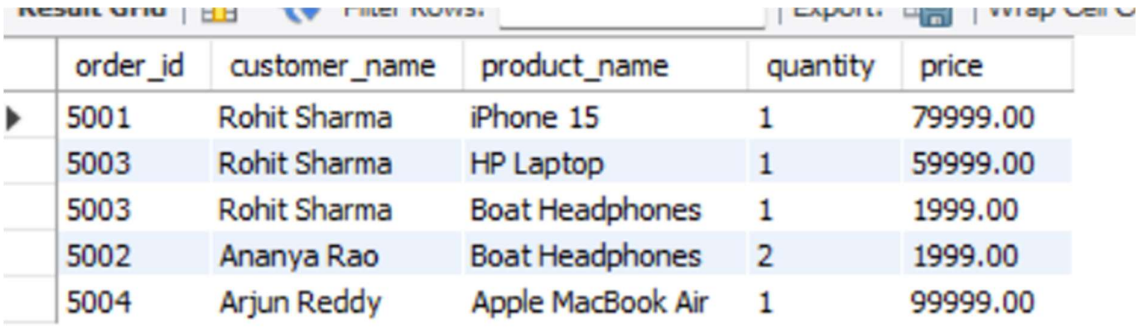
customer_name	total_orders
Rohit Sharma	2
Ananya Rao	1
Arjun Reddy	1
Sneha Patel	0

-- C. JOINS

-- Full order invoice details

```
SELECT o.order_id, c.customer_name, p.product_name, oi.quantity, p.price
FROM orders o
JOIN customers c ON o.customer_id = c.customer_id
JOIN order_items oi ON o.order_id = oi.order_id
JOIN products p ON oi.product_id = p.product_id;
```

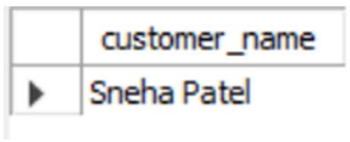
Output:



order_id	customer_name	product_name	quantity	price
5001	Rohit Sharma	iPhone 15	1	79999.00
5003	Rohit Sharma	HP Laptop	1	59999.00
5003	Rohit Sharma	Boat Headphones	1	1999.00
5002	Ananya Rao	Boat Headphones	2	1999.00
5004	Arjun Reddy	Apple MacBook Air	1	99999.00

```
-- Customers who never placed an order
SELECT c.customer_name
FROM customers c
LEFT JOIN orders o ON c.customer_id = o.customer_id
WHERE o.order_id IS NULL;
```

Output:



customer_name
Sneha Patel

```
-- D. Subquery

-- Customers who spent more than ₹1,00,000
SELECT customer_name
```

```
FROM customers
WHERE customer_id IN (
  SELECT o.customer_id
  FROM orders o
  JOIN order_items oi ON o.order_id = oi.order_id
  JOIN products p ON oi.product_id = p.product_id
  GROUP BY o.customer_id
  HAVING SUM(oi.quantity * p.price) > 100000
);
```

Output:

	customer_name
▶	Rohit Sharma

```
-- E. View Creation

-- Product Sales Summary View
CREATE VIEW product_sales_summary AS
SELECT p.product_name,
    p.category,
    SUM(oi.quantity) AS units_sold,
    SUM(oi.quantity * p.price) AS total_revenue
FROM products p
JOIN order_items oi ON p.product_id = oi.product_id
GROUP BY p.product_name, p.category;

-- Use the view
SELECT * FROM product_sales_summary ORDER BY total_revenue DESC;
```

-- F. Index Optimization

-- Indexes to speed up queries

CREATE INDEX idx_customer_state ON customers(state);

CREATE INDEX idx_orders_customer ON orders(customer_id);

CREATE INDEX idx_orderitems_product ON order_items(product_id);

CREATE INDEX idx_products_category ON products(category);

-- END OF FILE

Output: