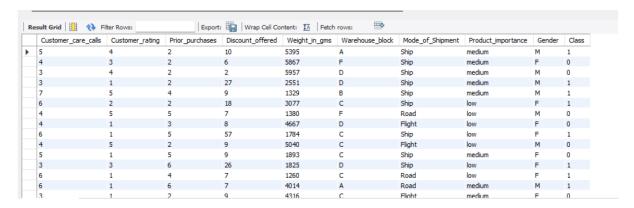# a. Basic SELECT, WHERE, ORDER BY, GROUP BY

1.Show all records from the shipments table.

Code:

SELECT * FROM db.shipping_ecommerce;

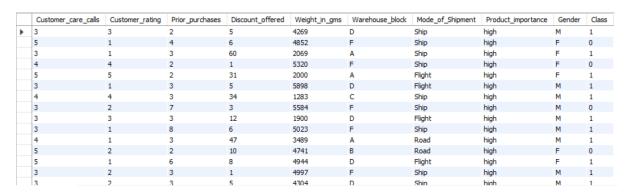|	Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
▶	5	4	2	10	5395	A	Ship	medium	M	1
	4	3	2	6	5867	F	Ship	medium	F	0
	3	4	2	2	5957	D	Ship	medium	M	0
	3	1	2	27	2551	D	Ship	medium	M	1
	7	5	4	9	1329	B	Ship	medium	M	1
	6	2	2	18	3077	C	Ship	low	F	1
	4	5	5	7	1380	F	Road	low	M	0
	4	1	3	8	4667	D	Flight	low	F	0
	6	1	5	57	1784	C	Ship	low	F	1
	4	5	2	9	5040	C	Flight	low	M	0
	5	1	5	9	1893	C	Ship	medium	F	0
	3	3	6	26	1825	D	Ship	low	F	1
	6	1	4	7	1260	C	Road	low	F	1
	6	1	6	7	4014	A	Road	medium	M	1
	3	1	2	9	4316	C	Flight	medium	F	0

2. Display all shipments where the product importance is marked as 'high'.?

Code:

SELECT * FROM db.shipping_ecommerce

WHERE Product_importance = 'high';

	Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
▶	3	3	2	5	4269	D	Ship	high	M	1
	5	1	4	6	4852	F	Ship	high	F	0
	3	1	3	60	2069	A	Ship	high	F	1
	4	4	2	1	5320	F	Ship	high	F	0
	5	5	2	31	2000	A	Flight	high	F	1
	3	1	3	5	5898	D	Flight	high	M	1
	4	4	3	34	1283	C	Ship	high	M	1
	3	2	7	3	5584	F	Ship	high	M	0
	3	3	3	12	1900	D	Flight	high	M	1
	3	1	8	6	5023	F	Ship	high	M	1
	4	1	3	47	3489	A	Road	high	M	1
	5	2	2	10	4741	B	Road	high	F	0
	5	1	6	8	4944	D	Flight	high	F	1
	3	2	3	1	4997	F	Ship	high	M	1
	3	2	3	5	4304	D	Ship	high	M	1

3. List all shipment records, sorted by the discount offered in descending order.?

Code:

SELECT * FROM db.shipping_ecommerce

ORDER BY Discount_offered DESC;

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
4	2	2	65	3082	A	Ship	high	M	1
6	2	7	65	3362	C	Road	medium	F	1
3	3	2	65	3234	F	Ship	high	M	1
4	1	3	65	1706	D	Ship	medium	F	1
4	5	3	65	2598	F	Ship	low	F	1
3	5	6	65	1308	D	Flight	low	M	1
4	2	2	65	3599	F	Ship	low	M	1
6	1	5	65	1601	F	Ship	high	F	1
4	2	3	65	3679	B	Road	low	F	1
3	4	2	65	3943	F	Ship	medium	M	1
4	3	3	65	3578	D	Ship	low	F	1
5	2	3	65	1667	F	Ship	medium	M	1
2	4	2	65	1738	B	Ship	medium	F	1
4	5	4	65	1818	D	Ship	low	M	1
5	1	3	65	2499	A	Ship	medium	F	1

4. Find the average discount offered for each mode of shipment.?

Code:

SELECT Mode_of_Shipment, AVG(Discount_offered) AS avg_discount

FROM db.shipping_ecommerce

GROUP BY Mode_of_Shipment;

Mode_of_Shipment	avg_discount
Ship	13.4927
Road	13.0841
Flight	13.1609

b. JOINs (Assuming a second table: customer_details)

1. Join the shipments table with customer details using gender as a key, and display the customer's name with shipment data (INNER JOIN).?

Code:

SELECT s.*, c.name

FROM db.shipping_ecommerce s

INNER JOIN customer_details c

ON s.Gender = c.gender;

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class	name
5	4	2	10	5395	A	Ship	medium	M	1	Vivek
5	4	2	10	5395	A	Ship	medium	M	1	Karan
5	4	2	10	5395	A	Ship	medium	M	1	Nikhil
5	4	2	10	5395	A	Ship	medium	M	1	Manish
5	4	2	10	5395	A	Ship	medium	M	1	Varun
5	4	2	10	5395	A	Ship	medium	M	1	Ankit
5	4	2	10	5395	A	Ship	medium	M	1	Rahul
5	4	2	10	5395	A	Ship	medium	M	1	Sahil
5	4	2	10	5395	A	Ship	medium	M	1	Amit
5	4	2	10	5395	A	Ship	medium	M	1	Ravi
4	3	2	6	5867	F	Ship	medium	F	0	Megha
4	3	2	6	5867	F	Ship	medium	F	0	Tanya
4	3	2	6	5867	F	Ship	medium	F	0	Sanya
4	3	2	6	5867	F	Ship	medium	F	0	Isha
4	3	2	6	5867	F	Ship	medium	F	0	Aisha

2. Show all shipment data along with customer names (if available), using LEFT JOIN.?

Code:

SELECT s.*, c.name

FROM db.shipping_ecommerce s

LEFT JOIN db.customer_details c

ON s.Gender = c.gender;

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class	name
5	4	2	10	5395	A	Ship	medium	M	1	Vivek
5	4	2	10	5395	A	Ship	medium	M	1	Karan
5	4	2	10	5395	A	Ship	medium	M	1	Nikhil
5	4	2	10	5395	A	Ship	medium	M	1	Manish
5	4	2	10	5395	A	Ship	medium	M	1	Varun
5	4	2	10	5395	A	Ship	medium	M	1	Ankit
5	4	2	10	5395	A	Ship	medium	M	1	Rahul
5	4	2	10	5395	A	Ship	medium	M	1	Sahil
5	4	2	10	5395	A	Ship	medium	M	1	Amit
5	4	2	10	5395	A	Ship	medium	M	1	Ravi
4	3	2	6	5867	F	Ship	medium	F	0	Megha
4	3	2	6	5867	F	Ship	medium	F	0	Tanya
4	3	2	6	5867	F	Ship	medium	F	0	Sanya
4	3	2	6	5867	F	Ship	medium	F	0	Isha
4	3	2	6	5867	F	Ship	medium	F	0	Aisha

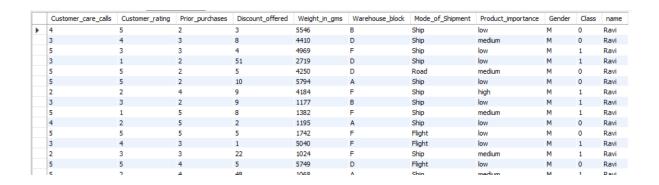## 3. Show all customer data with shipment info (if available), using RIGHT JOIN.?

Code:

SELECT s.*, c.name

FROM db.shipping_ecommerce s

RIGHT JOIN db.customer_details c

ON s.Gender = c.gender;

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class	name
4	5	2	3	5546	B	Ship	low	M	0	Ravi
3	4	3	8	4410	D	Ship	medium	M	0	Ravi
5	3	3	4	4969	F	Ship	low	M	1	Ravi
3	1	2	51	2719	D	Ship	low	M	1	Ravi
5	5	2	5	4250	D	Road	medium	M	0	Ravi
5	5	2	10	5794	A	Ship	low	M	0	Ravi
2	2	4	9	4184	F	Ship	high	M	1	Ravi
3	3	2	9	1177	B	Ship	low	M	1	Ravi
5	1	5	8	1382	F	Ship	medium	M	1	Ravi
4	2	5	2	1195	A	Ship	low	M	0	Ravi
5	5	5	5	1742	F	Flight	low	M	0	Ravi
3	4	3	1	5040	F	Flight	low	M	1	Ravi
2	3	3	22	1024	F	Ship	medium	M	1	Ravi
5	5	4	5	5749	D	Flight	low	M	0	Ravi
5	2	4	48	1068	A	Ship	medium	M	1	Ravi

c. Subqueries

1. Display all shipments where the discount offered is more than the average discount.?

Code:

SELECT * FROM db.shipping_ecommerce

WHERE Discount_offered > (

   SELECT AVG(Discount_offered) FROM db.shipping_ecommerce

);

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
3	1	2	27	2551	D	Ship	medium	M	1
6	2	2	18	3077	C	Ship	low	F	1
6	1	5	57	1784	C	Ship	low	F	1
3	3	6	26	1825	D	Ship	low	F	1
3	2	5	43	1027	C	Road	medium	M	1
5	4	3	53	3172	A	Ship	low	F	1
4	1	2	23	1689	C	Ship	low	F	1
3	1	3	60	2069	A	Ship	high	F	1
3	4	2	14	2163	F	Ship	low	M	1
5	3	3	38	3669	F	Ship	medium	M	1
5	5	2	31	2000	A	Flight	high	F	1
4	5	2	46	3076	F	Ship	medium	M	1
3	5	2	56	3711	F	Ship	medium	F	1
5	4	3	23	1132	F	Flight	medium	M	1
5	4	4	57	1613	D	Ship	medium	M	1

2. List the top 5 shipments with the highest weight.?

Code:

SELECT *

FROM db.shipping_ecommerce

WHERE Weight_in_gms IN (

   SELECT Weight_in_gms

   FROM (

```
    SELECT Weight_in_gms

    FROM db.shipping_ecommerce

    ORDER BY Weight_in_gms DESC

    LIMIT 5

  ) AS temp_table

);
```

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
2	5	3	31	7401	B	Ship	medium	F	1
2	4	3	48	7684	F	Ship	medium	F	1
2	2	3	38	7846	F	Ship	medium	M	1
2	3	3	24	7588	F	Ship	medium	F	1
2	3	3	38	7640	D	Ship	medium	F	1

e. Create Views

1. Create a view that contains only those shipments where discount offered is greater than 25.?

Code:

CREATE OR REPLACE VIEW high_discount AS

SELECT * FROM db.shipping_ecommerce

WHERE Discount_offered > 25;

SELECT distinct Product_importance FROM high_discount;

Product_importance
medium
low
high

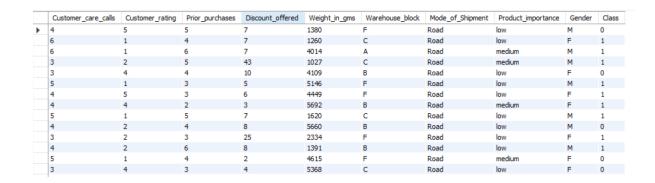**2. Create a view for shipments where the mode of shipment is 'Road'.?**

Code:

CREATE OR REPLACE VIEW road_shipments AS

SELECT * FROM db.shipping_ecommerce

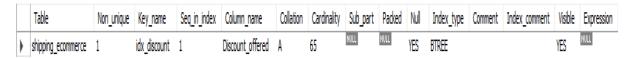WHERE Mode_of_Shipment = 'Road';

SELECT * FROM road_shipments;

Customer_care_calls	Customer_rating	Prior_purchases	Discount_offered	Weight_in_gms	Warehouse_block	Mode_of_Shipment	Product_importance	Gender	Class
4	5	5	7	1380	F	Road	low	M	0
6	1	4	7	1260	C	Road	low	F	1
6	1	6	7	4014	A	Road	medium	M	1
3	2	5	43	1027	C	Road	medium	M	1
3	4	4	10	4109	B	Road	low	F	0
5	1	3	5	5146	F	Road	low	M	1
4	5	3	6	4449	F	Road	low	F	1
4	4	2	3	5692	B	Road	medium	F	1
5	1	5	7	1620	C	Road	low	M	1
4	2	4	8	5660	B	Road	low	M	0
3	2	3	25	2334	F	Road	low	F	1
4	2	6	8	1391	B	Road	low	M	1
5	1	4	2	4615	F	Road	medium	F	0
3	4	3	4	5368	C	Road	low	F	0

f. Index Optimization

1. Create an index on the column Discount_offered to speed up queries.?

Code:

CREATE INDEX idx_discount ON db.shipping_ecommerce(Discount_offered);

SHOW INDEX FROM db.shipping_ecommerce;

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
shipping_ecommerce	1	idx_discount	1	Discount_offered	A	65	NULL	NULL	YES	BTREE			YES	NULL

2. Create a composite index on Mode_of_Shipment and Warehouse_block to improve multi-column filtering.?

Code:

CREATE INDEX idx_shipment_warehouse

ON db.shipping_ecommerce(Mode_of_Shipment(10), Warehouse_block(10));

SHOW INDEX FROM db.shipping_ecommerce;

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
shipping_ecommerce	1	idx_discount	1	Discount_offered	A	65	NULL	NULL	YES	BTREE			YES	NULL
shipping_ecommerce	1	idx_shipment_warehouse	1	Mode_of_Shipment	A	3	10	NULL	YES	BTREE			YES	NULL
shipping_ecommerce	1	idx_shipment_warehouse	2	Warehouse_block	A	15	10	NULL	YES	BTREE			YES	NULL