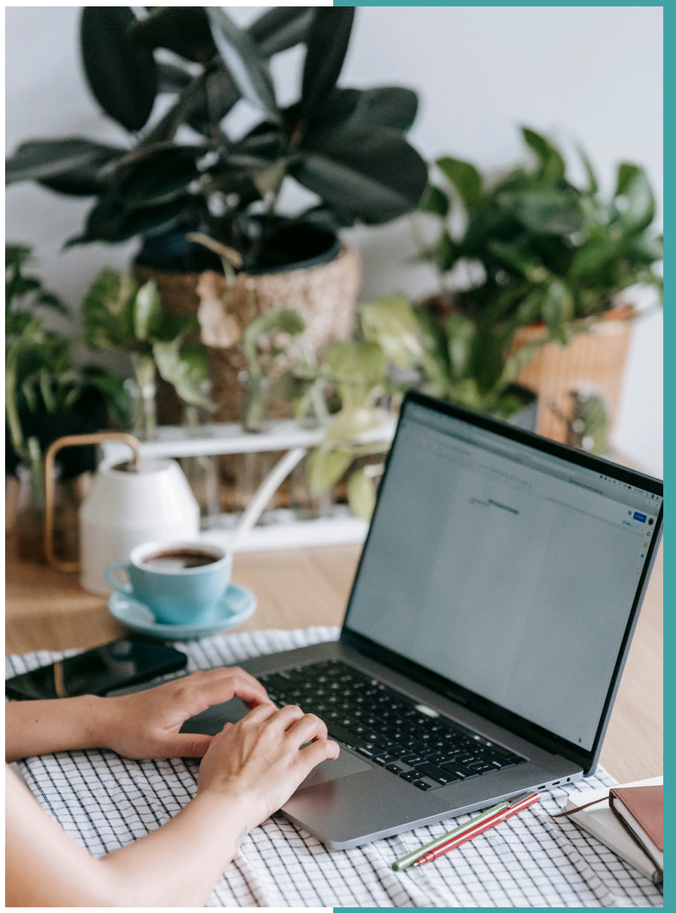
Business Intelligence Report -SQl

SALES REPORT

2022-23



Introduction

Business Intelligence Report -SQl

Welcome to our Business Intelligence Report. I am Karnav , a data enthusiast with expertise in SQL, Power BI, and data analytics. This presentation provides an in-depth analysis of sales data using SQL, uncovering trends, challenges, and opportunities. Through data-driven insights, we aim to highlight key performance indicators, optimize strategies, and enhance decision-making for future growth

Key Insights & Metrics

- Age Distribution: Identifying the most active age group in sales.
- Gender Breakdown: Understanding customer preferences by gender.
- Geographical Analysis: Identifying top-performing locations and potential markets.
- Purchase Behavior: Analyzing frequency, average spending, and product preferences.

Data Cleaning

```sql
SELECT * FROM ['SQL - Retail Sales Analysis_utf$']
WHERE
    sale_date IS NULL OR sale_time IS NULL OR customer_id IS NULL OR
    gender IS NULL OR age IS NULL OR category IS NULL OR
    quantiy IS NULL OR price_per_unit IS NULL OR cogs IS NULL;

DELETE FROM ['SQL - Retail Sales Analysis_utf$']
WHERE
    sale_date IS NULL OR sale_time IS NULL OR customer_id IS NULL OR
    gender IS NULL OR age IS NULL OR category IS NULL OR
    quantiy IS NULL OR price_per_unit IS NULL OR cogs IS NULL;
```

1. Write a SQL query to retrieve all columns for sales made on '2022-11-05:

```sql
SELECT *
FROM ['SQL - Retail Sales Analysis_utf$']
WHERE sale_date = '2022-11-05';
```

Results | Messages

	transactions_id	sale_date	sale_time	customer_id	gender	age	category	quantiy	price_per_
1	180	2022-11-05 00:00:00.000	1899-12-30 10:47:00.000	117	Male	41	Clothing	3	300
2	240	2022-11-05 00:00:00.000	1899-12-30 11:49:00.000	95	Fem...	23	Beauty	1	300
3	1256	2022-11-05 00:00:00.000	1899-12-30 09:58:00.000	29	Male	23	Clothing	2	500
4	1587	2022-11-05 00:00:00.000	1899-12-30 20:06:00.000	140	Fem...	40	Beauty	4	300
5	1819	2022-11-05 00:00:00.000	1899-12-30 20:44:00.000	83	Fem...	35	Beauty	2	50
6	943	2022-11-05 00:00:00.000	1899-12-30 19:29:00.000	90	Fem...	57	Clothing	4	300
7	1896	2022-11-05 00:00:00.000	1899-12-30 20:19:00.000	87	Fem...	30	Electro...	2	25
8	1137	2022-11-05 00:00:00.000	1899-12-30 22:34:00.000	104	Male	46	Beauty	2	500
9	856	2022-11-05 00:00:00.000	1899-12-30 17:43:00.000	102	Male	54	Electro...	4	30
10	214	2022-11-05 00:00:00.000	1899-12-30 16:31:00.000	53	Male	20	Beauty	2	30
11	1265	2022-11-05 00:00:00.000	1899-12-30 14:35:00.000	86	Male	55	Clothing	3	300

2.Write a SQL query to retrieve all transactions where the category is --'Clothing' and the quantity sold is equal to 4 in the month of Nov-2022

```sql
SELECT *
FROM ['SQL - Retail Sales Analysis_utf$']
WHERE category = 'Clothing'
AND DATEPART(YEAR, sale_date) = 2022
AND DATEPART(MONTH, sale_date) = 11
AND quantiy = 4;
```

100 %

Results | Messages

	transactions_id	sale_date	sale_time	customer_id	gender	age	category	quantiy	price_per_unit	cogs	total_sale
1	1484	2022-11-23 00:00:00.000	1899-12-30 09:29:00.000	22	Female	19	Clothing	4	300	147	1200
2	64	2022-11-15 00:00:00.000	1899-12-30 06:34:00.000	7	Male	49	Clothing	4	25	8.5	100
3	284	2022-11-12 00:00:00.000	1899-12-30 09:17:00.000	129	Male	43	Clothing	4	50	20.5	200
4	1885	2022-11-09 00:00:00.000	1899-12-30 07:32:00.000	148	Female	52	Clothing	4	30	10.8	120
5	547	2022-11-14 00:00:00.000	1899-12-30 07:36:00.000	3	Male	63	Clothing	4	500	250	2000
6	159	2022-11-10 00:00:00.000	1899-12-30 21:30:00.000	42	Male	26	Clothing	4	50	23.5	200
7	699	2022-11-21 00:00:00.000	1899-12-30 22:21:00.000	129	Female	37	Clothing	4	30	16.2	120
8	1259	2022-11-03 00:00:00.000	1899-12-30 17:31:00.000	105	Female	45	Clothing	4	50	21	200
9	146	2022-11-10 00:00:00.000	1899-12-30 22:01:00.000	74	Male	38	Clothing	4	50	49	200
10	1476	2022-11-11 00:00:00.000	1899-12-30 22:27:00.000	130	Female	27	Clothing	4	500	555	2000
11	1296	2022-11-26 00:00:00.000	1899-12-30 20:42:00.000	45	Female	22	Clothing	4	300	342	1200
12	1696	2022-11-21 00:00:00.000	1899-12-30 17:59:00.000	24	Female	50	Clothing	4	50	55	200
13	1497	2022-11-19 00:00:00.000	1899-12-30 21:44:00.000	109	Male	41	Clothing	4	30	32.4	120
14	735	2022-11-26 00:00:00.000	1899-12-30 21:38:00.000	153	Female	64	Clothing	4	500	515	2000
15	943	2022-11-05 00:00:00.000	1899-12-30 19:29:00.000	90	Female	57	Clothing	4	300	318	1200
16	965	2022-11-27 00:00:00.000	1899-12-30 21:45:00.000	84	Male	22	Clothing	4	50	13	200
17	1615	2022-11-17 00:00:00.000	1899-12-30 13:43:00.000	82	Female	61	Clothing	4	25	13.5	100

3. Write a SQL query to calculate the total sales (total_sale) for each category.:

```sql
SELECT
    category,
    SUM(total_sale) AS Total_Sale
FROM
    ['SQL - Retail Sales Analysis_utf$']
GROUP BY
    category;
```

Results | Messages

	category	Total_sale
1	Clothing	309995
2	Electronics	311445
3	Beauty	286790

4. Write a SQL query to find the average age of customers who purchased items from the 'Beauty' category.

```sql
SELECT
    category,
    AVG(age) AS Average_Age
FROM
    ['SQL - Retail Sales Analysis_utf$']
WHERE
    category = 'Beauty'
GROUP BY
    category;
```

Results | Messages

	category	Average_age
1	Beauty	40.4157119476268

5. Write a SQL query to find all transactions where the total_sale is greater than 1000.:

```sql
SELECT *
FROM ['SQL - Retail Sales Analysis_utf$']
WHERE total_sale > 1000;
```

100 %

Results | Messages

	transactions_id	sale_date	sale_time	customer_id	gender	age	category	quantiy	price_per_unit	cogs	total_sale
1	522	2022-07-09 00:00:00.000	1899-12-30 11:00:00.000	52	Male	46	Beauty	3	500	145	1500
2	559	2022-12-12 00:00:00.000	1899-12-30 10:48:00.000	5	Female	40	Clothing	4	300	84	1200
3	1522	2022-11-14 00:00:00.000	1899-12-30 08:35:00.000	48	Male	46	Beauty	3	500	235	1500
4	1559	2022-08-20 00:00:00.000	1899-12-30 07:40:00.000	49	Female	40	Clothing	4	300	144	1200
5	421	2022-04-08 00:00:00.000	1899-12-30 08:43:00.000	66	Female	37	Clothing	3	500	235	1500
6	1421	2022-01-17 00:00:00.000	1899-12-30 07:07:00.000	59	Female	37	Clothing	3	500	185	1500
7	484	2022-03-13 00:00:00.000	1899-12-30 07:52:00.000	135	Female	19	Clothing	4	300	75	1200
8	1484	2022-11-23 00:00:00.000	1899-12-30 09:29:00.000	22	Female	19	Clothing	4	300	147	1200
9	15	2022-07-01 00:00:00.000	1899-12-30 11:50:00.000	75	Female	42	Electronics	4	500	210	2000
10	743	2022-08-07 00:00:00.000	1899-12-30 07:54:00.000	55	Female	34	Beauty	4	500	260	2000
11	1015	2022-03-09 00:00:00.000	1899-12-30 11:53:00.000	94	Female	42	Electronics	4	500	200	2000
12	1743	2022-10-26 00:00:00.000	1899-12-30 09:37:00.000	47	Female	34	Beauty	4	500	250	2000
13	742	2022-03-19 00:00:00.000	1899-12-30 06:08:00.000	37	Female	38	Electronics	4	500	195	2000
14	1742	2022-11-22 00:00:00.000	1899-12-30 08:25:00.000	18	Female	38	Electronics	4	500	220	2000
15	420	2022-01-02 00:00:00.000	1899-12-30 10:53:00.000	28	Female	22	Clothing	4	500	200	2000
16	1420	2022-04-15 00:00:00.000	1899-12-30 07:01:00.000	138	Female	22	Clothing	4	500	205	2000
17	592	2022-12-26 00:00:00.000	1899-12-30 09:15:00.000	77	Female	46	Beauty	4	500	275	2000
18	1592	2022-03-16 00:00:00.000	1899-12-30 09:08:00.000	81	Female	46	Beauty	4	500	155	2000
19	720	2022-04-08 00:00:00.000	1899-12-30 08:50:00.000	116	Female	56	Beauty	3	500	235	1500
20	1720	2022-10-10 00:00:00.000	1899-12-30 08:51:00.000	28	Female	56	Beauty	3	500	190	1500
21	269	2022-09-19 00:00:00.000	1899-12-30 11:31:00.000	87	Male	25	Clothing	4	500	250	2000
22	320	2022-04-20 00:00:00.000	1899-12-30 08:35:00.000	57	Female	28	Electronics	4	300	159	1200
23	673	2022-07-04 00:00:00.000	1899-12-30 10:14:00.000	18	Female	43	Clothing	3	500	270	1500
24	1269	2022-01-01 00:00:00.000	1899-12-30 08:09:00.000	71	Male	25	Clothing	4	500	145	2000
25	1320	2022-11-02 00:00:00.000	1899-12-30 11:55:00.000	102	Female	28	Electronics	4	300	84	1200
26	1673	2022-06-14 00:00:00.000	1899-12-30 07:36:00.000	42	Female	43	Clothing	3	500	185	1500
27	142	2022-04-08 00:00:00.000	1899-12-30 10:05:00.000	61	Male	35	Electronics	4	300	138	1200
28	1142	2022-11-09 00:00:00.000	1899-12-30 09:49:00.000	2	Male	35	Electronics	4	300	114	1200
29	107	2022-10-06 00:00:00.000	1899-12-30 09:18:00.000	75	Female	21	Clothing	4	300	78	1200
30	1107	2022-12-31 00:00:00.000	1899-12-30 11:14:00.000	62	Female	21	Clothing	4	300	102	1200
31	333	2022-10-06 00:00:00.000	1899-12-30 08:15:00.000	21	Female	54	Electronics	4	300	99	1200
32	1333	2022-11-01 00:00:00.000	1899-12-30 11:38:00.000	151	Female	54	Electronics	4	300	165	1200
33	372	2022-06-19 00:00:00.000	1899-12-30 11:45:00.000	27	Female	24	Beauty	3	500	140	1500
34	1372	2022-03-18 00:00:00.000	1899-12-30 10:53:00.000	60	Female	24	Beauty	3	500	145	1500
35	54	2022-10-20 00:00:00.000	1899-12-30 10:17:00.000	142	Female	38	Electronics	3	500	200	1500
36	1054	2022-01-10 00:00:00.000	1899-12-30 09:24:00.000	49	Female	38	Electronics	3	500	140	1500

6. Write a SQL query to find the total number of transactions (transaction_id) made by each gender in each category.

```sql
SELECT
    gender,
    category,
    SUM(total_sale) AS Total_sales
FROM ['SQL - Retail Sales Analysis_utf$']
GROUP BY gender, category;
```

Results | Messages

	gender	category	Total_sales
1	Male	Beauty	137320
2	Female	Clothing	162460
3	Male	Clothing	147535
4	Female	Beauty	149470
5	Male	Electronics	160265
6	Female	Electronics	151180

7. Write a SQL query to calculate the average sale for each month. Find out best selling month in each year

```sql
SELECT *
FROM (
    SELECT *,
           ROW_NUMBER() OVER (PARTITION BY Year ORDER BY Avg_Sales) AS Rn
    FROM (
        SELECT DATEPART(YEAR, sale_date) AS Year,
               DATEPART(MONTH, sale_date) AS Month,
               AVG(total_sale) AS Avg_Sales
        FROM ['SQL - Retail Sales Analysis_utf$']
        GROUP BY DATEPART(YEAR, sale_date), DATEPART(MONTH, sale_date)
    ) AS A
) AS B
WHERE Rn = 1;
```

Results Messages

	Year	Month	Avg_Sales	Rn
1	2022	2	366.136363636364	1
2	2023	3	394.807692307692	1

8.Write a SQL query to find the top 5 customers based on the highest total sales

```sql
SELECT TOP 5
    customer_id,
    SUM(total_sale) AS total_sales
FROM ['SQL - Retail Sales Analysis_utf$']
GROUP BY customer_id
ORDER BY total_sales DESC;
```

Results | Messages

	customer_id	total_sales
1	3	38440
2	1	30750
3	5	30405
4	2	25295
5	4	23580

9.Write a SQL query to find the number of unique customers who purchased items from each category.

```
SELECT
    category,
    COUNT(DISTINCT customer_id) AS cnt_unique_cs
FROM ['SQL - Retail Sales Analysis_utf$']
GROUP BY category
```

Results | Messages

	category	cnt_unique_cs
1	Beauty	141
2	Clothing	149
3	Electronics	144

10. Write a SQL query to create each shift and number of orders (Example Morning <12, Afternoon Between 12 & 17, Evening7)

```sql
SELECT
    CASE
        WHEN DATEPART(HOUR, sale_time) < 12 THEN 'Morning'
        WHEN DATEPART(HOUR, sale_time) BETWEEN 12 AND 17 THEN 'Afternoon'
        ELSE 'Evening'
    END AS Shift,
    COUNT(*) AS Number_of_Orders
FROM ['SQL - Retail Sales Analysis_utf$']
GROUP BY
    CASE
        WHEN DATEPART(HOUR, sale_time) < 12 THEN 'Morning'
        WHEN DATEPART(HOUR, sale_time) BETWEEN 12 AND 17 THEN 'Afternoon'
        ELSE 'Evening'
    END
ORDER BY Number_of_Orders DESC;
```

Results | Messages

	Shift	Number_of_Orders
1	Evening	1062
2	Morning	548
3	Afternoon	377

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