

Supermart Grocery Sales - Retail Analytics Dataset(2015-2018)

1. Introduction

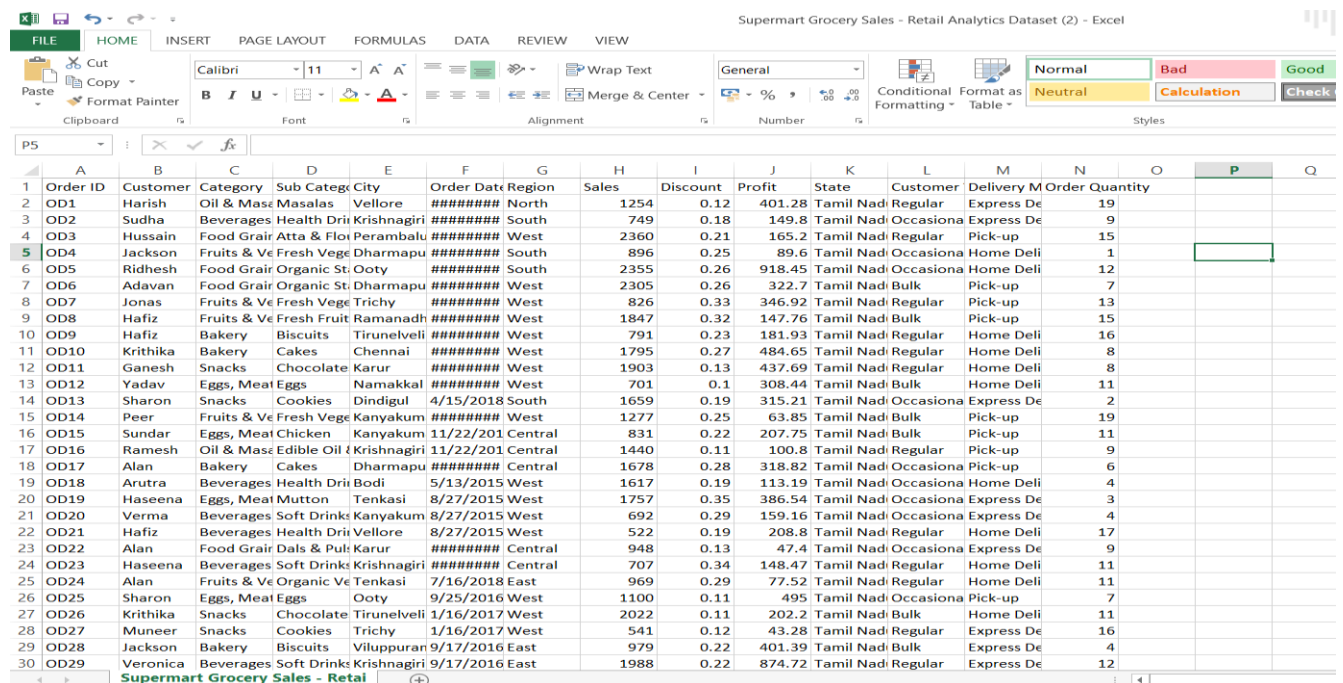
In today's competitive retail environment, data-driven insights play a vital role in strategic decision-making. This project explores the Supermart Grocery Sales dataset (2015–2018) using Tableau to uncover patterns, trends, and actionable insights across various dimensions like customer behavior, geographic performance, product categories, and promotional strategies. The objective of this project was to:

- Understand sales and profit trends over time
- Identify top-performing segments and categories
- Analyze the impact of delivery modes and discounts
- Build interactive dashboards for dynamic exploration
- Provide insights to support business growth and efficiency

2. Tools and Techniques Used

- **Tool:** Tableau Desktop
- **Data:** Supermart Grocery Sales data (2015–2018)
- **Techniques:** Data Cleaning & Preparation, calculated fields, parameter controls, advanced visualizations, KPI dashboards, performance trend analysis.

Dataset:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Order ID	Customer	Category	Sub Category	City	Order Date	Region	Sales	Discount	Profit	State	Customer	Delivery Mode	Order Quantity			
2	OD1	Harish	Oil & Mas	Masalas	Vellore	#####	North	1254	0.12	401.28	Tamil Nadi	Regular	Express De	19			
3	OD2	Sudha	Beverages	Health Drii	Krishnagiri	#####	South	749	0.18	149.8	Tamil Nadi	Occasiona	Express De	9			
4	OD3	Hussain	Food Grain	Atta & Flou	Perambalu	#####	West	2360	0.21	165.2	Tamil Nadi	Regular	Pick-up	15			
5	OD4	Jackson	Fruits & Ve	Fresh Vege	Dharmapu	#####	South	896	0.25	89.6	Tamil Nadi	Occasiona	Home Deli	1			
6	OD5	Ridhesh	Food Grain	Organic St.	Ooty	#####	South	2355	0.26	918.45	Tamil Nadi	Occasiona	Home Deli	12			
7	OD6	Adavan	Food Grain	Organic St.	Dharmapu	#####	West	2305	0.26	322.7	Tamil Nadi	Bulk	Pick-up	7			
8	OD7	Jonas	Fruits & Ve	Fresh Vege	Trichy	#####	West	826	0.33	346.92	Tamil Nadi	Regular	Pick-up	13			
9	OD8	Hafiz	Fruits & Ve	Fresh Fruit	Ramanadh	#####	West	1847	0.32	147.76	Tamil Nadi	Bulk	Pick-up	15			
10	OD9	Hafiz	Bakery	Biscuits	Tirunelveli	#####	West	791	0.23	181.93	Tamil Nadi	Regular	Home Deli	16			
11	OD10	Krithika	Bakery	Cakes	Chennai	#####	West	1795	0.27	484.65	Tamil Nadi	Regular	Home Deli	8			
12	OD11	Ganesh	Snacks	Chocolate	Karur	#####	West	1903	0.13	437.69	Tamil Nadi	Regular	Home Deli	8			
13	OD12	Yadav	Eggs, Meat	Eggs	Namakkal	#####	West	701	0.1	308.44	Tamil Nadi	Bulk	Home Deli	11			
14	OD13	Sharon	Snacks	Cookies	Dindigul	4/15/2018	South	1659	0.19	315.21	Tamil Nadi	Occasiona	Express De	2			
15	OD14	Peer	Fruits & Ve	Fresh Vege	Kanyakum	#####	West	1277	0.25	63.85	Tamil Nadi	Bulk	Pick-up	19			
16	OD15	Sundar	Eggs, Meat	Chicken	Kanyakum	11/22/201	Central	831	0.22	207.75	Tamil Nadi	Bulk	Pick-up	11			
17	OD16	Ramesh	Oil & Mas	Edible Oil	Krishnagiri	11/22/201	Central	1440	0.11	100.8	Tamil Nadi	Regular	Pick-up	9			
18	OD17	Alan	Bakery	Cakes	Dharmapu	#####	Central	1678	0.28	318.82	Tamil Nadi	Occasiona	Pick-up	6			
19	OD18	Arutra	Beverages	Health Drii	Bodi	5/13/2015	West	1617	0.19	113.19	Tamil Nadi	Occasiona	Home Deli	4			
20	OD19	Haseena	Eggs, Meat	Mutton	Tenkasi	8/27/2015	West	1757	0.35	386.54	Tamil Nadi	Occasiona	Express De	3			
21	OD20	Verma	Beverages	Soft Drink	Kanyakum	8/27/2015	West	692	0.29	159.16	Tamil Nadi	Occasiona	Express De	4			
22	OD21	Hafiz	Beverages	Health Drii	Vellore	8/27/2015	West	522	0.19	208.8	Tamil Nadi	Regular	Home Deli	17			
23	OD22	Alan	Food Grain	Dals & Pul	Karur	#####	Central	948	0.13	47.4	Tamil Nadi	Occasiona	Express De	9			
24	OD23	Haseena	Beverages	Soft Drink	Krishnagiri	#####	Central	707	0.34	148.47	Tamil Nadi	Regular	Home Deli	11			
25	OD24	Alan	Fruits & Ve	Organic Ve	Tenkasi	7/16/2018	East	969	0.29	77.52	Tamil Nadi	Regular	Home Deli	11			
26	OD25	Sharon	Eggs, Meat	Eggs	Ooty	9/25/2016	West	1100	0.11	495	Tamil Nadi	Occasiona	Pick-up	7			
27	OD26	Krithika	Snacks	Chocolate	Tirunelveli	1/16/2017	West	2022	0.11	202.2	Tamil Nadi	Bulk	Home Deli	11			
28	OD27	Muneer	Snacks	Cookies	Trichy	1/16/2017	West	541	0.12	43.28	Tamil Nadi	Regular	Express De	16			
29	OD28	Jackson	Bakery	Biscuits	Viluppuran	9/17/2016	East	979	0.22	401.39	Tamil Nadi	Bulk	Express De	4			
30	OD29	Veronica	Beverages	Soft Drink	Krishnagiri	9/17/2016	East	1988	0.22	874.72	Tamil Nadi	Regular	Express De	12			

3. Data Cleaning & Preparation

Supermart Grocery Sales - Retail Analytics Dataset (2) - Excel

Order ID	Customer	Category	Sub Category	City	Order Date	Region	Sales	Discount	Profit	State	Customer	Delivery Method	Order Quantity
OD1	Harish	Oil & Masc	Masalas	Vellore	#####	North	1254	0.12	401.28	Tamil Nadi Regular	Express De		19
OD2	Sudha	Beverages	Health Dri	Krishnagiri	#####	South	749	0.18	149.8	Tamil Nadi Occasiona	Express De		9
OD3	Hussain	Food Grain	Atta & Flo	Perambalur	#####	West	2360	0.21	165.2	Tamil Nadi Regular	Pick-up		15
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OD5	Ridhesh	Food Grain	Organic St	Ooty	#####	South	2355	0.26	918.45	Tamil Nadi Occasiona	Home Deli		12
OD6	Adavan	Food Grain	Organic St	Dharmapuri	#####	West	2305	0.26	322.7	Tamil Nadi Bulk	Pick-up		7
OD7	Jonas	Fruits & Vg	Fresh Veg	Trichy	#####	West	826	0.33	346.92	Tamil Nadi Regular	Pick-up		13
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OD20	Verna	Beverages	Soft Drink	Kanyakum	8/27/2015	West	692	0.29	159.16	Tamil Nadi Occasiona	Express De		4
OD21	Hafiz	Beverages	Health Dri	Vellore	8/27/2015	West	522	0.19	208.8	Tamil Nadi Regular	Home Deli		17
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OD28	Jackson	Bakery	Biscuits	Viluppuram	9/17/2016	East	979	0.22	401.39	Tamil Nadi Bulk	Express De		4
OD29	Veronica	Beverages	Soft Drink	Krishnagiri	9/17/2016	East	1988	0.22	874.72	Tamil Nadi Regular	Express De		12

Result: No Duplicate Values

To enrich the analysis, several calculated fields and parameters were introduced:

3.1 Parameters Created:

A parameter is a dynamic input value that can be used to replace a constant in calculations, filters, or reference lines. It's a user-defined, single-value input.

Can be used to control:

- Filters (e.g., top N filter)
- Calculated fields
- Reference lines
- Swap sheets or metrics (with calculated logic)
- Select Customer Type

Edit Parameter [Select Customer Type]

Name

Select Customer Type

Properties

Data type

String

Display format

Bulk

Current value

Bulk

Value when workbook opens

Current value

Allowable values

All

List

Range

Value	Display As
Occasional	Occasional
Regular	Regular
Bulk	Bulk
Click to add	

Fixed

When workbook opens

Add values from

Remove Selected

Cancel

OK

- Select Year

Edit Parameter [Select Year]

Name

Select Year

Properties

Data type

Integer

Display format

2,018

Current value

2,018

Value when workbook opens

Current value

Allowable values

All

List

Range

Value	Display As
2,015	2,015
2,016	2,016
2,017	2,017
2,018	2,018
Click to add	

Fixed

When workbook opens

Add values from

Remove Selected

Cancel

OK

- Select Metric

Edit Parameter [Select Metric]

Name

Select Metric

Properties

Data type
String

Display format
Profit

Current value
Profit

Value when workbook opens
Current value

Allowable values

☐ All
☒ List
☐ Range

Value	Display As
Sales	Sales
Profit	Profit
Click to add	

☒ Fixed
☐ When workbook opens

Add values from ▼

Remove Selected

Cancel
OK

- Top N Sub-Categories

Edit Parameter [Top N Sub-Categories]

Name

Top N Sub-Categories

Properties

Data type
Integer

Display format
6

Current value
6

Value when workbook opens
Current value

Allowable values

☐ All
☐ List
☒ Range

Range of values

☒ Minimum
1

☒ Maximum
20

☒ Step size
1

☒ Fixed
☐ When workbook opens

Add values from ▼

Cancel
OK

3.2 Calculated Fields

A calculated field is a new field create using a formula based on existing data. It allows to perform:

- Mathematical operations
- Conditional logic (IF statements)
- String manipulation
- Date arithmetic
- Aggregations
- Customer type filter

Customer Type Filter

[Customer Type] = [Select Customer Type]

The calculation is valid.

Apply

OK

- Customer Value Segment

Customer Value Segment

IF [Customer Type] = "Bulk" THEN "High Value Customer"

ELSEIF [Customer Type] = "Regular" THEN "Medium Value Customer"

ELSE "Low Value Customer"

END

The calculation is valid.

2 Dependencies ▾

Apply

OK

- Delivery time category

Delivery Time Category

IF [Delivery Mode] = "Express Delivery" THEN "Fast"

ELSEIF [Delivery Mode] = "Pick-up" THEN "Moderate"

ELSEIF [Delivery Mode] = "Home Delivery" THEN "Slow"

END

The calculation is valid.

Apply

OK

- Discount category

Discount Category

×

```
IF [Discount] < 0.15 THEN "Low Discount"
ELSEIF [Discount] < 0.30 THEN "Moderate Discount"
ELSE "High Discount"
END
```

The calculation is valid.

2 Dependencies ▾

Apply

OK

- Order Quarter

Order Quarter

×

```
"Q" + STR(DATEPART('quarter', [Order Date]))
```

The calculation is valid.

Apply

OK

- Year filter

Year Filter

×

```
YEAR([Order Date]) = [Select Year]
```

The calculation is valid.

14 Dependencies ▾

Apply

OK

- Cumulative sales

Cumulative Sales

Results are computed along Table (across).

`RUNNING_SUM(SUM([Sales]))`

Default Table Calculation

The calculation is valid.

2 Dependencies

Apply

OK

- Order year

Order Year

`YEAR([Order Date])`

The calculation is valid.

Apply

OK

- Previous year

Previous Year

`[Recent Year]-1`

The calculation is valid.

2 Dependencies

Apply

OK

- Previous year sales

Previous Year Sales

×

```
IF YEAR([Order Date]) = [Select Year] - 1 THEN [Sales]
ELSE 0
END
```

The calculation is valid.

3 Dependencies ▾

Apply

OK

- Profit Ratio

Profit Ratio

×

```
[Profit] / NULLIF([Sales], 0)
```

The calculation is valid.

2 Dependencies ▾

Apply

OK

- Recent Year

Recent Year

×

```
[Select Year]
```

The calculation is valid.

3 Dependencies ▾

Apply

OK

- Recent Year Sales

Recent Year Sales

IF YEAR([Order Date]) = [Select Year] THEN [Sales]
 ELSE 0
 END

The calculation is valid.
 5 Dependencies
 Apply
 OK

- Recent Year Profit

Recent Year Profit

IF YEAR([Order Date]) = [Select Year] THEN [Profit]
 ELSE 0
 END

The calculation is valid.
 4 Dependencies
 Apply
 OK

- Sales %

Sales %

Totals summarize values from Table (across).
 SUM([Sales]) / TOTAL(SUM([Sales]))

The calculation is valid.
 Default Table Calculation
 2 Dependencies
 Apply
 OK

- Sales For Selected Year

Sales for Selected Year

×

```
IF YEAR([Order Date]) = [Select Year] THEN [Sales] ELSE 0 END
```

The calculation is valid.

2 Dependencies ▾

Apply

OK

- Sales Growth %

Sales Growth %

×

```
IF SUM([Previous Year Sales]) = 0 THEN 0
ELSE
  (SUM([Recent Year Sales]) - SUM([Previous Year Sales])) / SUM([Previous Year Sales])
END
```

The calculation is valid.

2 Dependencies ▾

Apply

OK

- Sales per unit

Sales Per Unit

×

```
[Sales] / NULLIF([Order Quantity], 0)
```

The calculation is valid.

Apply

OK

- Selected Measure

Selected Measure

```

CASE [Select Metric]
WHEN "Sales" THEN [Sales]
WHEN "Profit" THEN [Profit]
END

```

The calculation is valid.

2 Dependencies ▾ Apply OK

- Top N Filter

Top N Filter

Results are computed along Table (across).

```

RANK_UNIQUE(SUM([Sales]), 'desc') <= [Top N Sub-Categories]

```

The calculation is valid.

2 Dependencies ▾ Apply OK [Default Table Calculation](#)

For Example:

Create a parameter: Top N Sub-Categories

Calculated field: Top N Filter

`RANK_UNIQUE(SUM([Sales]), 'desc') <= [Top N Sub-Categories]`

Then filter:

Filter [Top N Filter]

General

☒ Select from list ☐ Custom value list ☐ Use all

Enter search text

☐ False

☒ True

All None ☐ Exclude

Summary

Field: [Top N Filter]

Selection: Selected 1 of 2 values

Wildcard: All

Condition: None

Limit: None

Reset OK Cancel Apply

This creates a Top N Sub-Categories controlled by the user.

4. Key Dashboards Designed

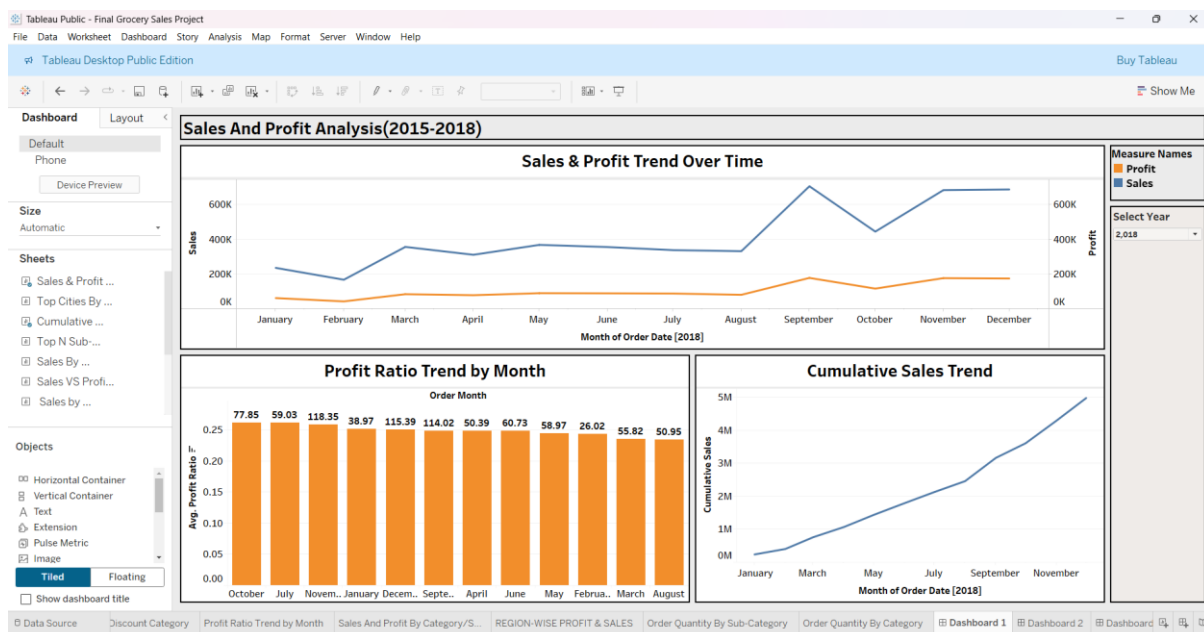
4.1 Sales and Profit Analysis (2015–2018)

Visuals:

- Sales and Profit Trend Over Time
- Cumulative Sales Trend
- Profit Ratio Trend by Month

Purpose:

Tracks overall company performance, helping stakeholders monitor seasonal trends, profitability issues, and cumulative growth.



Top-Left Chart: "Sales & Profit Trend Over Time"

- **Type:** Dual-line chart.
- **Insight:** This shows how sales and profit fluctuate monthly by Year. For instance, sales and profit both peak around September and December by year 2018, suggesting strong seasonal performance.

Bottom-Left Chart: "Profit Ratio Trend by Month"

- **Type:** Vertical bar chart.
- **X-Axis:** Months (sorted by profit ratio).
- **Y-Axis:** Avg. Profit Ratio.
- **Bar Labels:** Appear to show absolute profit ratio
- **Insight:** Shows which months are more profitable relative to their sales, not just raw totals. For instance, October and July have higher profit ratios by year 2018.

Bottom-Right Chart: "Cumulative Sales Trend"

- **Type:** Line chart.
- **X-Axis:** Months by year.
- **Y-Axis:** Cumulative Sales.
- **Insight:** Demonstrates the overall sales growth across the year 2018. The upward slope confirms continuous accumulation of sales, with an acceleration seen in the last few months.

Filters And Controls: Right Sidebar (Filter)

- Select Year parameter is set to 2018.
- This allows users to dynamically filter all charts to the selected year.

Legend:

- Measure Names allows toggling between Sales and Profit on charts using those fields.

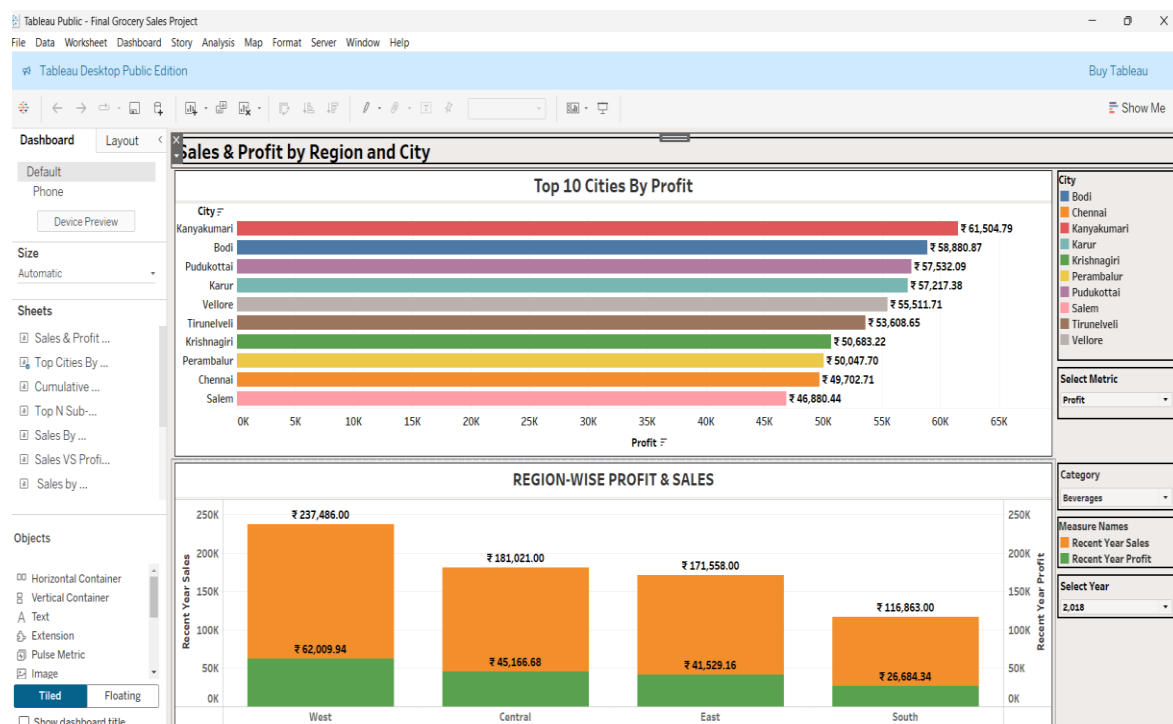
4.2 Sales & Profit by Region and City

Visuals:

- Top Cities by Sales and Profit
- Region-wise Profit and Sales

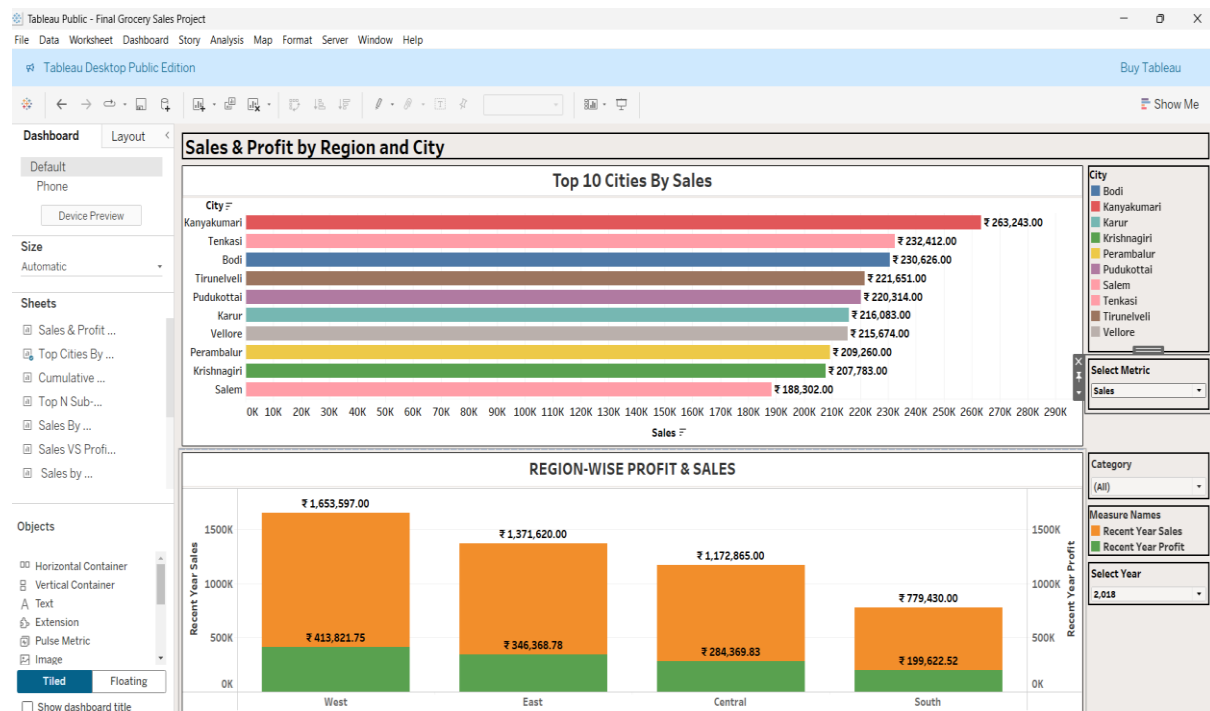
Purpose:

Enables geographic performance comparisons to inform location-based marketing and logistics strategies.



Top Chart: "Top 10 Cities By Profit"

- **Chart Type:** Horizontal bar chart.
- **Metric Displayed:** Profit (₹ - Indian Rupees).
- **Cities Ranked by Profit by Year 2018: Top City**
 - Kanyakumari – ₹61,504.79
 - Others include Bodi, Pudukkottai, Karur, etc.
 - Lowest of Top 10: Salem – ₹46,880.44



Top Chart: "Top 10 Cities By Sales"

- **Type:** Horizontal bar chart.
- **Metric:** Sales (₹ - Indian Rupees).
- **Cities Ranked by Sales by year 2018: Top City**
 - Kanyakumari – ₹263,243.00
 - Followed by: Tenkasi, Bodi, Tirunelveli, Pudukkottai, etc.
 - **Lowest of Top 10:** Salem – ₹188,302.00

Insight: Kanyakumari leads in both sales and profit (from earlier dashboard), showing it's a top performer overall.

Bottom Chart: "REGION-WISE PROFIT & SALES"

- **Type:** Stacked bar chart.
- **X-Axis:** Regions – West, East, Central, South.
- **Y-Axis (Left):** Recent Year Sales (₹).
- **Y-Axis (Right):** Recent Year Profit (₹)
- **Bars:**
 - **Orange:** Recent Year Sales

- **Green:** Recent Year Profit
- **According to year 2018:**
 - **West:** ₹1,653,597 sales, ₹413,821.75 profit
 - **East:** ₹1,371,620 sales, ₹346,368.78 profit
 - **Central:** ₹1,172,865 sales, ₹284,369.83 profit
 - **South:** ₹779,430 sales, ₹199,622.52 profit

Insight: West leads in both sales and profit, while South underperforms in both areas.

Filter Options (Right Panel):

- **Select Metric:** Allows switching between "Profit" and "Sales".
- **Category Filter:** Currently set to All – affects all visualizations.
- **Select Year:** 2018 selected – limits the analysis to this year.

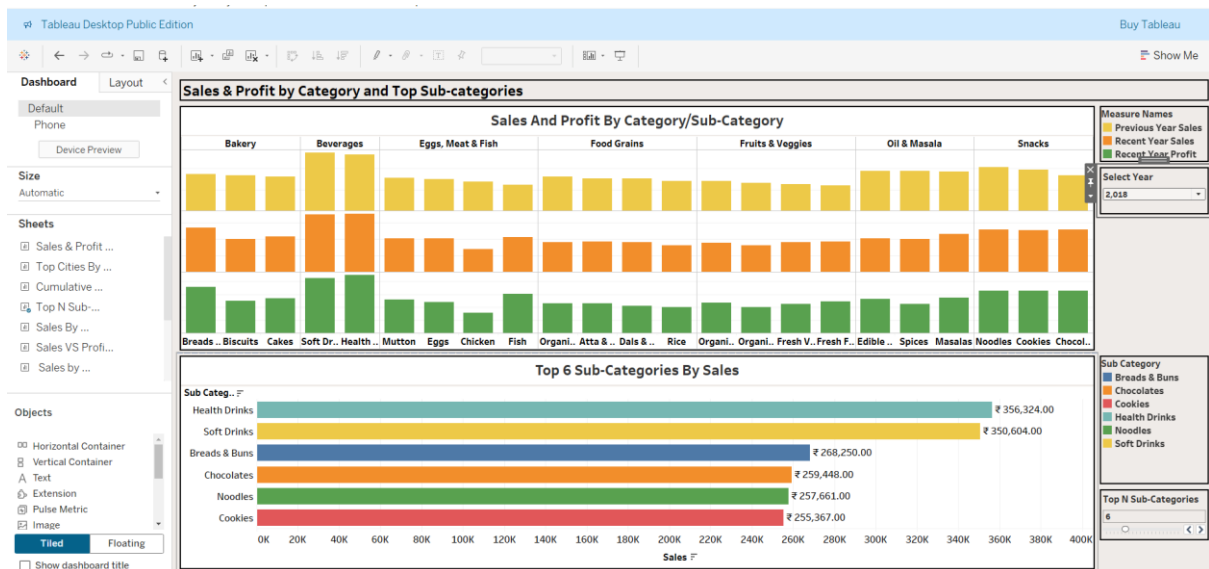
4.3 Sales & Profit by Category and Top Sub-categories

Visuals:

- Sales and Profit by Category & Sub-category
- Top N Sub-categories by Sales

Purpose:

Highlights best-performing product lines and enables inventory optimization and pricing decisions.



Sales and Profit by Category/Sub-Category (Top Section)

- **Grouped Bar Chart:**
 - Yellow Bars and Orange bars represent sales (split between "Previous Year Sales" and "Recent Year Sales").
 - Green bars represent profit (Recent Year Profit only).

- Categories Covered: Bakery, Beverages, Eggs/Meat/Fish, Food Grains, Fruits & Veggies, Oil & Masala, Snacks.
- Sub-categories: e.g., Soft Drinks, Health Drinks, Chocolates, Cookies, etc.

Insights: According to Year 2018

- Beverages have high sales volume and significant profit, especially in Health Drinks and Soft Drinks.
- Other sub-categories such as Noodles, Cookies, and Chocolates are also contributing well.
- Profit margins vary significantly by sub-category, indicating the need for margin optimization.

Horizontal bar chart showing top-performing sub-categories based on sales volume:

- **Ranked Sub-Categories:**
 - **Health Drinks** – ₹356,324.00
 - **Soft Drinks** – ₹350,604.00
 - **Breads & Buns** – ₹268,250.00
 - **Chocolates** – ₹259,448.00
 - **Noodles** – ₹257,661.00
 - **Cookies** – ₹255,367.00

Key Insights: According to year 2018

- Health Drinks and Soft Drinks dominate the sales leaderboard.
- These sub-categories not only have high sales but are also visually confirmed to have high profit margins in the top section.

Filters and Controls:

- **Select Year:** 2018
- **Top N Sub-Categories (right):** Likely a parameter to adjust how many top sub-categories are shown in the bottom chart (currently showing 6).

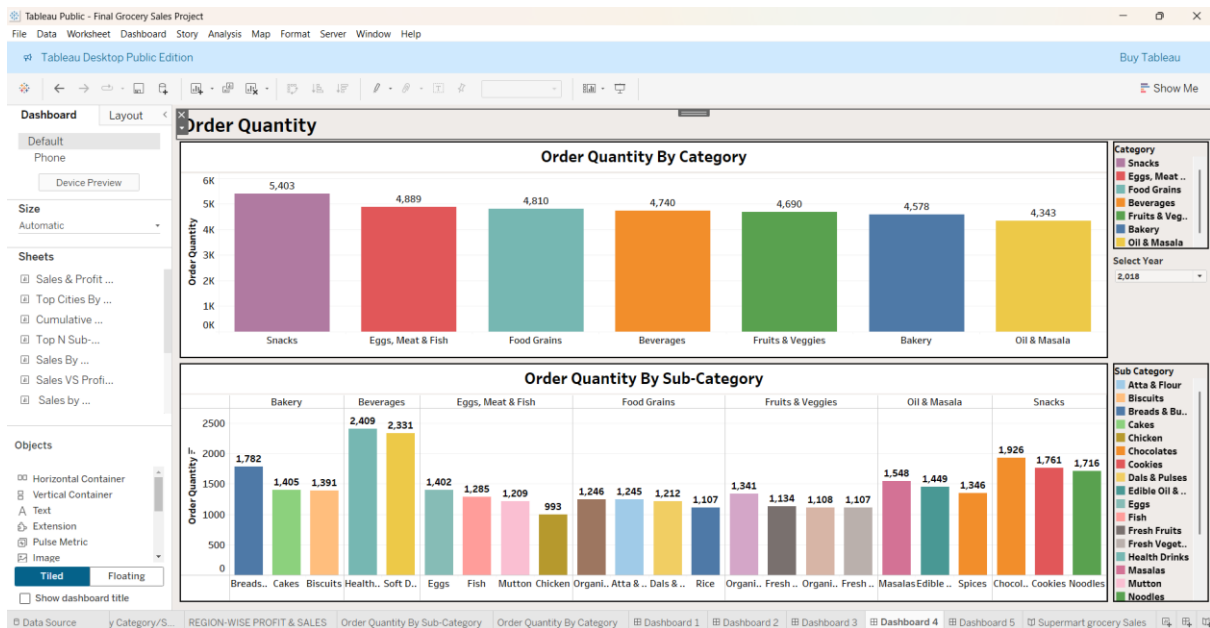
4.4 Order Quantity Analysis

Visuals:

- Order Quantity by Category & Sub-category
- Order Quantity by Category

Purpose:

Tracks demand volume trends for stocking and supply chain planning.



Order Quantity by Category (Top Chart)

Bar Chart showing total Order Quantity for each main category

Insight:

- Snacks lead in overall order volume.
- All categories are relatively close in order quantity (~4K–5.5K), suggesting a balanced consumer demand across categories.

Order Quantity by Sub-Category (Bottom Chart)

- Grouped bar chart shows sub-categories within each main category, ranked by order quantity.
- Top Sub-Categories by Order Quantity:
 - **Soft Drinks** (2,331)
 - **Health Drinks** (2,409)
 - **Chocolates** (1,926)
 - **Breads & Buns** (1,782)
 - **Masalas** (1,548)

Key Insights:

- Health Drinks and Soft Drinks (Beverages) are among the top in order volume.
- Chocolates, Cookies, and Noodles (Snacks) also have very high order volumes.
- Rice, Atta & Flour, and Dals & Pulses (Food Grains) show balanced demand.

Filters and Controls:

- **Select Year:** Set to 2018.
- **Category & Sub-Category Legends** on the right.

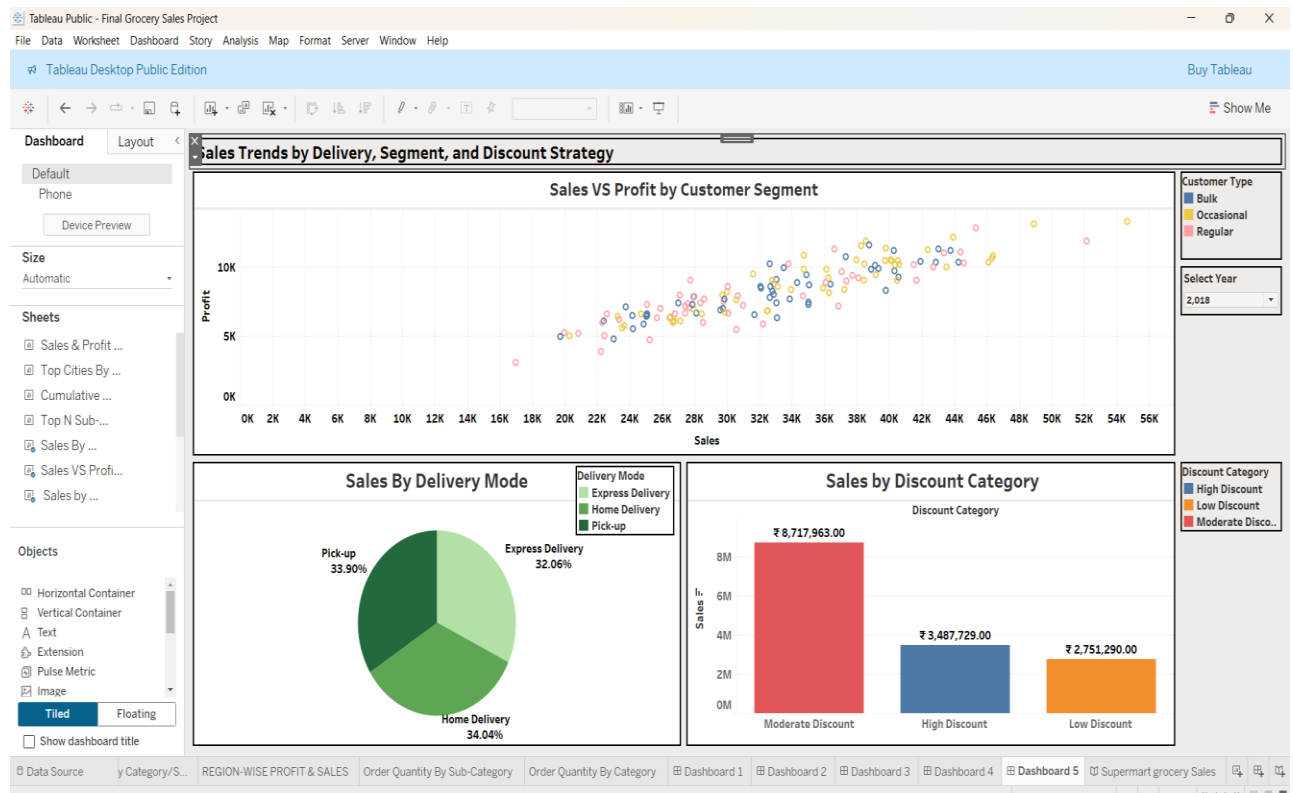
4.5 Sales Trends by Delivery, Segment, and Discount Strategy

Visuals:

- Sales vs Profit by Customer Segment
- Sales by Discount Category
- Sales by Delivery Mode

Purpose:

Assesses the impact of logistics and pricing tactics on sales and profitability.



Sales vs. Profit by Customer Segment (Top Chart)

- Scatter Plot Details:
 - **X-axis:** Sales
 - **Y-axis:** Profit
- Customer Type — Regular (Pink), Occasional (Yellow), Bulk (Blue)

Insights:

- **Regular customer (Pink):**
 - Spread widely across the range.
 - Appear even in the higher-profit and higher-sales zones (top right), indicating they are key profit contributors.
- **Occasional customer (Yellow):**
 - Prominently clustered in mid-to-high sales and profit ranges.
 - Some touch very high profit values, possibly due to premium product purchases or efficient fulfillment.
- **Bulk customer (Blue):**
 - Dense in the mid-sales range.

- Some show high sales but relatively moderate profits, which may imply lower profit margins due to bulk discounts.

Sales by Delivery Mode (Bottom Left Pie Chart)

Insights:

- Sales are evenly distributed across all delivery methods, with Home Delivery slightly leading according to year 2018.
- Suggests all delivery options are equally critical in the logistics strategy.

Sales by Discount Category (Bottom Right Bar Chart)

Insights:

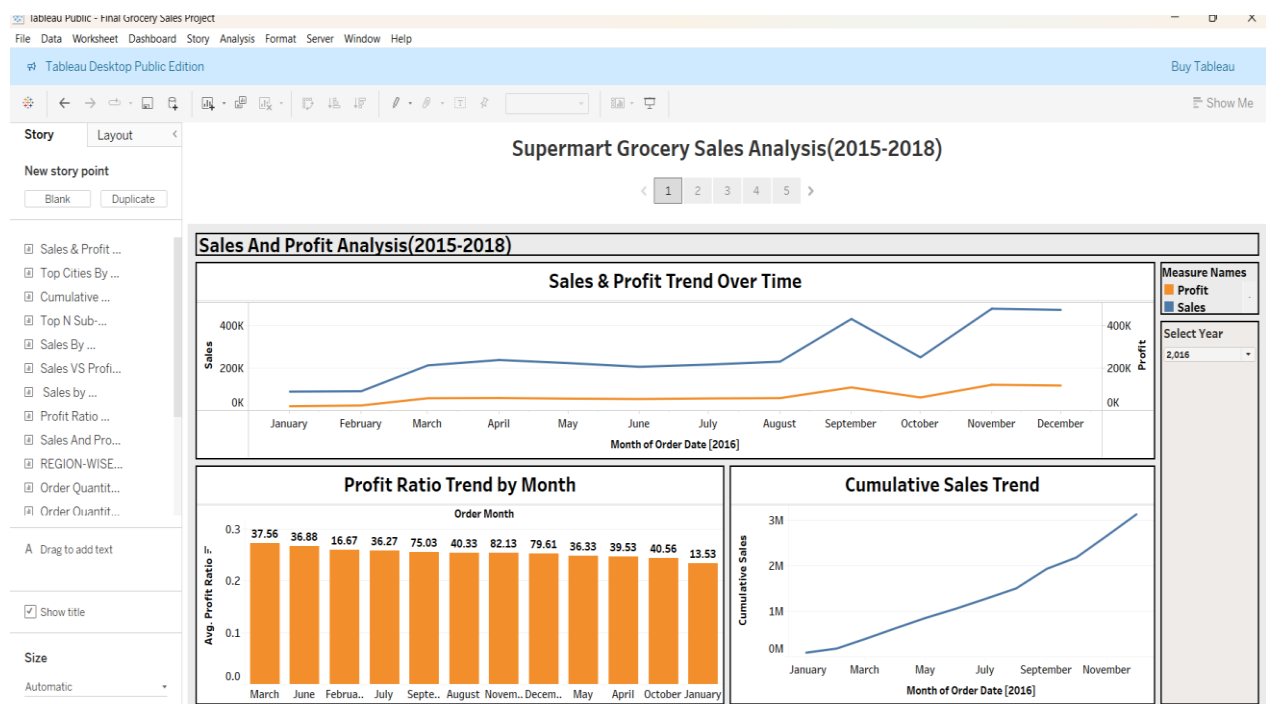
- **Moderate discounts** generate the highest sales, likely hitting the sweet spot between value and profitability.
- **High discounts**, although driving volume, lag in overall sales—potentially because fewer products are offered with heavy discounts.
- **Low discounts** underperform, indicating customers respond better to visible incentives.

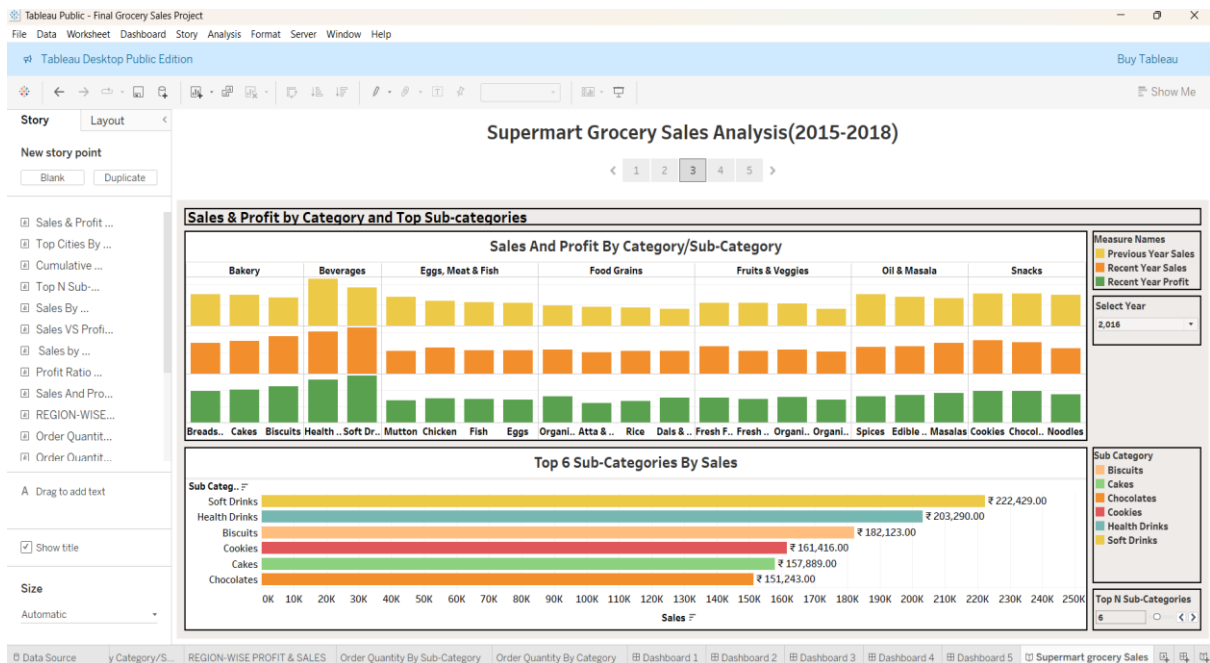
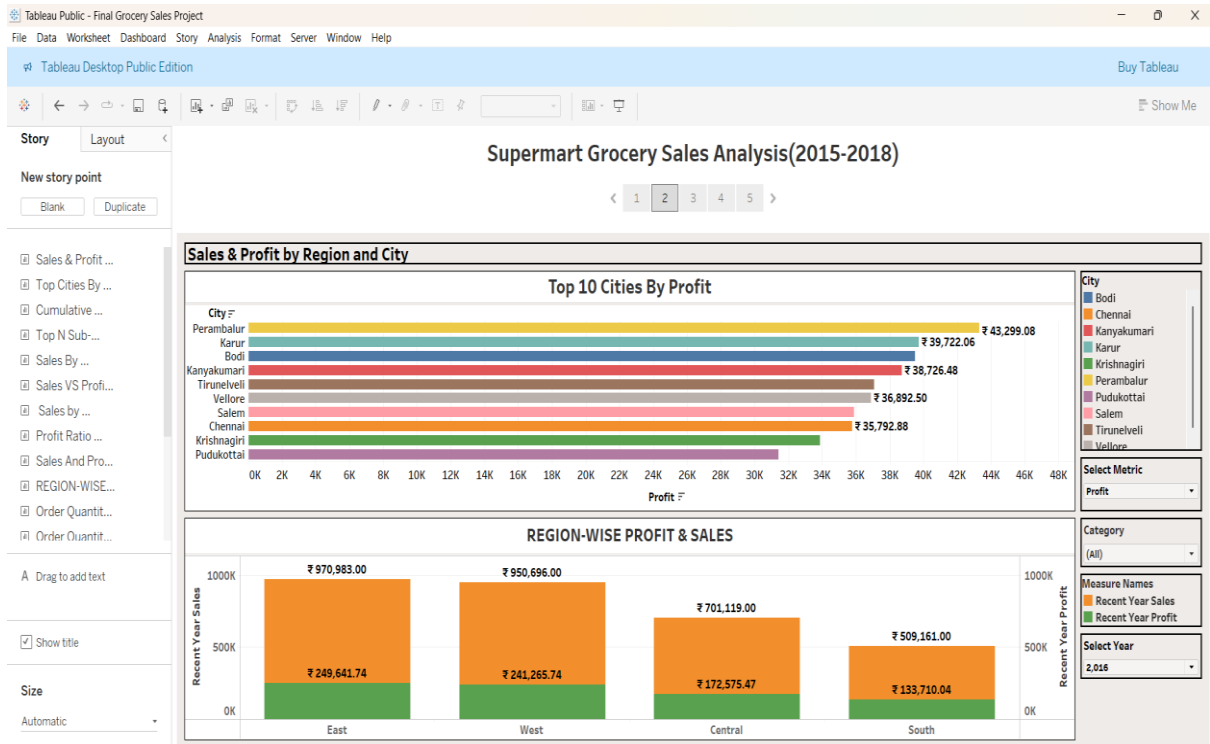
Filters and Legends:

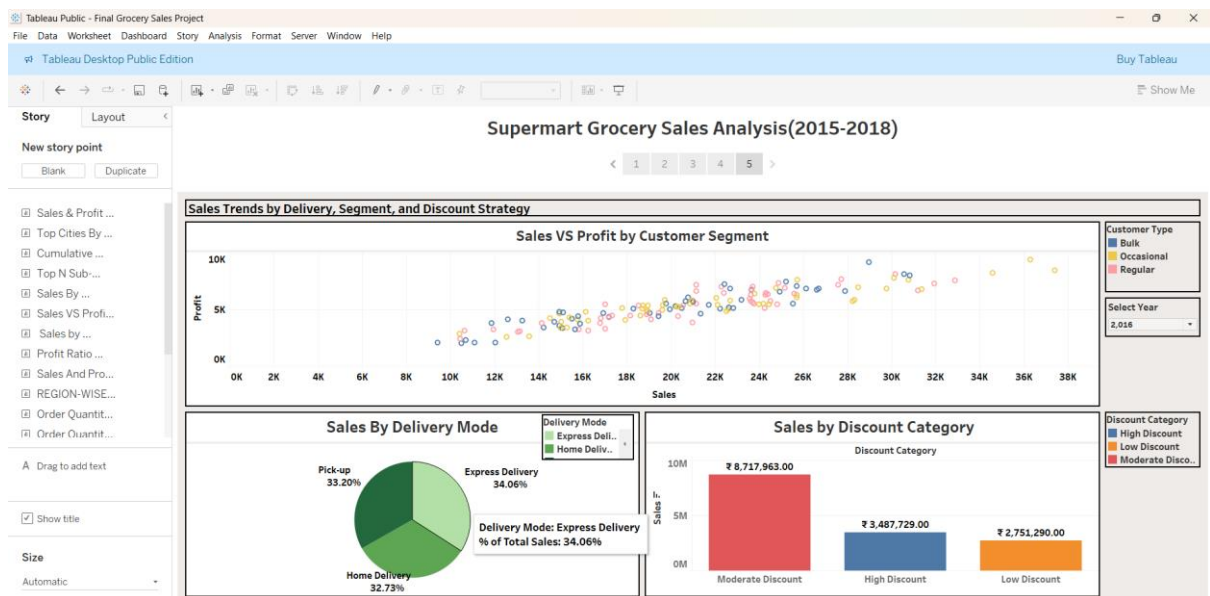
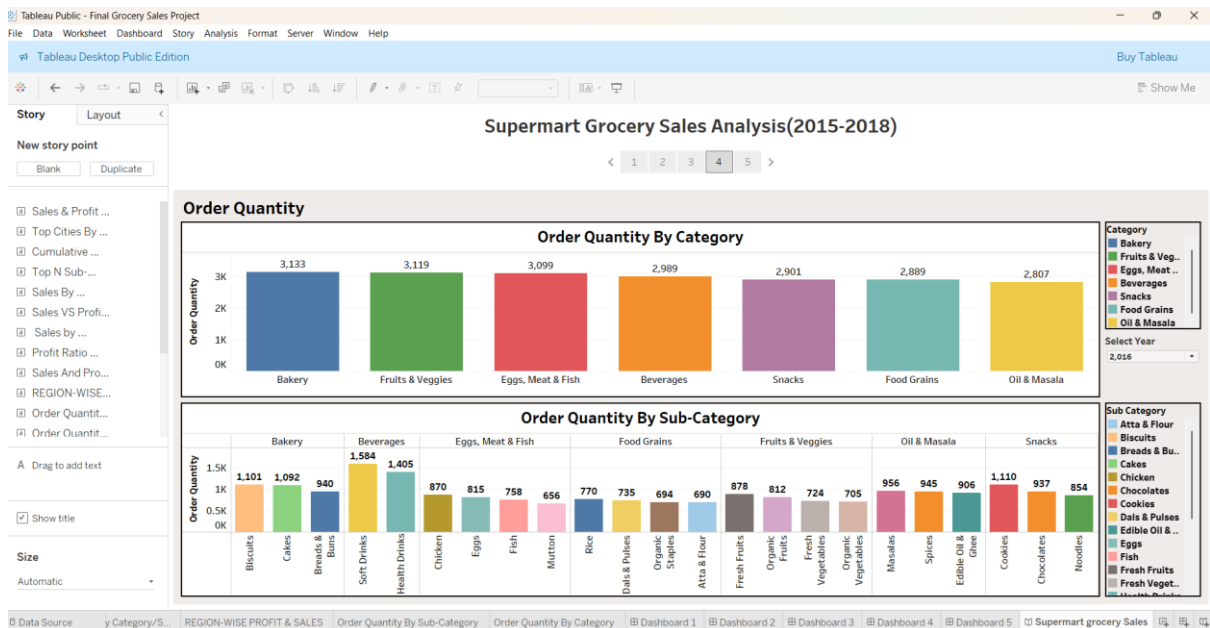
- **Year:** Set to 2018
- **Legends:** Customer Type, Delivery Mode, Discount Category

5. Creating Story

In Tableau, a "Creating Story" refers to a curated sequence of dashboards and visualizations presented in a narrative format. It's the end product that guides stakeholders through the data insights step-by-step, often combining text, visuals, and interactivity.







6. Strategic Recommendations

- Invest further in top-performing sub-categories like Health Drinks and Soft Drinks to maximize ROI (Return On Investment).
- Re-evaluate low-profit, high-volume items — optimize pricing or reduce discounts to improve margins.
- Target bulk customers with tailored loyalty or bulk-purchase programs.
- Maintain a balanced delivery infrastructure while exploring ways to optimize cost and speed.
- Focus discount strategies on moderate tiers, which have shown to drive the most revenue.

7. Conclusion

The analysis highlights that product performance, discount strategy, and customer segmentation are the most influential factors affecting profitability. Leveraging these insights will support data-driven decision-making to optimize operations, marketing, and customer engagement.