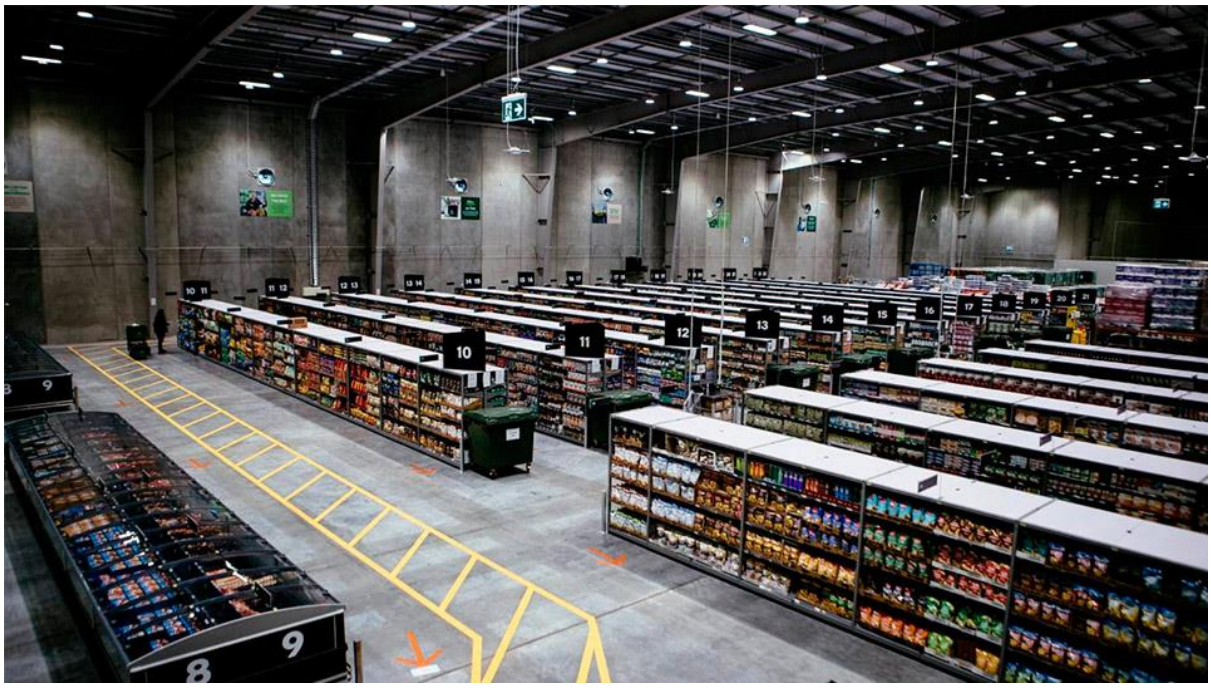
General Store Sales Analysis



Prepared By: Akshay Dawal

Tools Used: SQL, Power Query, Power BI

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Table of Content

1.0 Introduction

This project focuses on analysing the General store sales data to identify opportunities for improvement and growth. The objective is to gain insights into customer behaviour, sales performance, profitability, and operational efficiencies.

2.0 Project Objectives

- Calculate and analyse total sales, profit margins, and order counts.
- Identify top-performing products and regions.
- Visualize customer segmentation for better targeting.
- Optimize shipping efficiency by evaluating delivery timelines.

3.0 Dataset Overview

The dataset includes the following columns:

- Order Details: order_id, order_date, ship_date, order_priority
- Customer & Location: customer_name, segment, state, country, region, market
- Product Information: product_id, category, sub_category, product_name
- Performance Metrics: sales, quantity, profit, discount, shipping_cost
- Year: year

4.0 SQL Queries and Results

Query 1) Total numbers of orders

```
SELECT
COUNT(order_id) as total_orders
FROM orders;
```

	total_orders
1	51290

Query 2) Total number of Sales

```
SELECT
SUM(sales) as total_sales
FROM orders;
```

	total_sales
1	12642905

Query 3) Total quantity of product sold

```
SELECT
SUM(quantity) as total_quantity_sold
FROM orders;
```

	total_quantity_sold
1	178312

Query 4) Average Profit

```
SELECT
AVG(profit) as Avg_profit
FROM orders;
```

	Avg_profit
1	28.6417395453304

Query 5) Average Discount

```
SELECT
AVG(discount) as avg_discount
FROM orders
```

	avg_discount
1	0.142907545330467

Query 6) Total number of products

```
SELECT
COUNT(DISTINCT product_name) as no_of_products
FROM orders;
```

	no_of_products
1	3788

Query 7) Total number of categories

```
SELECT
COUNT(DISTINCT category) as no_of_category
FROM orders;
```

	no_of_category
1	3

Query 8) Total number of sub-categories

```
SELECT
COUNT(DISTINCT sub_category)as no_of_sub_category
FROM orders;
```

	no_of_sub_category
1	17

Query 9) Total number of countries

```
SELECT
COUNT(DISTINCT country) as total_countries
FROM orders;
```

	total_countries
1	147

Query 10) Total number of years

```
SELECT
COUNT(DISTINCT year) as total_years
FROM orders;
```

	total_years
1	4

Query 11) Sales performance analysis

```
SELECT
product_name,
category,
SUM(sales) as Toatl_sales,
SUM(quantity) as Total_quantity_sold
FROM orders
GROUP BY product_name, category
ORDER BY SUM(sales) DESC
LIMIT <= 10;
```

	product_name	category	Toatl_sales	Total_quantity_sold
1	Apple Smart Phone, Full Size	Technology	86936	171
2	Cisco Smart Phone, Full Size	Technology	76441	139
3	Motorola Smart Phone, Full Size	Technology	73159	134
4	Nokia Smart Phone, Full Size	Technology	71904	147
5	Canon imageCLASS 2200 Advanced Copier	Technology	61600	20
6	Hon Executive Leather Armchair, Adjustable	Furniture	58200	169
7	Office Star Executive Leather Armchair, Adjustable	Furniture	50667	141
8	Harbour Creations Executive Leather Armchair, Adj...	Furniture	50120	142
9	Samsung Smart Phone, Cordless	Technology	48654	108
10	Nokia Smart Phone, with Caller ID	Technology	47880	96

Query 12) Sales over year

```
SELECT
year,
SUM(sales) as Total_sales
FROM orders
GROUP BY year
ORDER BY SUM(sales) DESC;
```

	year	Total_sales
1	2014	4300041
2	2013	3405860
3	2012	2677493
4	2011	2259511

Query 13) Customer Segmentation

```
SELECT
segment,
COUNT(DISTINCT customer_name) as Toatl_customers,
SUM(sales) as Total_sales
FROM orders
GROUP BY segment
ORDER BY SUM(sales) DESC;
```

	segment	Toatl_customers	Total_sales
1	Consumer	409	6508141
2	Corporate	238	3824808
3	Home Office	148	2309956

Query 14) Shipping and order management

```
SELECT
ship_mode,
AVG(shipping_cost) as Avg_shipping_cost,
AVG(profit) as Avg_profit
FROM orders
GROUP BY ship_mode
ORDER BY AVG(profit);
```

	ship_mode	Avg_shipping_cost	Avg_profit
1	First Class	41.0530646235842	27.7288041572285
2	Same Day	42.937452795261	28.2018022213994
3	Second Class	30.4697468231643	28.5343929653701
4	Standard Class	19.9717549959381	28.9389446368806

Query 15) Order processing time analysis

```
SELECT
ship_mode,
AVG(DATE_PART('day', ship_date::timestamp - order_date::timestamp)) as avg_time_gap
FROM orders
GROUP BYÂ ship_mode;
```

	ship_mode	Avg_time_gape
1	First Class	2
2	Same Day	0
3	Standard Class	4
4	Second Class	3

Query 16) Profitability and Cost analysis

```
SELECT
product_name,
category,
sub_category,
AVG(profit) as Avg_profit,
AVG(discount) as Avg_dicount
FROM orders
GROUP BY
product_name,
category,
sub_category
ORDER BY AVG(profit) DESC;
```

	product_name	category	sub_category	Avg_profit	Avg_dicount
1	Canon imageCLASS 2200 Advanced Copier	Technology	Copiers	5039.9856	0.12
2	Canon imageCLASS MF7460 Monochrome Digital Laser ...	Technology	Machines	1995.99	0
3	Ativa V4110MDD Micro-Cut Shredder	Technology	Machines	1886.47305	0
4	3D Systems Cube Printer, 2nd Generation, Magenta	Technology	Machines	1858.9857	0
5	Zebra ZM400 Thermal Label Printer	Technology	Machines	1671.768	0
6	Hewlett-Packard Desktjet 6988DT Refurbished Printer	Technology	Machines	1668.205	0
7	Hewlett-Packard Deskjet 3050a All-in-One Color Inkjet Pri...	Technology	Machines	1459.2	0
8	HP Designjet T520 Inkjet Large Format Printer - 24" Color	Technology	Machines	1364.9922	0.166666666666667
9	Canon PC1060 Personal Laser Copier	Technology	Copiers	1142.733675	0.15
10	Ibico EPK-21 Electric Binding System	Office Supplies	Binders	1115.0941	0.333333333333333
11	Hewlett Packard LaserJet 3310 Copier	Technology	Copiers	872.98545	0.2
12	Canon Image Class D660 Copier	Technology	Copiers	845.9859	0.1
13	Hoover Stove, Red	Office Supplies	Appliances	787.197933333333	0.0666666666666667
14	Fellowes PB500 Electric Punch Plastic Comb Binding Mac...	Office Supplies	Binders	775.3039	0.24
15	Canon PC940 Copier	Technology	Copiers	697.4845	0.2
16	Cisco SPA525G2 5-Line IP Phone	Technology	Machines	648.5624	0

Query 17) Global sales and quantity product overview

```
SELECT
country,
SUM(sales) as Total_sales,
SUM(quantity)  as Total_quantity
FROM orders
GROUP BY country
ORDER BY SUM(sales) DESC;
```

	country	Total_sales	Total_quantity
1	United States	2297354	37873
2	Australia	925257	10673
3	France	858930	10804
4	China	700591	7081
5	Germany	628857	7745
6	Mexico	622620	10011
7	India	589664	5758

Query 18) State level category

```
SELECT
product_name,
category,
SUM(quantity) as Total_quantity_sold
FROM orders
GROUP BY
product_name,
category
ORDER BY SUM(quantity) DESC;
```

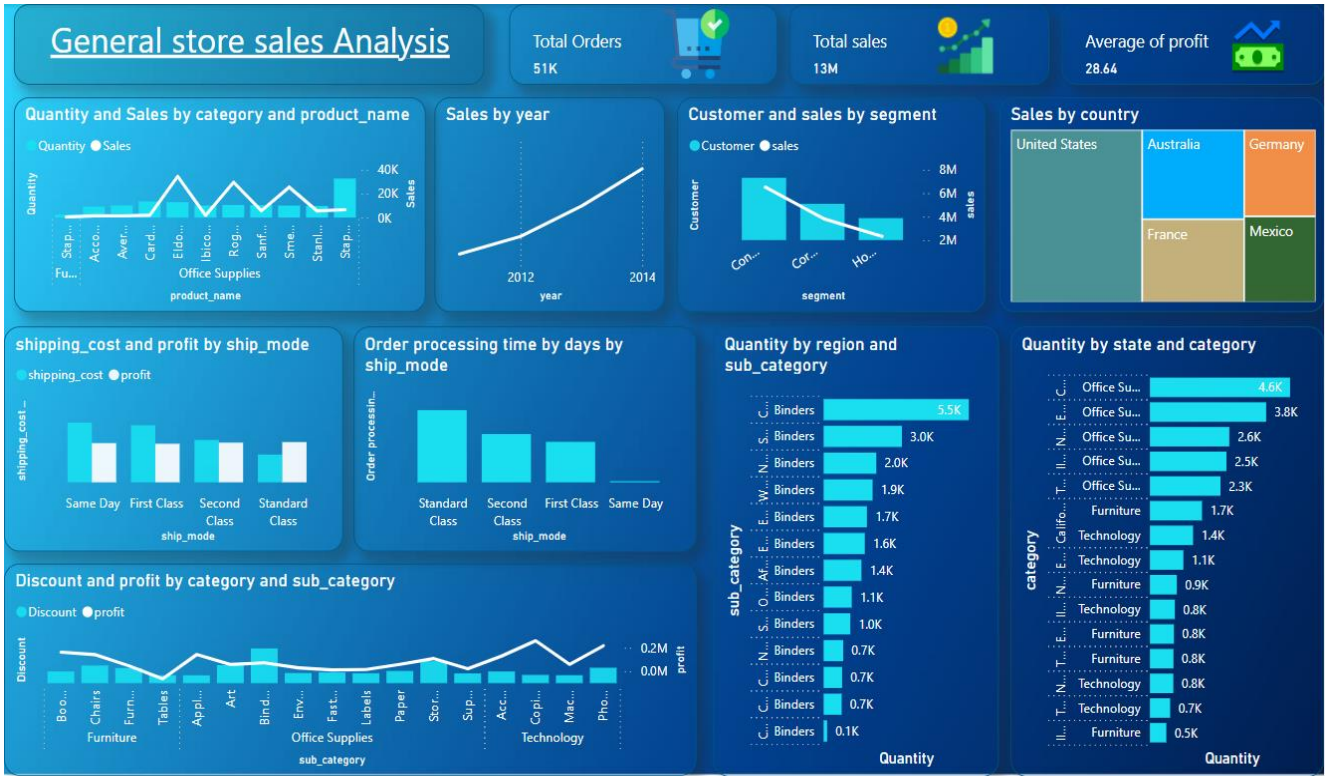
	product_name	category	Total_quantity_sold
1	Staples	Office Supplies	814
2	Cardinal Index Tab, Clear	Office Supplies	337
3	Eldon File Cart, Single Width	Office Supplies	321
4	Rogers File Cart, Single Width	Office Supplies	262
5	Sanford Pencil Sharpener, Water Color	Office Supplies	259
6	Stockwell Paper Clips, Assorted Sizes	Office Supplies	253
7	Avery Index Tab, Clear	Office Supplies	252
8	Ibico Index Tab, Clear	Office Supplies	251
9	Smead File Cart, Single Width	Office Supplies	250
10	Stanley Pencil Sharpener, Water Color	Office Supplies	242

Query 19) Regional sub-category analysis

```
SELECT
region,
sub_category,
SUM(quantity) as Total_quantity_sold
FROM orders
GROUP BY region,
sub_category
ORDER BY SUM(quantity) DESC;
```

	region	sub_category	Total_quantity_sold
1	Central	Binders	5538
2	Central	Art	4520
3	Central	Storage	4377
4	South	Binders	2987
5	Central	Paper	2829
6	Central	Chairs	2719
7	Central	Phones	2661
8	Central	Accessories	2577
9	South	Storage	2428
10	Central	Furnishings	2398

5.0 Power BI Dashboard



6.0 Challenges and Solutions

- Data Quality Issues: Resolved missing values using SQL data cleaning techniques.
- Dashboard Design: Created intuitive visuals in Power BI by using custom color themes and slicers.

7.0 Conclusion

SQL enabled efficient data extraction and preparation, while Power BI provided actionable insights. Key findings include:

- Top-performing products and profitable regions.
- Opportunities to improve shipping times.
- Enhanced customer segmentation for targeted marketing.

8.0 Appendix

Dataset Source: General Store Sales Data

Tools:

SQL Editor: MySQL Workbench, Postgres SQL

BI Tool: Power BI