

SQL PROJECT

SUPER MARKET DATA ANALYSIS

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INTRODUCTION

Aims to analyze large datasets generated by supermarket operations, like sales transactions, customer loyalty programs, and inventory levels, to gain insights into customer buying behavior, optimize pricing strategies, manage stock levels effectively, and ultimately improve profitability by making data-driven decisions regarding product placement, promotions, and overall store operations.

1. FETCH THE DETAILS OF HIGHEST TOTAL AMOUNT IN PURCHASE

Select * from supermarket_sales order by Total desc limit 1;

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
▶	860-79-0874	C	Naypyitaw	Member	Female	Fashion accessories	99.3	10	49.65	1042.65	2/15/2019	14:53	Credit card	993	4.761904762	49.65	6.6

Insight :-

Highest total amount is 1042.65

2.FETCH THE DETAILS OF SHOPPING AT YANGON USING CREDIT CARD

```
select * from supermarket_sales where Location='Yangon' and Payment='Credit card' limit 1;
```

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
▶	631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2019	13:23	Credit card	324.31	4.761904762	16.2155	7.4
	665-32-9167	A	Yangon	Member	Female	Health and beauty	36.26	2	3.626	76.146	1/10/2019	17:15	Credit card	72.52	4.761904762	3.626	7.2
	656-95-9349	A	Yangon	Member	Female	Health and beauty	68.93	7	24.1255	506.6355	3/11/2019	11:03	Credit card	482.51	4.761904762	24.1255	4.6
	765-26-6951	A	Yangon	Normal	Male	Sports and travel	72.61	6	21.783	457.443	1/1/2019	10:39	Credit card	435.66	4.761904762	21.783	6.9
	329-62-1586	A	Yangon	Normal	Male	Food and beverages	54.67	3	8.2005	172.2105	1/21/2019	18:00	Credit card	164.01	4.761904762	8.2005	8.6
	227-03-5010	A	Yangon	Member	Female	Home and lifestyle	52.59	8	21.036	441.756	3/22/2019	19:20	Credit card	420.72	4.761904762	21.036	8.5
	189-17-4241	A	Yangon	Normal	Female	Fashion accessories	87.67	2	8.767	184.107	3/10/2019	12:17	Credit card	175.34	4.761904762	8.767	7.7
	595-11-5460	A	Yangon	Normal	Male	Health and beauty	96.58	2	9.658	202.818	3/15/2019	10:12	Credit card	193.16	4.761904762	9.658	5.1
	199-75-8169	A	Yangon	Member	Male	Sports and travel	15.81	10	7.905	166.005	3/6/2019	12:27	Credit card	158.1	4.761904762	7.905	8.6
	381-20-0914	A	Yangon	Member	Female	Fashion accessories	20.01	9	9.0045	189.0945	1/12/2019	15:48	Credit card	180.09	4.761904762	9.0045	5.7
	633-44-8566	A	Yandoon	Member	Male	Food and beverades	49.38	7	17.283	362.943	3/27/2019	20:35	Credit card	345.66	4.761904762	17.283	7.3

Insight :-

The query retrieves all transactions from the location Yangon and the payment method used is credit card

3.FETCH THE DETAILS OF TOP RATED 5 PRODUCTS

```
select * from supermarket_sales order by Rating desc limit 5;
```

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
▶	866-70-2814	B	Mandalay	Normal	Female	Electronic accessories	52.79	10	26.395	554.295	2/25/2019	11:58	Ewallet	527.9	4.761904762	26.395	10
	347-34-2234	B	Mandalay	Member	Female	Sports and travel	55.07	9	24.7815	520.4115	2/3/2019	13:40	Ewallet	495.63	4.761904762	24.7815	10
	285-68-5083	C	Naypyitaw	Member	Female	Sports and travel	24.74	3	3.711	77.931	2/15/2019	17:47	Credit card	74.22	4.761904762	3.711	10
	725-56-0833	A	Yangon	Normal	Female	Health and beauty	32.32	10	16.16	339.36	2/20/2019	16:49	Credit card	323.2	4.761904762	16.16	10
	423-57-2993	B	Mandalay	Normal	Male	Sports and travel	93.39	6	28.017	588.357	3/27/2019	19:18	Ewallet	560.34	4.761904762	28.017	10

Insight :-

This query retrieves the top 5 highest-rated transactions

4.FETCH THE NAME OF THE PRODUCT WITH THE HIGHEST TAX AMOUNT FROM THE TABLE

```
select Product_line,Tax_5 from supermarket_sales where Tax_5=(select max(Tax_5) from supermarket_sales);
```

	Product_line	Tax_5
▶	Fashion accessories	49.65

Insight :-

Highest taxed product is fashion accessories

5.GENDER WISE COUNT OF PEOPLES

```
select Sex,count(sex) from supermarket_salesgroup by sex;
```

	Gender	count(Gender)
▶	Female	501
	Male	499

Insight :-

This query counts the number of male and female purchase on the Supermarket

6.DIFFERENT PAYMENT METHOD AVAILABLE

```
select distinct Payment from supermarket_sales;
```

Payment
Ewallet
Cash
Credit card

Insight :-

This query retrieves the unique payment methods used in the supermarket

7.WHICH LOCATION HAS THE HIGHEST NUMBER OF PRODUCT PURCHASES BY PEOPLE

```
select Location ,count(Location) from supermarket_sales group by Location limit 1 ;
```

	Location	count(Location)
▶	Yangon	340

Insight :-

Yangon city has the most transactions

8.FETCH THE DETAILS OF PRODUCTS AVAILABLE IN SUPERMARKET

```
select distinct product_line from supermarket_sales;
```

product_line
Health and beauty
Electronic accessories
Home and lifestyle
Sports and travel
Food and beverages
Fashion accessories

Insight :-

This query retrieves all distinct product lines (categories) sold in the supermarket

9.COUNT OF EACH PRODUCT

```
select count(product_line),product_line from supermarket_sales group by product_line;
```

	count(product_line)	product_line
▶	152	Health and beauty
	170	Electronic accessories
	160	Home and lifestyle
	166	Sports and travel
	174	Food and beverages
	178	Fashion accessories

Insight :-

This query returns the number of transactions (sales count) for each product line

10. HOW MANY ELECTRONIC ACCESSORIES ARE THERE IN THE LIST

```
select count(*) from supermarket_sales where product_line='Electronic accessories';
```

	count(*)
▶	170

Insight :-

This query returns the number of transactions where the product line is "Electronic Accessories."

11.MOST PEOPLES ARE USED WHICH PAYMENT METHOD

select max(Payment) from supermarket_sales;

	max(Payment)
▶	Ewallet

Insight :-

Most peoples are used payment method is ewallet

12. FETCH THE DETAILS OF INCREASING ORDER OF GROSS INCOME

select * from supermarket_sales order by gross_income;

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
	559-61-5987	B	Mandalay	Normal	Female	Health and beauty	17.75	1	0.8875	18.6375	1/14/2019	10:38	Cash	17.75	4.761904762	0.8875	8.6
	802-43-8934	A	Yangon	Normal	Male	Home and lifestyle	18.28	1	0.914	19.194	3/22/2019	15:05	Credit card	18.28	4.761904762	0.914	8.3
	382-03-4532	A	Yangon	Member	Female	Health and beauty	18.33	1	0.9165	19.2465	2/2/2019	18:50	Cash	18.33	4.761904762	0.9165	4.3
	390-80-5128	B	Mandalay	Member	Female	Health and beauty	19.15	1	0.9575	20.1075	1/28/2019	17:58	Credit card	19.15	4.761904762	0.9575	9.5
	756-49-0168	A	Yangon	Member	Male	Fashion accessories	19.7	1	0.985	20.685	2/8/2019	11:39	Ewallet	19.7	4.761904762	0.985	9.5
	896-34-0956	A	Yangon	Normal	Male	Fashion accessories	21.32	1	1.066	22.386	1/26/2019	12:43	Cash	21.32	4.761904762	1.066	5.9
	746-19-0921	C	Naypyitaw	Normal	Male	Food and beverages	21.58	1	1.079	22.659	2/9/2019	10:02	Ewallet	21.58	4.761904762	1.079	7.2
	862-29-5914	C	Naypyitaw	Normal	Female	Sports and travel	22.38	1	1.119	23.499	1/30/2019	17:08	Credit card	22.38	4.761904762	1.119	8.6
	320-32-8842	C	Naypyitaw	Member	Female	Food and beverages	22.62	1	1.131	23.751	3/17/2019	18:58	Cash	22.62	4.761904762	1.131	6.4
	556-72-8512	C	Naypyitaw	Normal	Male	Home and lifestyle	22.96	1	1.148	24.108	1/30/2019	20:47	Cash	22.96	4.761904762	1.148	4.3
	633-91-1052	A	Yanoon	Normal	Female	Home and lifestyle	12.03	2	1.203	25.263	1/27/2019	15:51	Cash	24.06	4.761904762	1.203	5.1

Insight :-

The result will show the lowest gross income at the top and the highest at the bottom

13. HOW CAN FIND DETAILS OF CUSTOMERS WHO HAVE MADE LOW-QUANTITY PRODUCT PURCHASES

select * from supermarket_sales where Quantity=1;

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
▶	649-29-6775	B	Mandalay	Normal	Male	Fashion accessories	33.52	1	1.676	35.196	2/8/2019	15:31	Cash	33.52	4.761904762	1.676	6.7
	232-16-2483	C	Naypyitaw	Member	Female	Sports and travel	68.12	1	3.406	71.526	1/7/2019	12:28	Ewallet	68.12	4.761904762	3.406	6.8
	280-35-5823	B	Mandalay	Member	Female	Home and lifestyle	86.72	1	4.336	91.056	1/17/2019	18:45	Ewallet	86.72	4.761904762	4.336	7.9
	778-71-5554	C	Naypyitaw	Member	Male	Fashion accessories	15.43	1	0.7715	16.2015	1/25/2019	15:46	Credit card	15.43	4.761904762	0.7715	6.1
	382-03-4532	A	Yangon	Member	Female	Health and beauty	18.33	1	0.9165	19.2465	2/2/2019	18:50	Cash	18.33	4.761904762	0.9165	4.3
	504-35-8843	A	Yangon	Normal	Male	Sports and travel	42.47	1	2.1235	44.5935	1/2/2019	16:57	Cash	42.47	4.761904762	2.1235	5.7
	512-91-0811	C	Naypyitaw	Normal	Male	Health and beauty	89.75	1	4.4875	94.2375	2/6/2019	20:05	Credit card	89.75	4.761904762	4.4875	6.6
	594-34-4444	A	Yangon	Normal	Male	Electronic accessories	97.16	1	4.858	102.018	3/8/2019	20:38	Ewallet	97.16	4.761904762	4.858	7.2
	163-56-7055	C	Naypyitaw	Member	Male	Fashion accessories	48.71	1	2.4355	51.1455	3/26/2019	19:20	Cash	48.71	4.761904762	2.4355	4.1
	659-65-8956	B	Mandalay	Member	Male	Fashion accessories	51.36	1	2.568	53.928	1/16/2019	15:26	Ewallet	51.36	4.761904762	2.568	5.2
	488-25-4221	C	Navpyitaw	Member	Female	Food and beverages	30.41	1	1.5205	31.9305	2/22/2019	10:36	Credit card	30.41	4.761904762	1.5205	8.4

Insight :-

This query filters transactions where only a single unit of a product was purchased

14. FETCH THE DISTINCT SUPERMARKET BRANCHES

```
select distinct Branch from supermarket_sales;
```

	Branch
▶	A
	C
	B

Insight :-

This query retrieves the distinct branches in the dataset

15.FETCH THE AVERAGE OF GROSS INCOME

```
select avg(gross_income) from supermarket_sales;
```

	avg(gross_income)
▶	15.379369000000002

Insight :-

average gross income is 15.379369

PROCEDURE

```
DELIMITER //
CREATE PROCEDURE getallsupermarket_sales()
BEGIN
select * from supermarket_sales order by gross_income desc limit 1;
END //
DELIMITER ;
CALL getallsupermarket_sales();
```

	Invoice_ID	Branch	Location	Customer_type	Gender	Product_line	Unit_price	Quantity	Tax_5	Total	Date	Time	Payment	cogs	gross_margin_percentage	gross_income	Rating
▶	860-79-0874	C	Naypyitaw	Member	Female	Fashion accessories	99.3	10	49.65	1042.65	2/15/2019	14:53	Credit card	993	4.761904762	49.65	6.6

Insight :-

The procedure `getallsupermarket_sales()` retrieves the transaction with the highest `gross_income` from the `supermarket_sales` table

(OUT) PROCEDURE

```
DELIMITER &&
CREATE PROCEDURE display_max_quantity(out highestage int)
BEGIN
select max(Quantity) into highestage from supermarket_sales;
END &&
DELIMITER ;
CALL display_max_quantity(@M);
select(@m);
```

	(@m)
▶	10

Insight :-

The procedure `display_max_quantity` retrieves the maximum quantity purchased in a single transaction from the `supermarket_sales` table

TRIGGER

```
CREATE TABLE update_table_rating (
    Id INT AUTO_INCREMENT PRIMARY KEY,
    old_rating double,
    new_rating double,
    update_time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    Action VARCHAR(50));
```

```
DELIMITER //
CREATE TRIGGER after_up
AFTER UPDATE ON supermarket_sales
FOR EACH ROW
BEGIN
    INSERT INTO update_table_rating(old_rating,new_rating,Action)
    VALUES (Old.Rating,new.Rating,'Updation');
END //
DELIMITER ;
```

```
update supermarket_sales set Rating =7.8 where Invoice_ID ='101-17-6199';
select * from update_table_rating;
```

	Id	old_rating	new_rating	update_time	Action
▶	1	7	7.8	2025-02-21 15:43:57	Updation
*	NULL	NULL	NULL	NULL	NULL

Insight :-

- This is an AFTER UPDATE trigger, meaning it runs after an UPDATE operation occurs on the supermarket_sales table
- It records rating changes whenever the Rating column is updated
- The changes are logged into update_table_rating

CONCLUSION

The Supermarket Sales Dataset provides valuable insights into customer purchasing behavior, sales trends, and business performance. By leveraging SQL queries, we extracted key findings that can help optimize operations and improve customer satisfaction.

Thank you

