# Sales Performance Analysis

**Name:** Kalpana M

**Batch:** Data Analytics-1

**Region:** Telugu

**Domain:** E-Commerce

## Define Objectives

The goal of this analysis is to leverage Power BI to uncover actionable insights from sales data. The key business questions driving this project include:

- What are the current sales trends across different regions, Cities, and time periods?

- Analyse the relationship between discount strategies and profitability.?

- Are there any noticeable patterns in customer purchasing behaviour?

- Which products are underperforming and need strategic intervention?

- Are there seasonal or monthly variations that impact sales?

- What are the key drivers contributing to high or low sales performance?

- Can we forecast future sales performance based on historical data?

- What are the current sales trends across categories, sub categories and payment method?
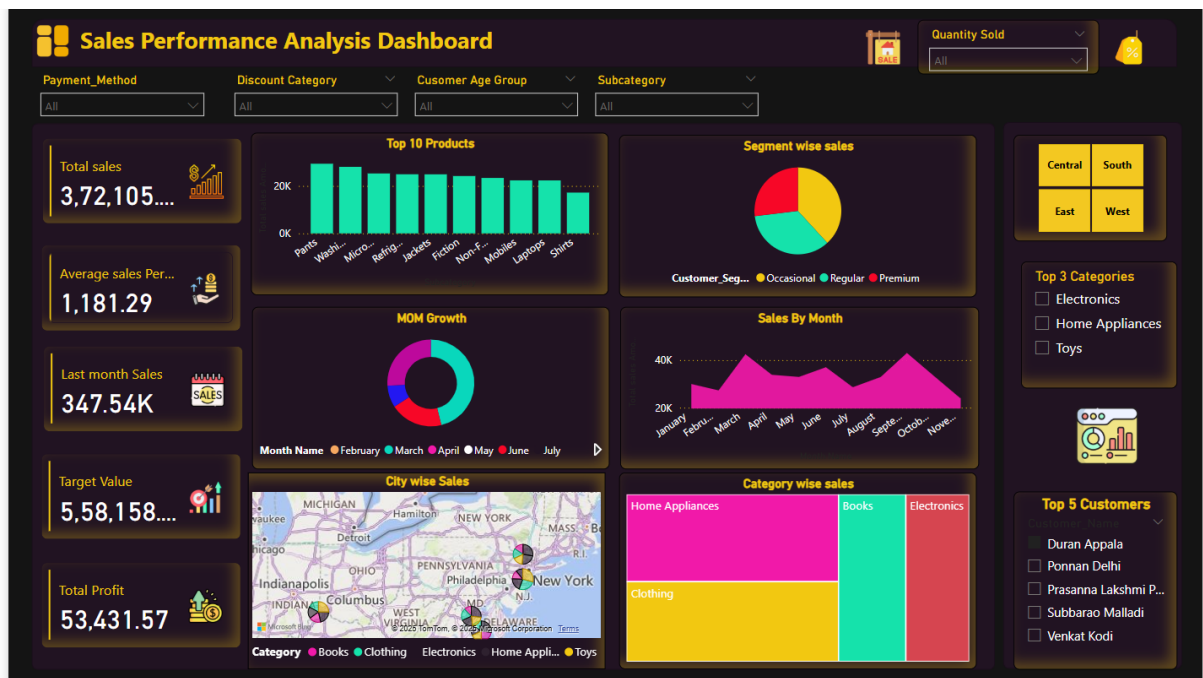
## Set Goals

**The expected outcomes from this project are:**

- Visualize sales performance across multiple dimensions (region, product, category, time, etc.).

- Identify top and bottom performers to drive recognition or improvement plans.

- Highlight sales trends to support strategic planning and inventory management.

- Segment customers to understand and predict purchasing behaviour.

- Create predictive insights for future sales using time series forecasting.

- Enable data-driven decisions for sales strategy, resource allocation, and marketing efforts.

# Data Collection

## Gather Data

To perform the sales performance analysis, I gathered relevant datasets from **Kaggle**, a popular online platform for datasets used in data science and analytics projects. After exploring various datasets, I selected the one(s) most suitable for analysing sales trends and patterns. I downloaded the CSV file, imported it into Excel for initial review and then loaded it into Power BI for further analysis and visualization.

## Data Selection

After downloading the dataset, I carefully reviewed and selected specific columns that align with the goals of the project. The chosen columns help to analyse key performance indicators and trends effectively.

# Data Preparation

## Organize Data in Excel

To describe the transformation of raw transactional data into a relational format by organizing it into three separate but related tables: Orders, Products, and Customers. This restructuring enhances clarity, removes redundancy, and prepares the dataset for efficient analysis and reporting.

### 1. Orders Table

**Purpose:**
Stores information about each order placed by customers.

### 2. Products Table

**Purpose:**
Holds details about the products that are available for sale.

### 3. Customers Table

**Purpose:**
Captures customer-related information.

## Relational Integrity:

**Order table** references **Customer ID** and **Product ID** to maintain relationships.
This normalized structure eliminates data duplication and improves data integrity.
Tables are linked via **primary and foreign keys**, enabling smooth operations like VLOOKUP, Power Query, and PivotTables.
### Excel Enhancements Applied:

- Each table has been formatted using **Format as Table** for structured analysis.

- Table Names: Orders, Products, and Customers.

- Relationships can be established in **Power BI** for deeper analysis.


# Import Data to Power BI

## Upload Excel File

**Step 1:** Opened Power BI

First, I opened Power BI Desktop on my computer.

**Step 2:** Used Get Data Option

On the Home tab, I clicked on 'Get Data' and selected Excel from the options.

**Step 3:** Choose My Excel File

I browsed through my files and selected the Excel file I had prepared earlier, then clicked Open.

**Step 4:** Selected the Sheets I Needed

A Navigator window popped up showing the sheets and tables available in the Excel file. I selected the order, product and customer tables.

**Step 5:** Loaded the Data

Since my data was not clean, I clicked Transform Data to edit it in Power Query Editor.

### Things I Noticed

- If the Excel file is open in another program, it might not load properly.
- Organizing data as a table in Excel makes it easier to import.
- Power Query is very useful if I need to clean or filter data before loading.

## Clean the Data

### Transformed and Prepared Excel Data in Power BI

- Imported data from Excel into Power BI for analysis and visualization.

- Performed extensive data cleaning using Power Query:

  - Applied Proper, Trim and Clean formats to standardize text fields.

  - Removed duplicate records to ensure data accuracy.

  - Handled missing or inconsistent values.

- Changed data types appropriately for better model consistency (e.g., converting text to dates, numbers, etc.).

- Cleaned and transformed data across three different tables, ensuring they were ready for relationships, measures, and dashboard creation.

Promoted Headers
Changed Type
Capitalized Each Word
Trimmed Text
Cleaned Text
Capitalized Each Word1
Cleaned Text1
Capitalized Each Word2
Removed Duplicates1

## Build a Data Model

In my data model, the **Orders table** serves as the **fact table**, capturing transactional data such as order quantities, dates, and revenue.

The **Customers** and **Products tables** are designed as **dimension tables**, providing descriptive context to the transactional data.

The model follows a star schema structure, where the fact table is at the centre and is connected to dimension tables through many-to-one relationships:

- Each record in the Orders table is associated with one customer from the Customers table, but a single customer can place multiple orders. This defines a many-to-one relationship from Orders to Customers.

- Similarly, each order references one product from the Products table, while a product can be part of multiple orders, forming a many-to-one relationship from Orders to Products.

These relationships are established through foreign keys in the Orders table:

- Customer ID (foreign key) → Customer table- Customer ID (primary key)

- Product ID (foreign key) → Product table -Product ID (primary key)

### Structure of Star Schema

Star Schema is a type of data model used in data warehousing and business intelligence that organizes data into:

- One central fact table (with measurable data)

- Multiple dimension tables (with descriptive attributes)

The structure looks like a star, where the fact table is in the center, and dimension tables surround it like points of a star.

- I used a star schema to design the data model. This helped in creating efficient relationships and improving performance in Power BI."

- Star schema simplifies data modelling and improves performance when creating dashboards. It avoids complex joins, reduces redundancy, and allows for fast aggregations in Power BI. It also helps in applying row-level filters easily using relationships.
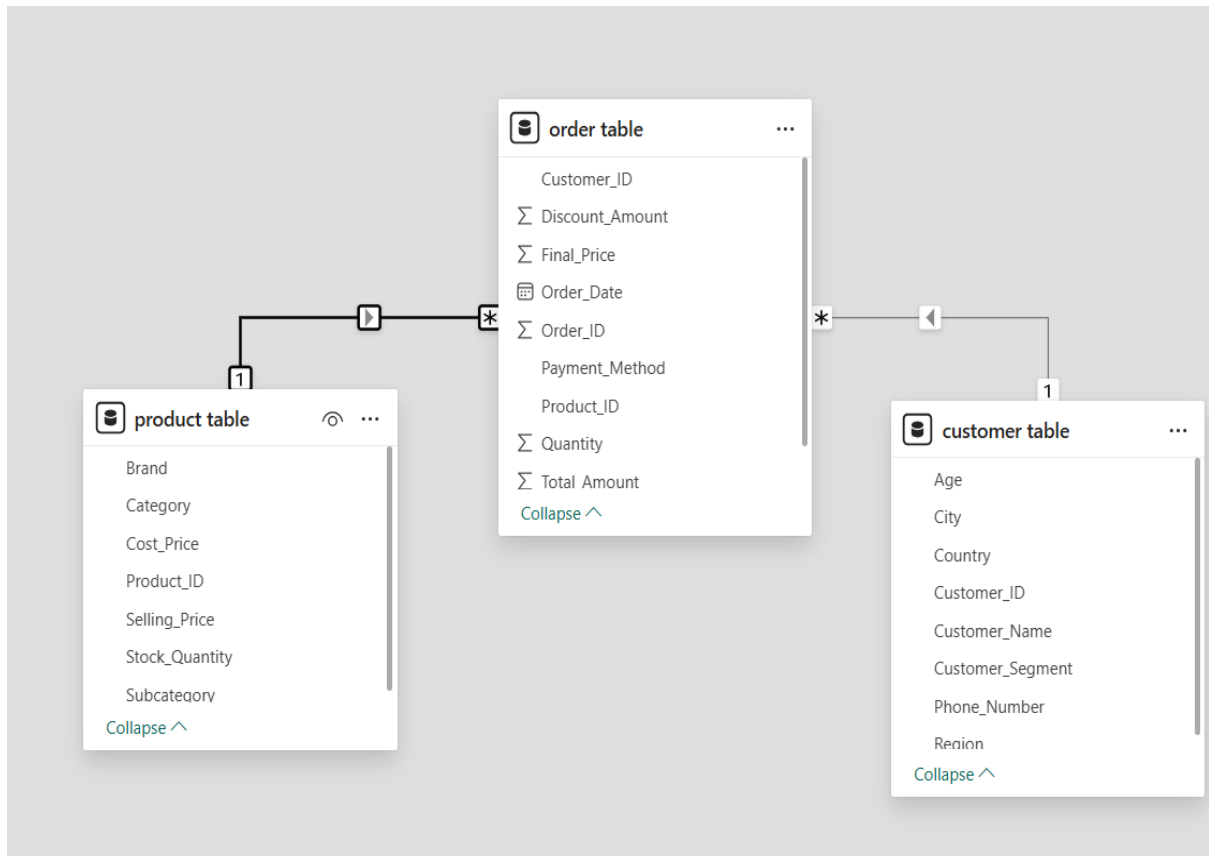


## Business Performance Summary

This report presents key performance indicators derived from Power BI to evaluate the financial and customer performance of the business for the selected time period.

## Measures:

**Total Sales Amount**
Definition: Total income generated from customer transactions.
Formula: = SUM('order table'[Net sales])
Value: 372.11K
Insight: Indicates strong customer demand during the period. A significant contributor to profitability.

**Total Cost**
Definition: All operating costs incurred including raw materials, labor, etc.
Formula: Total cost = sum('product table'[Cost Price])

Value: 82.37K

Insight: Efficient cost control is reflected here. Compare periodically to manage expenses.

**Total Profit**

Definition: The net earnings after subtracting total cost from total revenue.

Formula: =Total Sales - Total Cost

Value: 53.43k

Insight: A positive profit signifies sustainable business operations.

## 5. Profit Margin

Definition: Shows how much of each rupee earned is profit.

Formula= DIVIDE([Total Profit], [Total sales Amount])

Value: 15.10%

Insight: A strong profit margin, suggesting good financial health and pricing strategy.

## 6. Unique Customers

Definition: The count of distinct customers during the period.

Formula: =DISTINCTCOUNT(Customer[CustomerID])

Value: 94

Insight: Helps understand customer reach and retention trends.

## 7. Average Revenue per Customer

Definition: Measures revenue efficiency per customer.

Formula: = DIVIDE([Total sales Amount],[Unique Customers])

Value: 880.16

Insight: Useful for setting customer value benchmarks and identifying high-value clients.

**Total Units Sold**

Definition: The total quantity of products sold across all categories.

Formula: = sum('order table'[Quantity])

Value: 1433 units

Insight: Reflects overall sales volume. A high number suggests strong demand and effective sales strategies.

**Top-Selling Products**

Definition: Products with the highest number of units sold.

Formula/Logic: = sumx('order table','order table'[Quantity])

**Time Intelligence Measures**

This section highlights sales performance over time using **time intelligence** functions in Power BI. These measures help identify growth trends, seasonality, and compare current performance with historical data.

**Count of Products**

Definition: Counts each product only once, even if it appears multiple times.

Formula: = COUNTROWS('product table')

Value:500

Insight: Helps understand product variety in the dataset.

**YTD Sales (Year-To-Date Sales)**

Definition: Total sales from the beginning of the year up to the selected date.

Formula: = CALCULATE([Total sales Amount],DATESYTD('Date Table'[Date]))

Value:372.11K

Insight:

YTD Sales allow you to evaluate the cumulative performance over the year. It helps track progress towards yearly targets and spot trends earlier in the fiscal period.

**Total discount Amount**

Definition: Adds up all discount values across the dataset.

Formula: = sum('order table'[Discount_Amount])

Value:29.39K

Insight: Helps analyse how much discount is offered in total.

### Target Value(Gauge chart & KPI)
Definition: Acts as a benchmark to measure progress or achievement.
Formula: = [Total sales Amount]*1.5
Value:558.16K
Insight: Helps compare actual value against the target.

### Last Month Sales
Definition: This measure calculates the total sales for the previous month.
Formula: = calculate([Total sales Amount],dateadd('Date Table'[Date],-1,MONTH))
Value:347.54k
Insight: To enable Month-over-Month analysis and compare current performance with the previous month, a DAX measure called Last Month Sales was created.

### MOM Growth in %
Definition: To evaluate the monthly performance trend of sales, a MoM Growth measure was created.
Formula: = divide([Total sales Amount]-[Last month Sales],[Last month Sales])
Value:7.07%
Insight: This metric shows the percentage change in sales compared to the previous month.

## Created Columns:

### Profit
Definition: Calculates the profit for each record.
Formula: = 'product table'[Selling_Price]-'product table'[Cost_Price]
Purpose: Helps to analyse profitability at a detailed level.
Insight: Useful for identifying high or low-performing sales.

### Status
Definition: New columns added using DAX to derive meaningful data from existing fields.
Formula: = if('product table'[Profit]>0,"Profit","Loss")
Purpose: Used to categorize, calculate, or transform data for better analysis.
Insight: Helps in creating custom logic and improving data visualization.

### Customer Age Group
Definition: Categorizes customers based on their age into Youth, Adult, and Senior groups.
Formula:=SWITCH(True(),'customertable'[Age]<30,"Youth",'customer table'[Age]<50,"Adult","Senior")
Purpose:         Helps       in        segmenting       customers       for       targeted       analysis.
Insight: Useful for understanding customer behaviour by age group.

### Discount Percentage
Definition: The Discount Percentage column represents the portion of the original sales price that was reduced due to a discount.
Formula: = 'order table'[Discount_Amount]/'order table'[Gross sales]
Insight: It helps analyse how much discount was offered on each transaction and assess its impact on overall sales performance.

### Discount Efficiency
Definition: Discount Efficiency measures how effective discounts are in driving additional sales or revenue.
Formula: = 'order table'[Net Sales]/'order table'[Discount_ Amount]
Insight: It helps analyse whether offering discounts leads to better performance or just reduces profit margins without meaningful gains.

### Discount Category
Definition: To classify each transaction based on the discount amount.
Formula: = if('order table'[Discount_Amount]>100,"High","Low")
Insight: This categorization helps in analysing how different levels of discount impact sales performance.

## Created Table
### Category-Wise Sales Table
This table provides a breakdown of sales figures across different product categories. It enables stakeholders to:
- Evaluate the performance of individual product categories.
- Identify top-performing and underperforming segments.
- Support strategic decisions related to inventory, marketing, and pricing.

### Key columns include:
- Category Name
- Total Sales

### City-Wise Sales Table
This table summarizes sales data across various geographic locations. It helps in:
- Analysing regional performance.
- Identifying cities with high and low sales volume.
- Planning region-specific promotions and resource allocation.

### Key columns include:
- City
- Total Sales

### Region-Wise Sales Table
This table aggregates sales data at the regional level to provide a broader view of market performance across different geographical areas. It serves as a strategic tool to:
- Compare sales across regions.
- Identify high-performing and low-performing regions.
- Guide decisions on resource allocation, regional marketing strategies, and expansion opportunities.

### Key columns include:
- Region Name
- Total Sales

## Date-Table
To support time-based analysis in the Sales Performance Analysis, a date table was created. This table serves as a foundational component for calculating metrics like Month-over-Month (MoM) growth.

### Usage in MoM Growth
The MoM growth was calculated using this date table by creating a relationship between the Date column and the Order Date in the order table. Using DAX I calculated the total sales for the current and previous month, then applied the MOM formula.

# Analyse Data

## Analysis & Visualization:

### Top 10 Products by Total Sales (Bar Chart)
A **bar chart** was used to display **Total Sales** for the **Top 10 products**, identified using Power BI's **Top N filtering** feature. This visual helps focus on the products that generate the most revenue.
### Purpose of the Visual:
- To highlight the best-selling products.
- To support inventory management, marketing, and sales strategies.
- To easily compare performance among top-performing items.
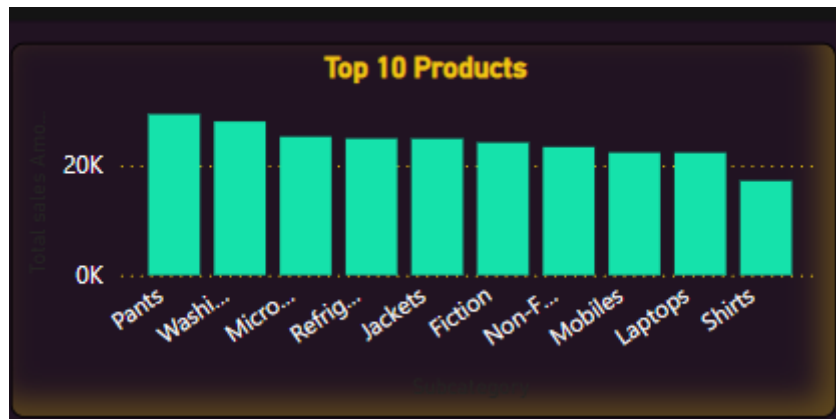
**How It Works:**
- Sub Category Name was placed on the axis or rows.
- Sales was used as the value field.
- A Top N filter was applied via the Filters pane:
  - Selected **Top 10**.
  - Based on the **Total Sales** measure.
- The result shows only the **top 10 products** sorted by sales in descending order.

**Insights from the Visual:**
- Products like **Pants** and **Washing Machine** stand out as top contributors to sales.
- Identifying these products helps the business prioritize promotions, stock levels, and customer engagement.
- If paired with profit or discount data, you can also see whether high-selling products are also the most profitable.

**How it helps:**
- Offers a clear picture of product-level performance.
- Helps focus attention on what drives most of the revenue.
- Can be used in conjunction with other visuals like profit or region-wise sales for deeper analysis.

**Sales by Payment Method (Donut Chart)**

To understand customer payment preferences, a donut chart was used to visualize the distribution of total sales across various payment methods.

**Purpose of the Chart:**
- To analyse which payment methods are most commonly used by customers.
- To understand the revenue share of each payment method.
- To identify opportunities to promote or optimize specific payment options.
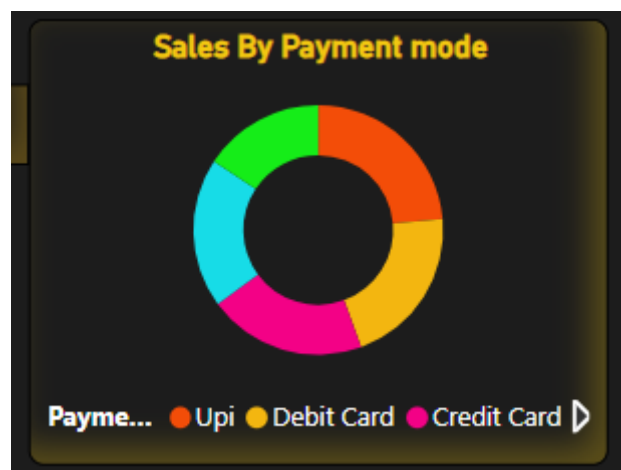
**Insights from the Chart:**
- The largest portion of sales comes from **UPI**, showing it is the most preferred payment method among customers.
- **Cash on delivery** make up a smaller share, indicating limited usage or potential for growth.
- The chart helps visualize the relative performance of each method in a quick and intuitive format.

**How it helps:**
- Businesses can streamline popular payment methods to enhance customer experience.
- Underused payment methods can be promoted with offers or reviewed for any technical/payment gateway issues.
- It helps in tracking trends if customers are shifting towards digital payments or preferring traditional ones.

## Sales Amount by Category (Tree map)

A **Tree map** visualization was used to represent the sales contribution of each product category in a compact and intuitive layout. In this chart, each rectangle represents a category, and the size of the rectangle reflects the total sales amount.

**Purpose of the Chart:**
- To compare sales performance across different product categories at a glance.
- To identify the most and least contributing categories in terms of revenue.
- To understand how categories perform relative to one another.



**Insights from the Tree map:**
- **Toys** is the dominant category with the largest share in total sales, indicating high demand or successful product positioning.
- **Books** and **Clothing** have smaller blocks, suggesting lower sales contribution compared to the top category.
- The visual immediately draws attention to the high-impact areas, which helps in focusing marketing and stocking strategies.

**How it helps:**
- Enables quick visual comparison of categories without reading detailed numbers.
- Helps in prioritizing inventory planning, marketing focus, and sales efforts.
- Encourages data-driven category management by highlighting which areas are driving business and which need improvement.

# Sales Amount by Customer Segment (Pie Chart)

A **Pie Chart** was used to illustrate the proportion of total sales contributed by each customer segment. Each slice of the pie represents a segment, and its size reflects the sales amount generated by that group.

**Purpose of the Chart:**
- To visualize the sales distribution across different customer segments.
- To identify the most valuable customer segments in terms of revenue.
- To support targeted marketing and customer engagement strategies.
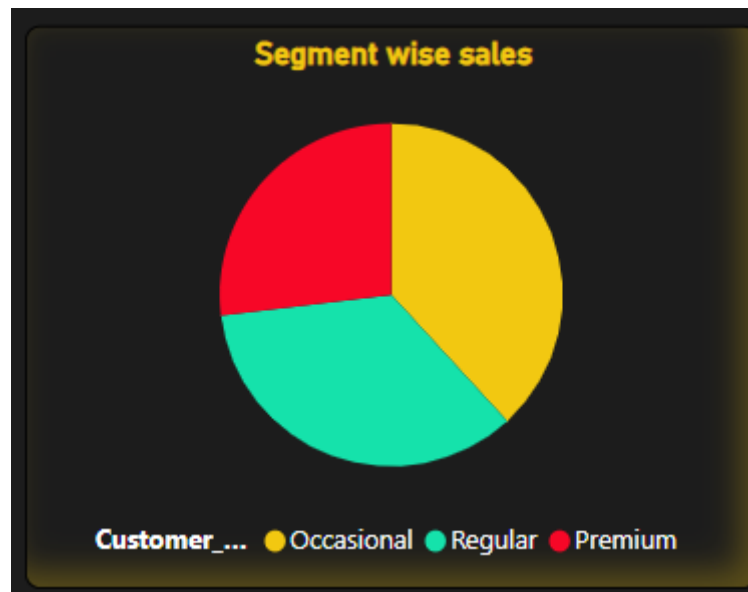


**Insights from the Chart:**
- **Regular** segment accounts for the **largest share** of total sales, indicating strong performance and demand from individual customers.
- **Premium** segments contribute less, suggesting opportunities to expand in those areas through tailored strategies.
- The chart provides a **clear and immediate view** of which segments are driving the business.

**How it helps:**
- Businesses can **focus efforts** on high-revenue segments for retention and upselling.
- Underperforming segments can be targeted with specific campaigns to increase engagement.
- It helps shape **customer-centric strategies** based on actual revenue data.

# Sales by City and Category (Map Visualization)

A **map visual** was used to display Sales by City, with an added layer of detail through product Category segmentation. This geo-visual helps understand where sales are coming from geographically, and how different categories perform across cities.

**Purpose of the Chart:**
- To visually analyse regional sales performance across cities.
- To compare category-wise sales within each city.
- To spot regional strengths or gaps for each product category.

City wise Sales

**How It Works:**
- Each data point **(bubble or marker)** on the map represents a **city**.
- The **size** of the bubble shows **total sales amount**.
- **Colours** or **legends** differentiate between **product categories**.

**Insights from the Map:**
- Cities like **Texas** show large sales volumes, especially in **Toys** category.
- Some cities may have low overall sales but strong category-specific performance, indicating untapped market potential.
- Regional differences in category preference can guide localized marketing and stocking strategies.

**How it helps:**
- Combines location intelligence with product performance for deeper insights.
- Supports data-driven regional planning ex: expanding certain product categories in high-demand areas.
- Encourages customized strategies for each city, based on actual sales and customer preferences.

**Sales by Sub-Category (Funnel Chart)**

A **Funnel Chart** was used to represent the Sales Amount by Sub-Category, arranged from highest to lowest. This visual format highlights how different sub-categories contribute to overall sales, allowing easy comparison and identification of the most and least performing areas.

**Purpose of the Chart:**
- To rank sub-categories based on their total sales.
- To identify top revenue-generating sub-categories.
- To observe significant drops in sales between categories, helping prioritize focus areas.

**Total sales Amount by Subcategory**

100%

Cameras
Action Figures
Board Games
Pants
Washing Mac...
Microwaves
Refrigerators
Jackets
Fiction
Non-Fiction
Mobiles
Laptops
Dolls
Shirts
Comics

42.3%
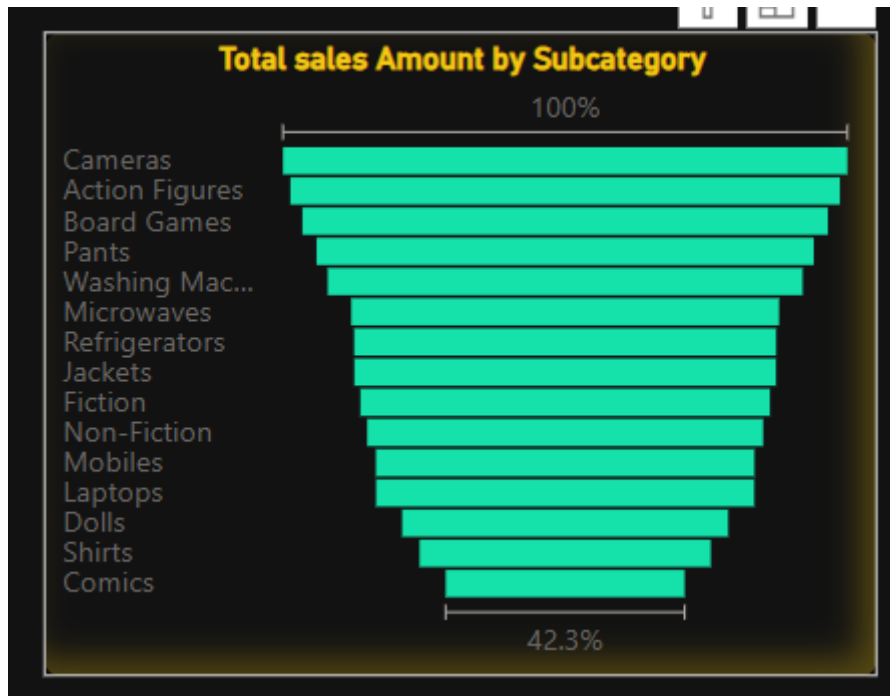
**How It Works:**
- The top of the funnel represents the sub-category with the highest sales.
- As you move down, each segment shows decreasing sales values.
- The funnel shape visually emphasizes gradual or steep drops in sales.

**Insights from the Chart:**
- **Cameras** appear at the top, indicating strong sales performance.
- **Comics** appear at the bottom, contributing minimal revenue.
- The sharp difference between top and bottom layers shows which sub-categories are worth promoting or reevaluating.

**How it helps:**
- Helps in stock planning, pricing strategies, and product focus.
- Supports decisions like discontinuing underperforming sub-categories or investing more in high-performing ones.
- Useful for presentations where a clear sales hierarchy is needed.

**Sales by Month and Date (Stacked Area Chart with Drill Down/Up)**
A **Stacked Area chart** was used to visualize sales trends over time, showing how sales fluctuate **month by month and day by day**. This chart includes **drill-down and drill-up** functionality, allowing deeper exploration of the data.

**Purpose of the Chart:**
- To track sales performance over time.
- To identify seasonal patterns, daily spikes, or monthly trends.
- To enable users to interact with the data, moving between monthly and daily views.
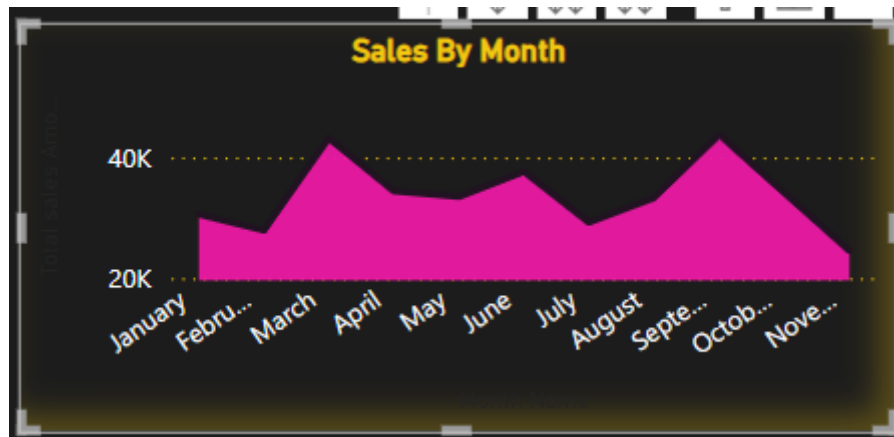
**Drill Down/Up Feature:**
- **Drill Down**: Users can click on a specific month to view daily sales data within that month.
- **Drill Up**: Users can return from the day-level view to the monthly overview.
- This dynamic feature adds interactivity, helping users focus on specific timeframes as needed.

**Insights from the Chart:**
- Sales peaked in **September** possibly due to festive/seasonal promotions.
- Daily-level analysis revealed specific high-performing dates, which could align with campaigns or events.
- Some months show stable trends, while others show volatile daily sales, indicating changing demand patterns.

**How it helps:**
- Allows businesses to pinpoint exact dates of high or low performance.
- Helps in planning promotions, inventory, and staffing based on expected demand.
- Offers flexibility for deeper analysis without cluttering the main dashboard.

## Target Measure with Gauge & KPI Charts (Interactive View)

To visually track performance against sales targets, a custom target measure was created and integrated into both a **Gauge Chart** and a **KPI Chart**. These visuals were designed to **overlap** and are **controlled through buttons**, allowing users to switch views based on their preference.

**Purpose:**
- To monitor actual sales vs. target using different visual representations.
- To give users the flexibility to view data as a Gauge or KPI.
- To create a clean and interactive dashboard experience.
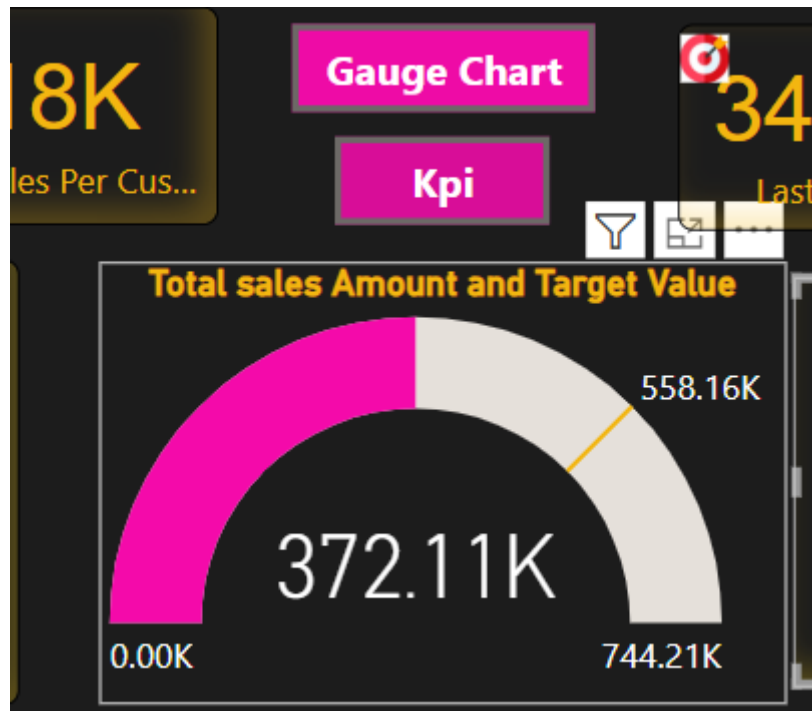
**How It Works:**
- A **target measure** was calculated in DAX to define expected sales goals
- Both Gauge Chart and KPI Chart use this target to show performance:
    - **Gauge Chart** shows progress toward the target in a semi-circular dial format.
    - **KPI Chart** displays actual value, target, and variance clearly.
- The two charts are **overlapped in the same position** on the Sales Report page.
- **Buttons** were created Gauge chart and KPI configured using **Bookmarks + Selection Pane**.
- When a user **Ctrl+ Clicks** on a button, the visible chart toggles between KPI and Gauge, giving a **dynamic feel to the report**.

**Why It's Effective:**
- Saves space while offering multiple perspectives of the same metric.
- Keeps the dashboard clean and user-friendly.
- Adds an element of interactivity that enhances user engagement.
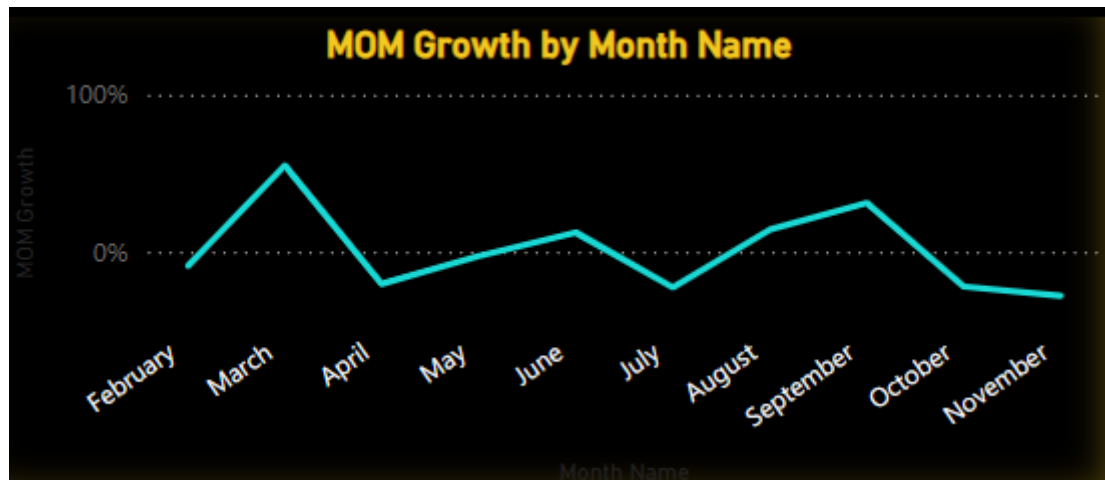
**Insights:**
- When the sales target is met or exceeded, both visuals reflect it with clear indicators (colour, % progress, status).
- Users can choose which visual they prefer for tracking performance.

**MOM Growth (Line Chart)**
This line chart illustrates the Month-over-Month (MoM) growth for Sales over the selected period. Each point on the chart represents the percentage change from the previous month.

**Purpose of the Chart**
The purpose of this chart is to **track short-term growth trends** and identify patterns such as spikes, drops, or stable growth over time. It helps in understanding how performance is evolving month by month.
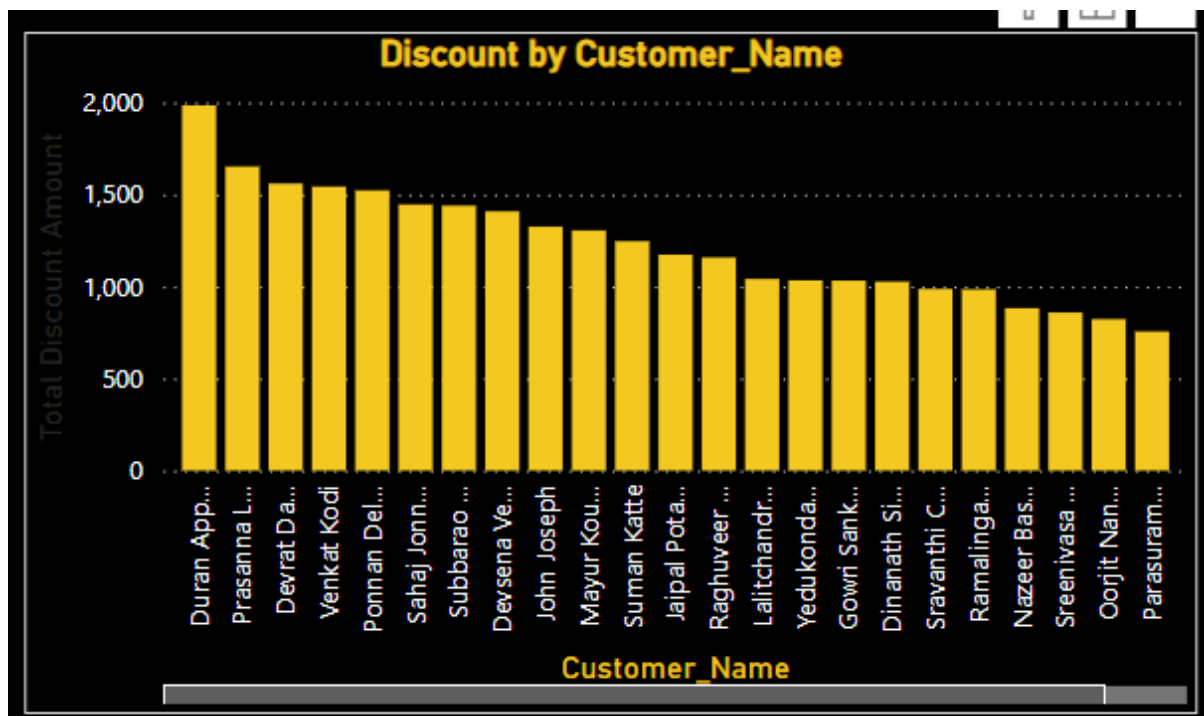
**Insights**
- Months with continuous growth suggest positive momentum and could signal successful strategies.
- Months with declining growth call for further investigation into underlying causes.
- Sharp changes indicate possible one-off events that should be accounted for in future forecasting.

**Discount by Customer Name (Column Chart)**

A **Column Chart** was used to display the total discount amount given to each customer. Each vertical column represents a **customer**, and the height of the column reflects the total discount they received over the selected period.

**Purpose of the Chart:**
- To visually compare how discounts are distributed among customers.
- To identify high-discount customers and evaluate if those discounts are justified.
- To detect any anomalies or inconsistencies in discount allocation.

**Insights from the Chart:**
- Certain customers like **Duran Appala** show notably higher discounts, possibly due to volume purchases, loyalty programs, or promotional offers.
- Other customers receive minimal or no discounts, which might be due to smaller purchases or different pricing terms.
- If high-discount customers don't correspond with high-profit or high-sales figures, it may require policy review or sales strategy adjustments.
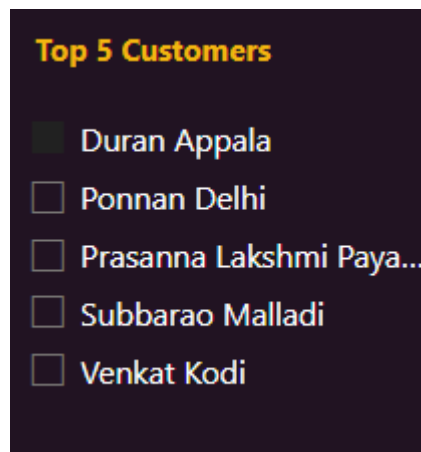
**How it helps:**
- Enables better monitoring of discounting practices.
- Helps sales and finance teams ensure discounts are aligned with customer value.
- Supports data-driven decision-making on customer pricing strategies.

**Top 5 Customers by Sales (Table with Top N Filter)**

A **table visual** was created to display **Customer Name and their corresponding Sales Amount**. To focus on the most valuable customers, a **Top N filter** was applied to show only the **Top 5 customers based on total sales**.

**Purpose of the Table:**
- To identify the highest revenue-generating customers.
- To support targeted customer retention strategies.
- To enable quick insights into key contributors without clutter.



**How It Works:**
- The table includes two columns: Customer Name and Sales.
- A **Top N filter** was applied using the **Filters pane** in Power BI:
  - Selected **Top 5**.
  - Based on the **Sales measure**.
- This dynamically displays the **top-performing customers**, sorted in descending order.

**Insights from the Table:**
- Customers like **Duran Appala** rank highest in sales.
- These top 5 customers may account for a significant portion of total revenue, emphasizing their strategic importance.
- The table helps in customer segmentation and identifying opportunities for loyalty programs or exclusive deals.

**How it helps:**
- Provides a quick snapshot of key customers.
- Helps sales teams prioritize relationship management.
- Can be enhanced further by comparing with profit, discount, or order volume for a more complete picture.

## City and Category-wise Profit (Stacked Column Chart)

A **Stacked Column Chart** was used to analyse profit generated in each city, broken down by **product category**. This visualization helps in understanding how each category contributes to total profit across different locations.

**Purpose of the Chart:**
- To compare total profit across cities.
- To see category-wise contribution within each city.
- To spot high-performing cities and profitable categories in a single view.
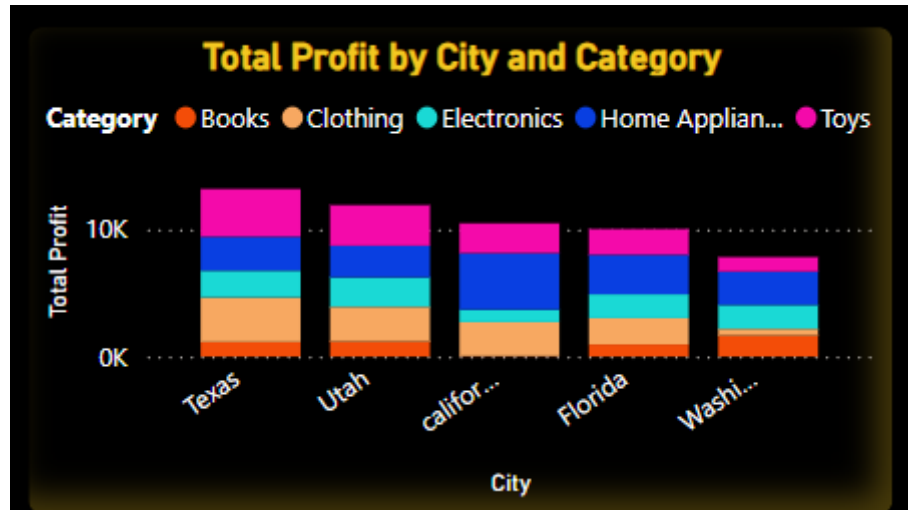


**How It Works:**
- The **X-axis** represents different **cities**.
- The **Y-axis** shows the **profit amount**.
- Each column is **stacked by category**.
- Different colours represent different **categories** within each city's total profit.

**Insights from the Chart:**
- Cities like **California** have **higher overall profits**, largely driven by **home Appliances** category.
- In some cities, certain categories may dominate the profit share, while in others, the contribution may be more balanced.
- Negative or low-profit contributions from specific categories in certain cities may highlight areas for cost control or sales improvement.

**How it helps:**
- Supports geographic and category-based profitability analysis.
- Helps businesses identify strengths and weaknesses across locations.
- Guides regional marketing, stocking, and pricing strategies by showing where each category is profitable.

## Sales and Profit by Sub-Category (Scatter Plot)

A **Scatter Plot** was used to analyse the relationship between **Sales** and **Profit** across different **product sub-categories**. Each dot represents a sub-category, plotted based on its total sales and profit values.

**Purpose of the Chart:**
- To understand the **correlation between sales and profit** for each sub-category.
- To identify high-selling but low-profit or low-selling but high-profit items.
- To support profitability and sales optimization strategies.
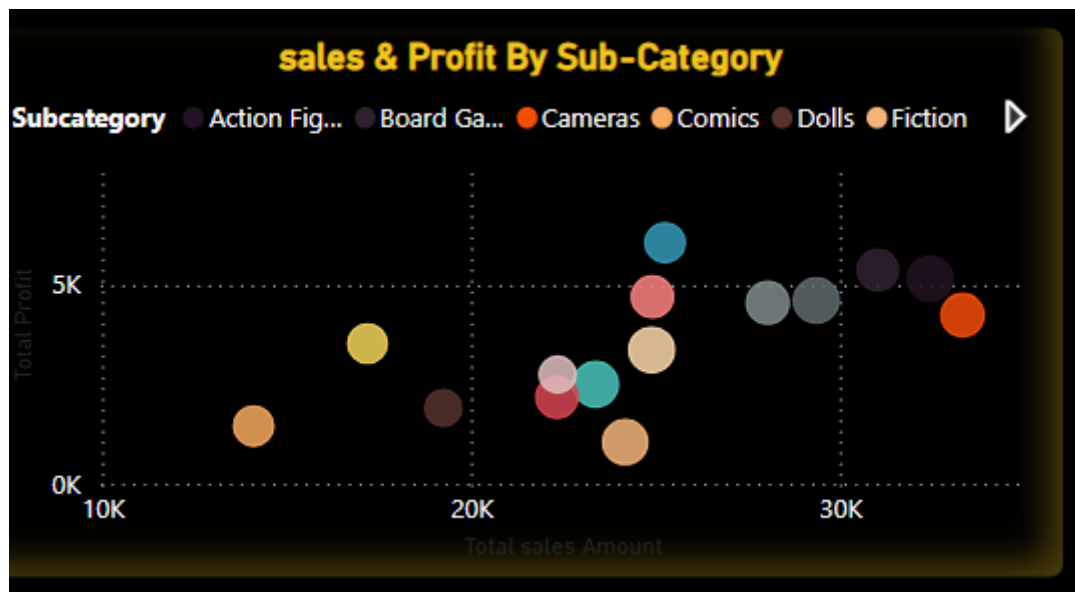
**How It Works:**
- The **X-axis** represents **Total Sales**.
- The **Y-axis** represents **Total Profit**.
- Each **data point (dot)** represents a **sub-category**.
- The **position** of the dot shows how that sub-category performs in terms of both metrics.

**Insights from the Chart:**
- Sub-categories like **Cameras** may appear in the top-right quadrant, indicating high sales and high profit ideal performers.
- Items in the bottom-right quadrant have high sales but low or negative **profit**, suggesting pricing or cost issues.
- Sub-categories in the top-left quadrant may have low sales but high profit margins, representing nice but valuable items.
- Bottom-left quadrants indicate low performers potentially candidates for review or discontinuation.

**How it helps:**
- Enables a quick visual comparison of performance across sub-categories.
- Helps in decision-making for pricing, marketing, and product focus.
- Supports identifying products with potential for improvement or promotion.

**Profit by Customer Segment and Payment Method (Matrix with Hierarchy)**

A **Matrix visual** was created to display **Profit** using a hierarchical structure, where Customer Segment is the top level and Payment Method is the drill-down level. This allows users to analyse profit performance both segment-wise and by payment preferences.

**Purpose of the Matrix:**
- To analyse total profit by different customer segments.
- To drill down further into how those segments prefer to pay.
- To give a structured, easy-to-read breakdown of profits.

**How It Works:**
- A **hierarchy** was created in the matrix by placing Customer Segment at the top level and Payment Method beneath it.
- **Profit** was added as the value.
- Users can **expand or collapse each customer segment** to view the breakdown of profits by payment method.
- **Totals and subtotals** are automatically calculated for each segment.

**Insights from the Matrix:**
- The **Regular segment** may show the **highest total sales**, with a preference for UPI.
- Helps in identifying payment trends within different segments, useful for finance and customer experience optimization.

**How it helps:**
- Offers a **layered view of sales data** for deeper insights.
- Makes it easier to compare payment behaviour across segments.
- Supports decisions related to payment method promotions, customer-specific offers, and financial strategy alignment.

## Monthly-wise Stock Quantity and Discount (Stacked Area Chart)

A **Stacked Area Chart** was used to visualize **Stock Quantity** and **Discount Amount** on a **month-by-month basis**. This helps understand how inventory levels and discount strategies change over time and whether they correlate.

**Purpose of the Chart:**
- To track stock availability and discounts given month-wise.
- To identify any patterns or relationships between inventory levels and discounting.
- To understand how seasonality or sales campaigns affect both metrics.
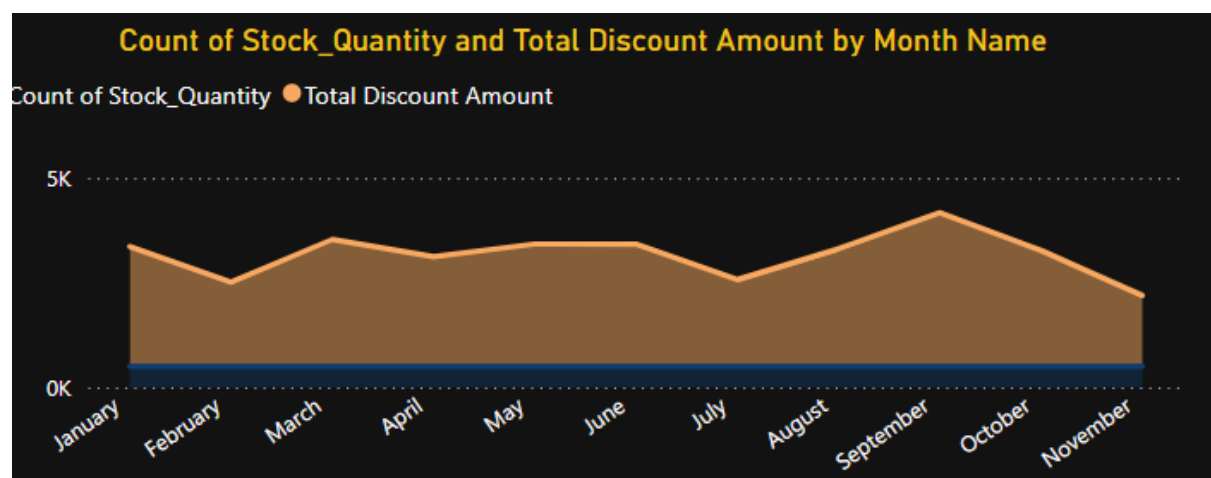
**How It Works:**
- The **X-axis** represents the **months**.
- The **Y-axis** shows the **combined values** of Stock Quantity and Discount.
- Each area in the chart represents one metric:
    - One area for **Stock Quantity**.
    - One area for **Discount**.
- Areas are **stacked** to show the **cumulative effect**, but can still be visually separated by colour.

**Insights from the Chart:**
- In months with **high stock levels**, there might be a **corresponding rise in discounting**, indicating **clearance efforts**.
- Some months may show **high discounts despite low stock**, possibly due to **promotional campaigns**.
- Helps spot **seasonal trends**, like higher stock and discounts before festivals or financial year-end.

**How it helps:**
- Helps in **inventory planning** and **promotion strategy alignment**.
- Supports **supply chain optimization** by showing when stock levels fluctuate.
- Provides insight into how **discounting impacts stock movement** over time.

**Sales Forecast by Month (Line Chart with Forecast)**

A **Line Chart** was created to visualize **Total Sales over time**, including a **forecast for future months** using Power BI's built-in forecasting feature. This helps anticipate upcoming sales trends based on past performance.

**Purpose of the Chart:**
- To **predict future sales** and aid in planning.
- To analyse the **direction and strength of the sales trend**.
- To provide **data-driven insights** for business forecasting.
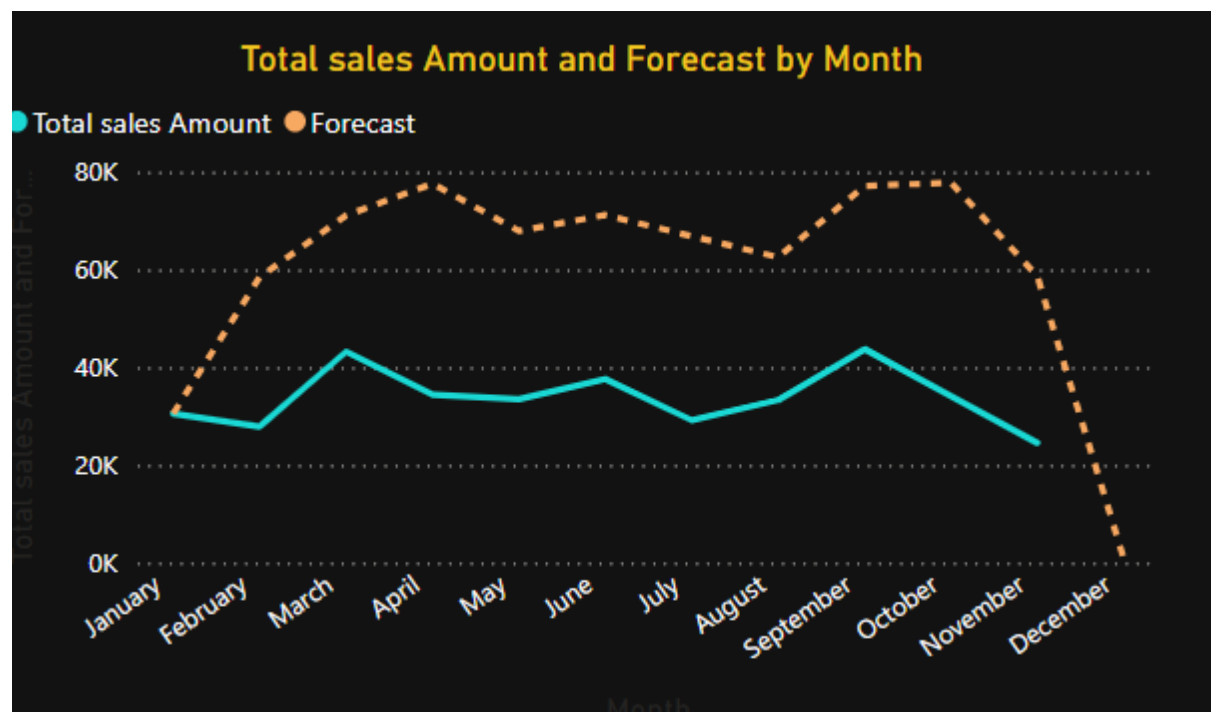
**How It Works:**
- **Total Sales** was plotted on a **monthly basis** using a **line chart**.
- The **forecasting feature** was enabled in the **Analytics pane**.
- Power BI automatically generated the **forecast values** for future months based on historical sales data.
- The chart displays:

**Insights from the Forecast:**
- The trend line indicates whether sales are expected to rise, fall, or remain stable in the coming months.
- Confidence intervals provide a range of possible outcomes, helping to manage uncertainty.
- Forecasting helps in budgeting, target setting, and strategic decision-making.

**How it helps:**
- Empowers management to prepare for demand fluctuations.
- Supports inventory planning, marketing strategies, and financial forecasting.
- Enhances the dashboard's predictive capability, turning insights into action.

**Region-wise Slicer Implementation in Sales Performance Analysis**
- Enhanced Data Filtering: Users can instantly isolate and analyze sales data for a specific region without modifying the base dataset.
- Improved Comparative Analysis: Enables side-by-side comparison of regional sales performance, making it easier to identify patterns, disparities, and growth opportunities.
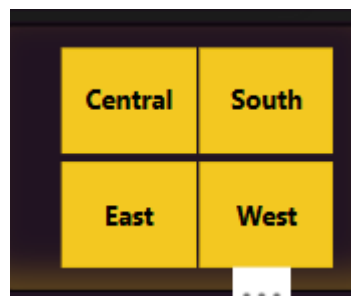


- Interactive User Experience: Empowers end users to interact with the report by selecting one or multiple regions, thus tailoring the insights to their specific area of interest.
- Supports Strategic Decision-Making: Regional breakdown helps sales managers and executives make informed, location-specific business decisions.

# Share Insights

## Created Dashboard

This dashboard provides a comprehensive view of sales performance, enabling the business to track key sales KPIs, evaluate regional and product-wise performance, and make data-driven decisions for future growth.
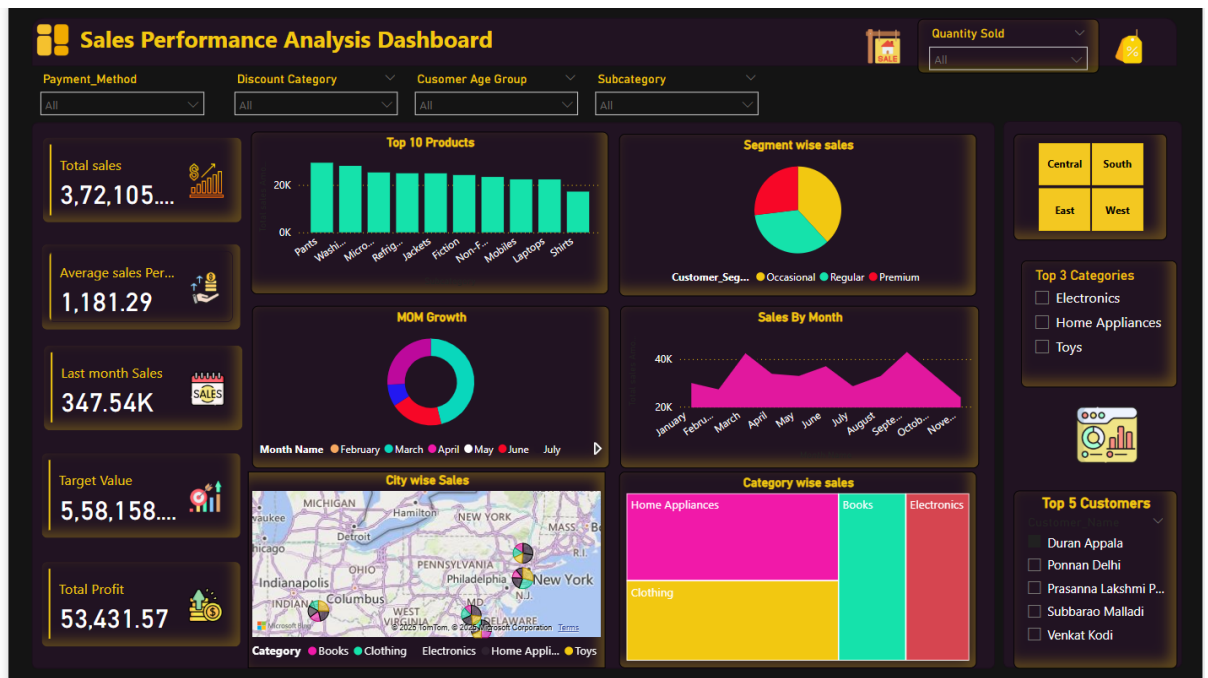


## Conclusion

The dashboard offers a centralized and dynamic view of sales performance, empowering stakeholders to monitor progress toward goals, analyse trends over time, and optimize resources accordingly. This analysis not only highlights what is working but also pinpoints where strategic adjustments are needed to drive consistent sales growth.