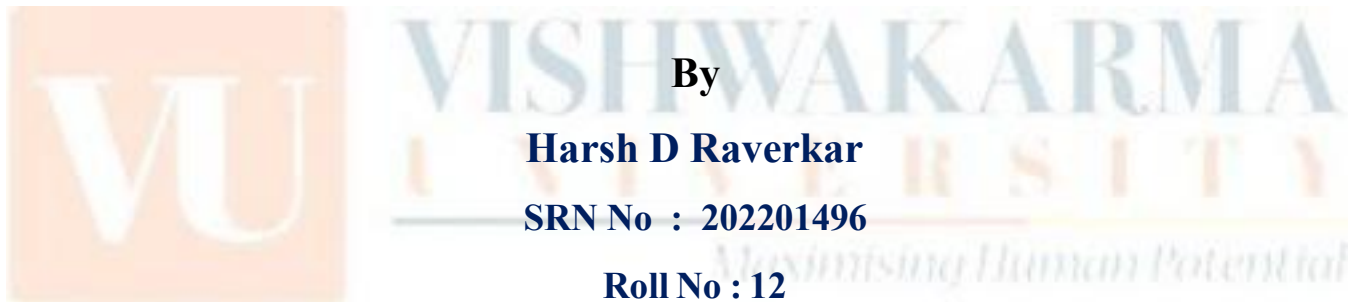**Activity based**

Phase 1 Report on

Business Intelligence

Submitted to Vishwakarma University, Pune

Under the Initiative of

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Business Intelligence

Create an interactive Power BI dashboard with the Candy Market Dataset to visualize customer preferences, market demand, and seasonal trends in the candy industry.

Project Statement :-

Create a Power BI dashboard using the Candy Market Dataset to visualize customer preferences, market demand, and seasonal trends in the candy industry.

Objective :-

1. Analyze Customer Preferences

- Identify the most preferred candy brands and categories based on sales volume.
- Analyze consumer buying behavior across different demographics and locations.
- Understand the impact of packaging, pricing, and product type on customer choices.

2. Measure Market Demand & Performance

- Track the top-selling products and brands in terms of revenue and sales volume.
- Identify market trends by analyzing demand fluctuations over different periods.
- Compare the performance of various distribution channels (e.g., supermarkets, convenience stores, online platforms).

3. Identify Seasonal Sales Trends

- Analyze monthly and yearly sales patterns to identify peak sales periods.
- Detect how holidays, festivals, and seasonal demand impact sales.
- Forecast future demand trends based on historical data and growth patterns.

Why This Matters?

- Helps retailers and manufacturers optimize sales strategies.

- Supports decision-making on inventory management and marketing campaigns.

- Provides insights into consumer preferences and buying habits.

Business Intelligence

Data Description :-

This dataset provides sales data for various candy and snack products across different retail channels. It includes details such as the year, month, distribution channel, product details, packaging type, sales volume, and manufacturer.

Key Information in the Dataset:

1. Time Period

   o The dataset covers sales from multiple years, categorized by month and year.

2. Sales Channels

   o Sales are recorded from two types of physical retail stores:

      ▪ Small and Specialty Stores (e.g., niche candy shops)

      ▪ Supermarket Chains (large grocery retailers)

   o No online sales are included.

3. Product Details

   o Each row represents a specific candy or snack product.

   o Includes brand name, product category (e.g., "Chips and Snacks"), and package type (e.g., bag, box).

4. Sales Data

   o Sales are measured in kilograms (KG) and Euros (EUR).

   o This helps understand both sales volume and revenue trends.

5. Manufacturers

   o Identifies the company producing each product, helping analyze brand performance.

ETL Process :-

Step 1: Load the Data into Power BI

1. Open Power BI Desktop.

2. Click on Home → Get Data → Excel.

3. Select your Candy Market Dataset (Candy_Market.xlsx) and click Open.

4. In the Navigator window, select the "Data" sheet and click Transform Data.
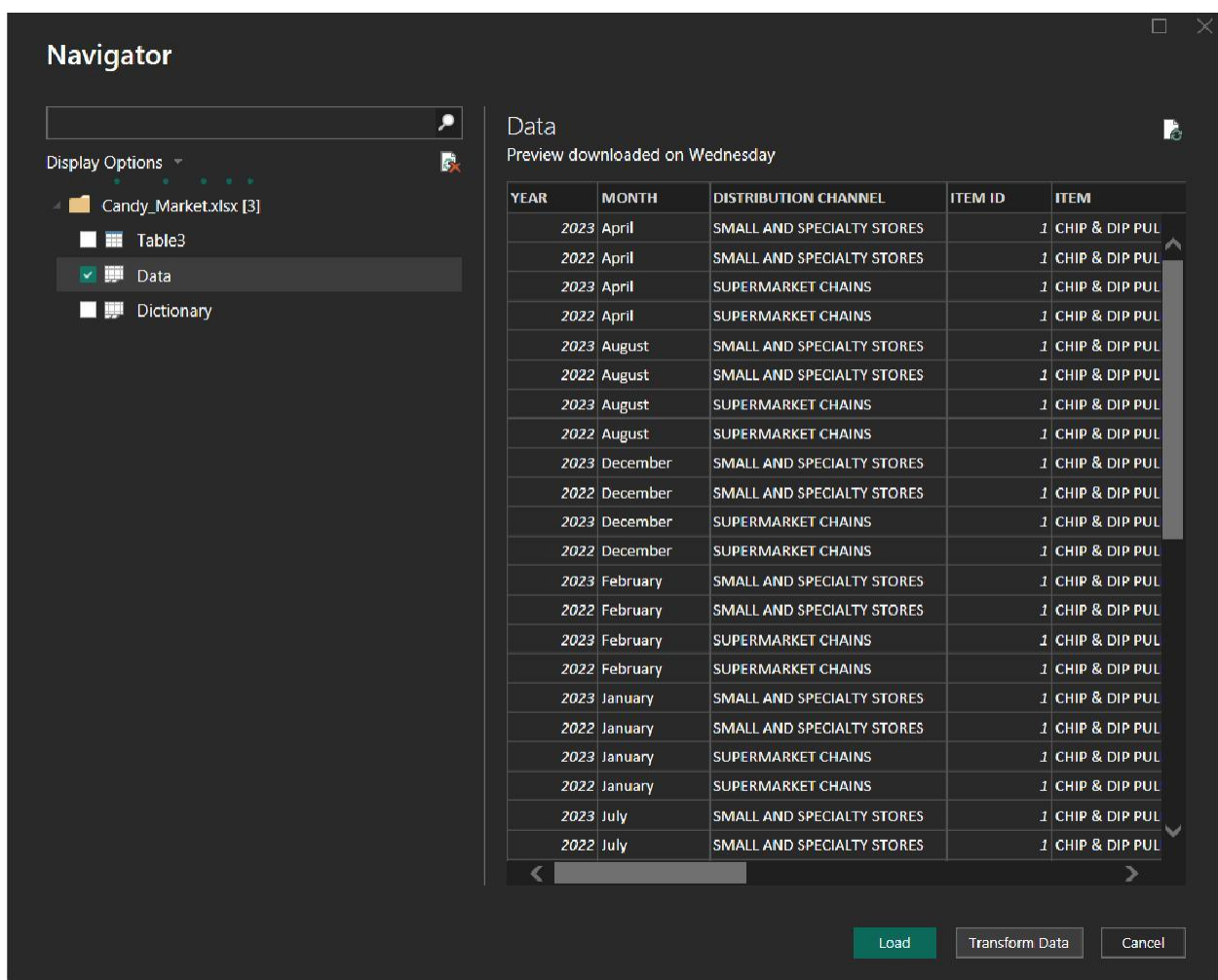
Step 2: Rename and Clean Column Names

1. In Power Query Editor, check the column names.
2. Rename the inconsistent column:
   - o Find "SALES VOLUME in EUR" → Right-click → Rename to "SALES VOLUME IN EUR".
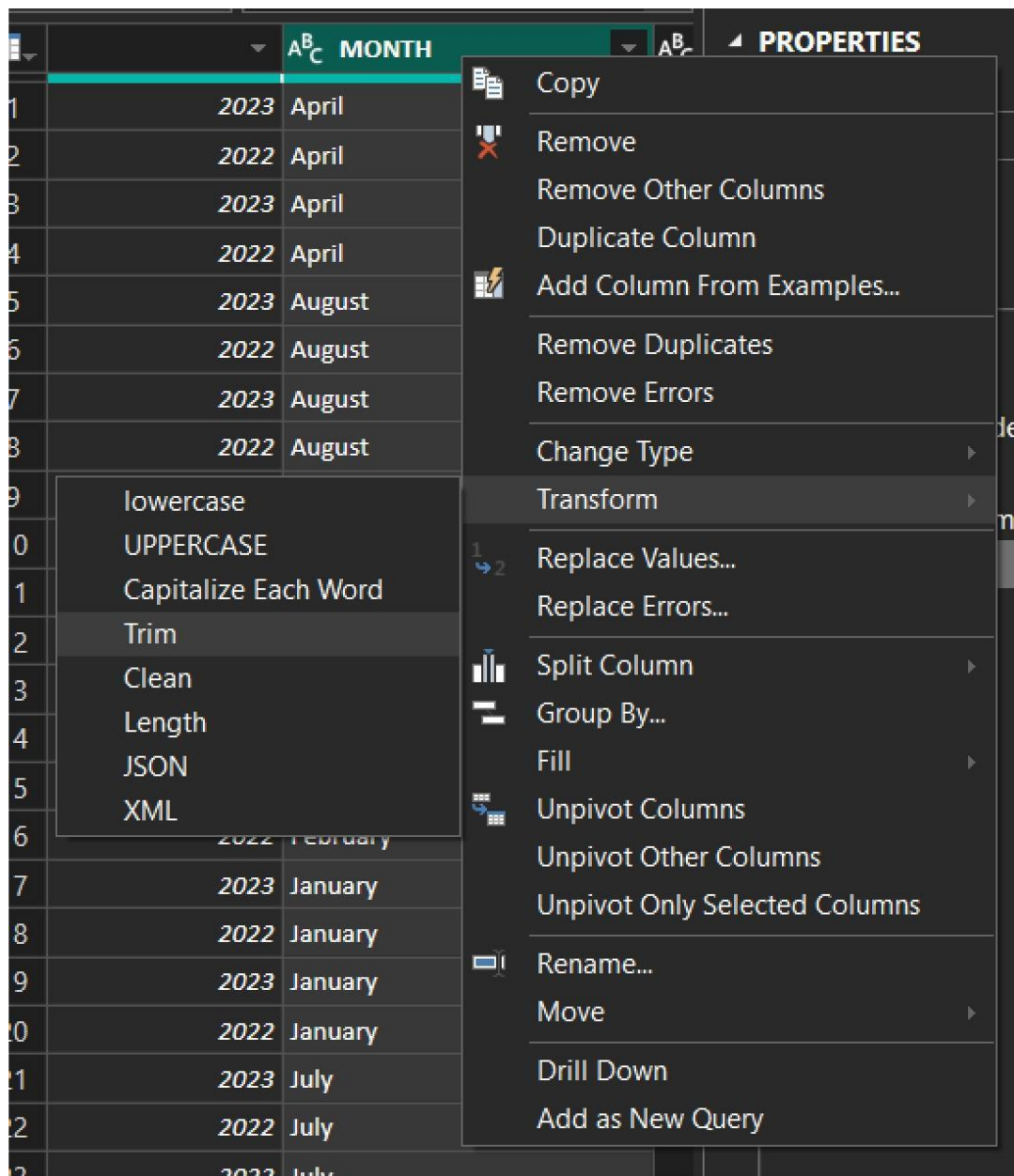
1^2_3 SALES VOLUME in EUR	
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10
0	10

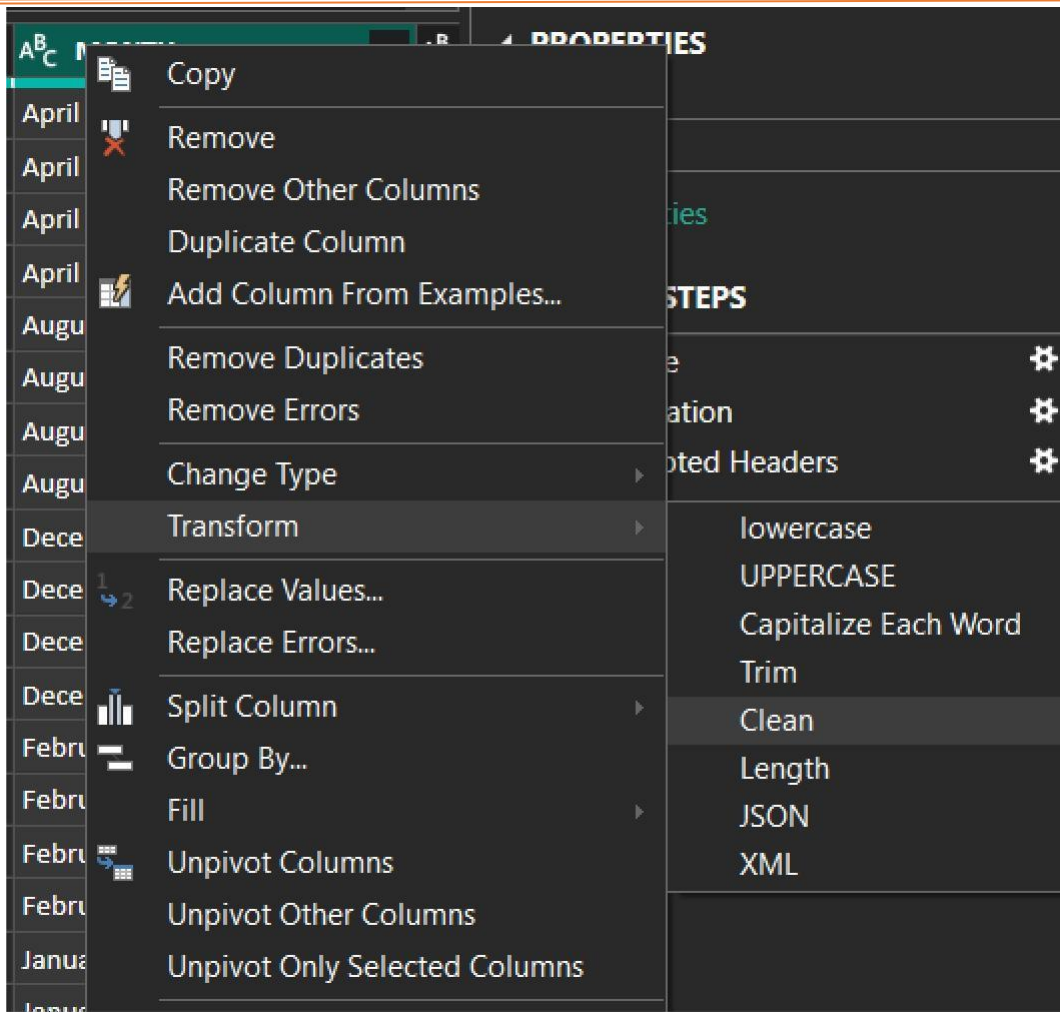| 1^2_3 SALES VOLUME IN EUR |
|---|
| 10 |
| 10 |

Remove any unnecessary spaces in other column names:

- Click on Transform → Trim to remove leading/trailing spaces.
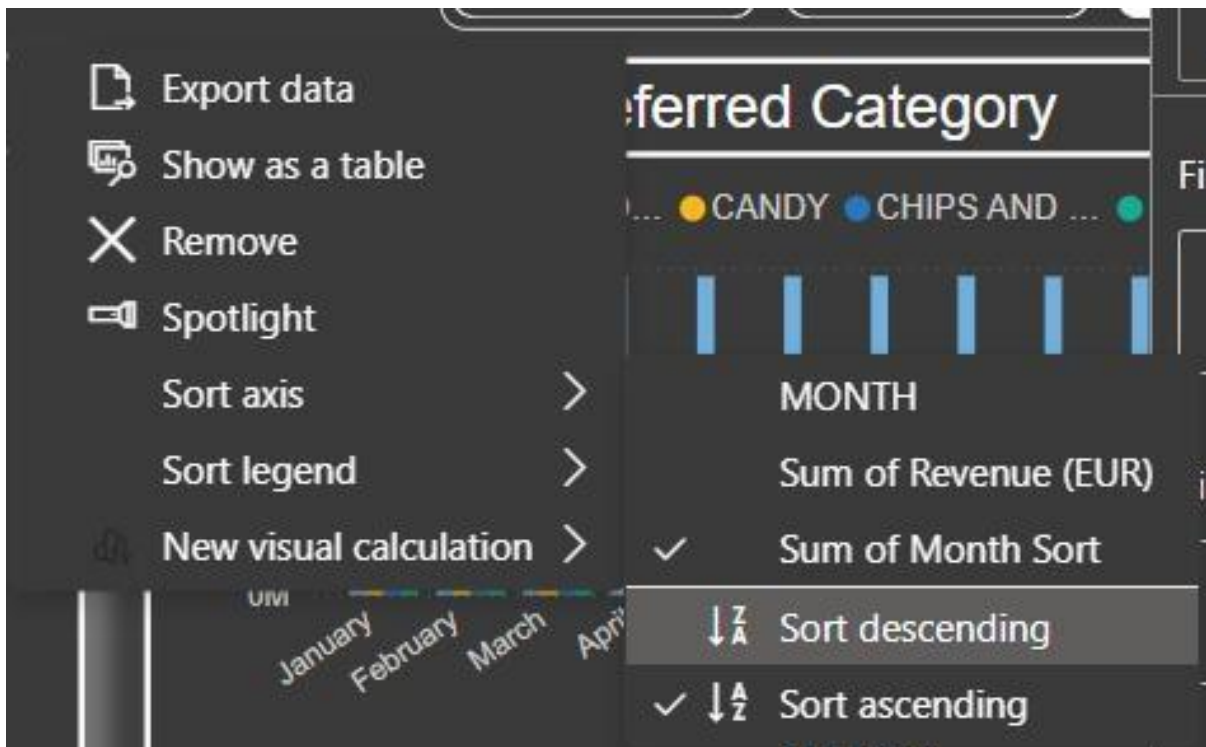- Click on Transform → Clean to remove any unwanted characters.

Step 3: Create Month Sort Column referencing the Month name column for sort the months

    1. Create a Numeric Month Column
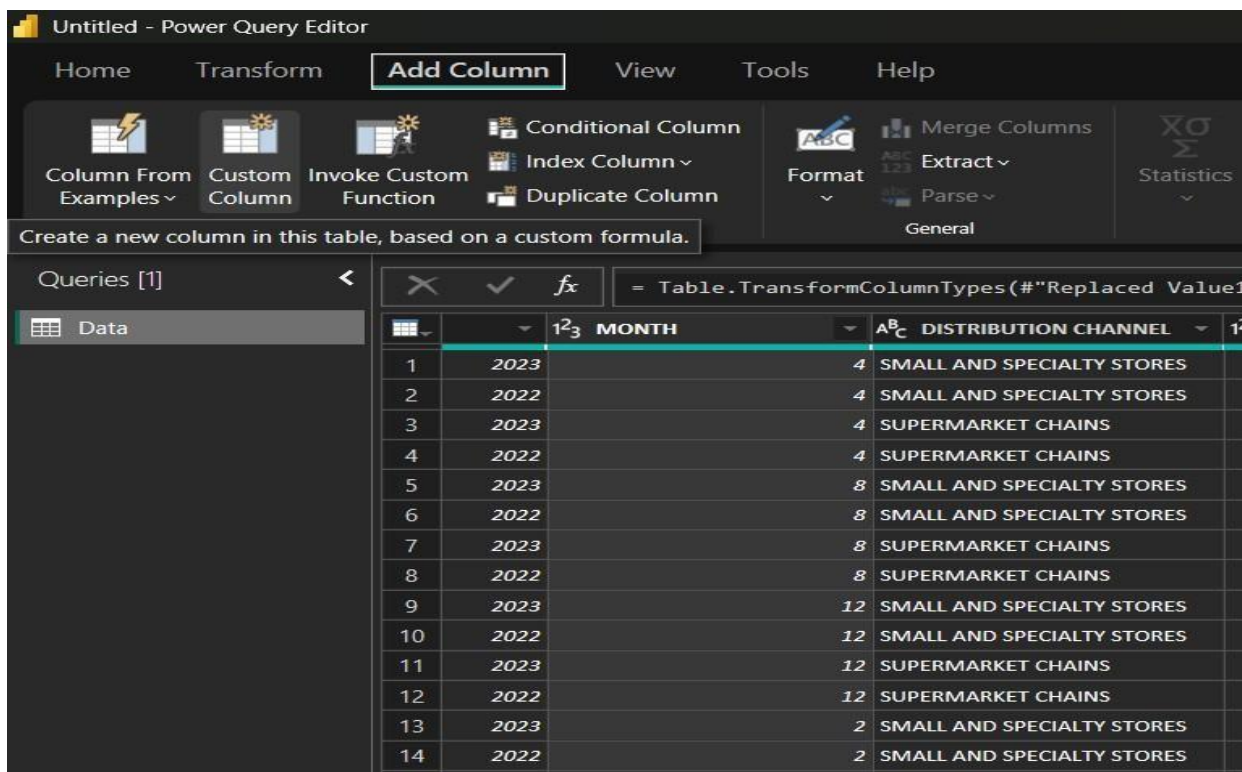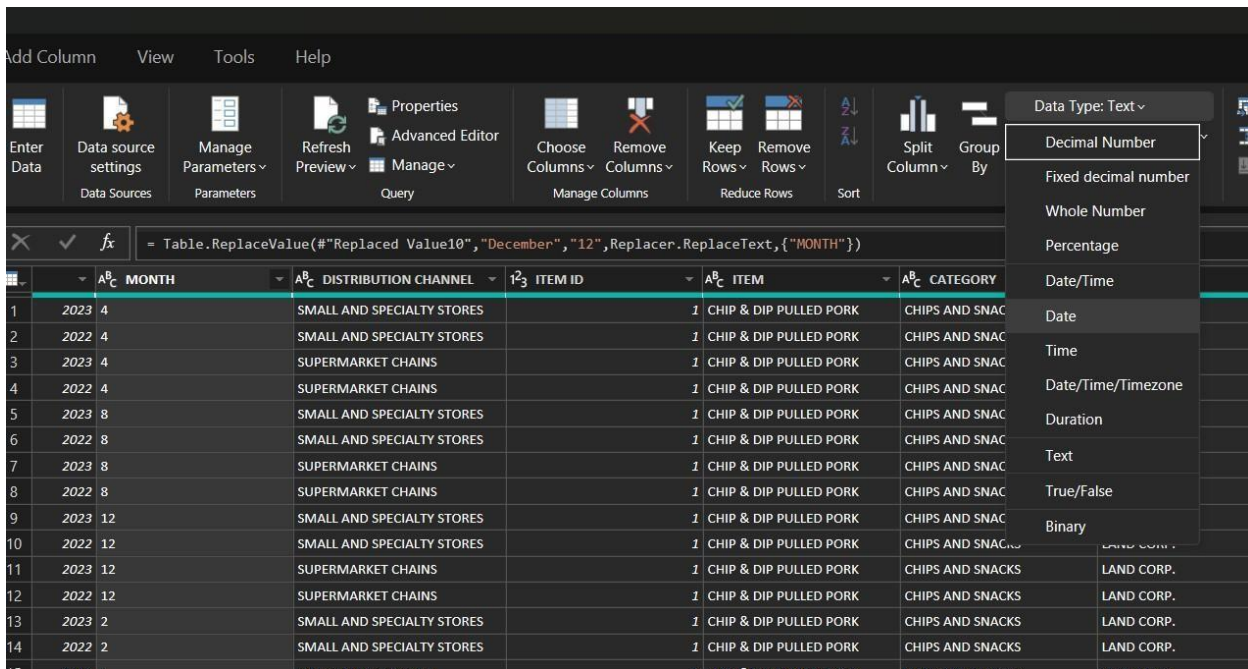
```
Month Sort = SWITCH(
    'Candy Data'[Month],
    "January", 1, "February", 2, "March", 3, "April", 4,
    "May", 5, "June", 6, "July", 7, "August", 8,
    "September", 9, "October", 10, "November", 11, "December", 12
)
```

2. Apply Sorting in Data View

Step 4: Create a Date Column

1. Click Add Column → Custom Column.

2. Enter the following formula to create a new DATE column:

    #date([YEAR], [MONTH], 1)

3. Click OK.

4. Change the Data Type of this new column to Date.

Custom Column

Add a column that is computed from the other columns.

New column name

Custom

Custom column formula ⓘ

```
= #date([YEAR], [MONTH], 1)
```

Available columns

YEAR
MONTH
DISTRIBUTION CHANNEL
ITEM ID
ITEM
CATEGORY
BRAND

<< Insert

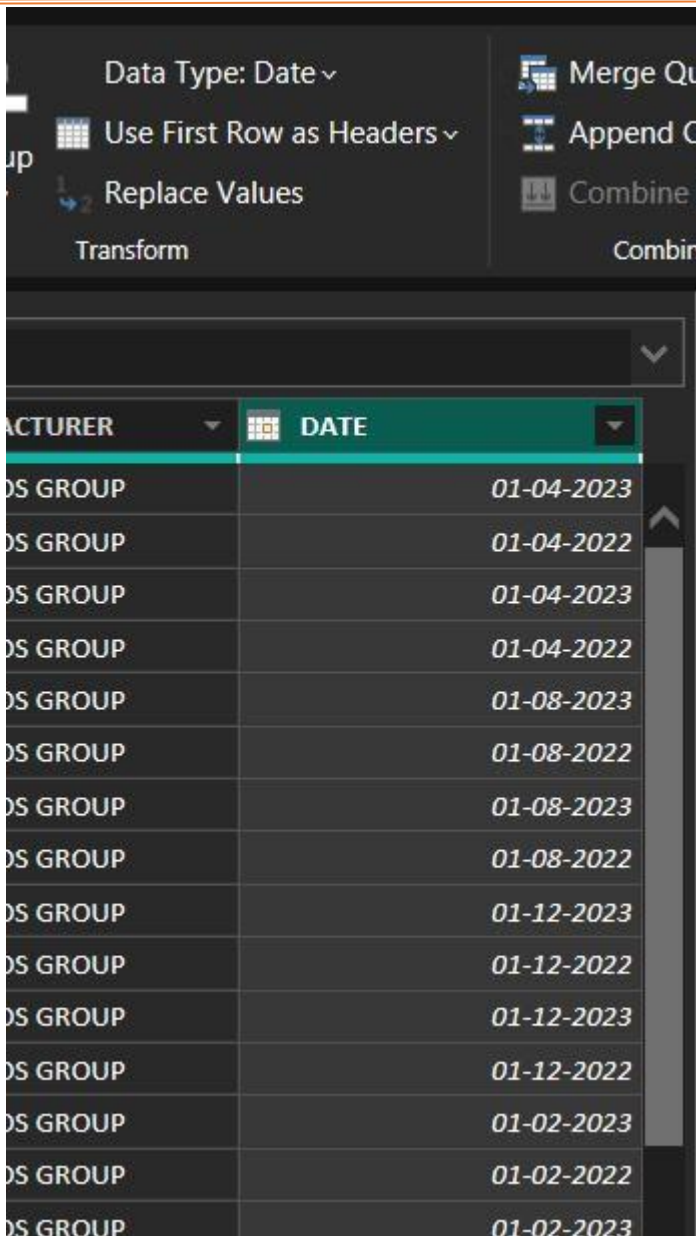Learn about Power Query formulas

✔ No syntax errors have been detected.

OK   Cancel

MANUFACTURER	DATE
YAL BLENDS GROUP	01-04-2023
YAL BLENDS GROUP	01-04-2022
YAL BLENDS GROUP	01-04-2023
YAL BLENDS GROUP	01-04-2022
YAL BLENDS GROUP	01-08-2023
YAL BLENDS GROUP	01-08-2022
YAL BLENDS GROUP	01-08-2023
YAL BLENDS GROUP	01-08-2022
YAL BLENDS GROUP	01-12-2023
YAL BLENDS GROUP	01-12-2022
YAL BLENDS GROUP	01-12-2023
YAL BLENDS GROUP	01-12-2022
YAL BLENDS GROUP	01-02-2023
YAL BLENDS GROUP	01-02-2022
YAL BLENDS GROUP	01-02-2023
YAL BLENDS GROUP	01-02-2022
YAL BLENDS GROUP	01-01-2023
YAL BLENDS GROUP	01-01-2022
YAL BLENDS GROUP	01-01-2023
YAL BLENDS GROUP	01-01-2022
YAL BLENDS GROUP	01-07-2023
YAL BLENDS GROUP	01-07-2022
YAL BLENDS GROUP	01-07-2023
YAL BLENDS GROUP	01-07-2022
YAL BLENDS GROUP	01-06-2023

Step 5 : Create Most Prefered category

```
1  Most Preferred Category =
2  VAR TopCategory =
3      TOPN(1, 'Candy Data', SUM('Candy Data'[Sales Volume (KG)]), DESC, 'Candy Data'[CATEGORY])
4
5  RETURN MAXX(TopCategory, 'Candy Data'[CATEGORY])
6
7
```

Create Most Sold Product Dax

```
 1  Most Sold Product =
 2  VAR TopProduct =
 3      TOPN(1, 'Candy Data', SUM('Candy Data'[Sales Volume (KG)]), DESC)
 4
 5  VAR ProductName = MAXX(TopProduct, 'Candy Data'[ITEM])
 6  VAR MaxSales = MAXX(TopProduct, SUM('Candy Data'[Sales Volume (KG)]))
 7
 8  RETURN
 9      ProductName
10
```

Create Total Market Demand Attribute

```
1  Total Market Demand =
2  SUM('Candy Data'[Sales Volume (KG)])
3
```

Create Top N Filter

```
1  Top5Packaging =
2  VAR TopPackaging =
3      TOPN(5, VALUES('Candy Data'[PACKAGE TYPE]), CALCULATE(SUM('Candy Data'[Sales Volume (KG)])), DESC)
4  RETURN
5      IF(SELECTEDVALUE('Candy Data'[PACKAGE TYPE]) IN TopPackaging, 1, 0)
6
```
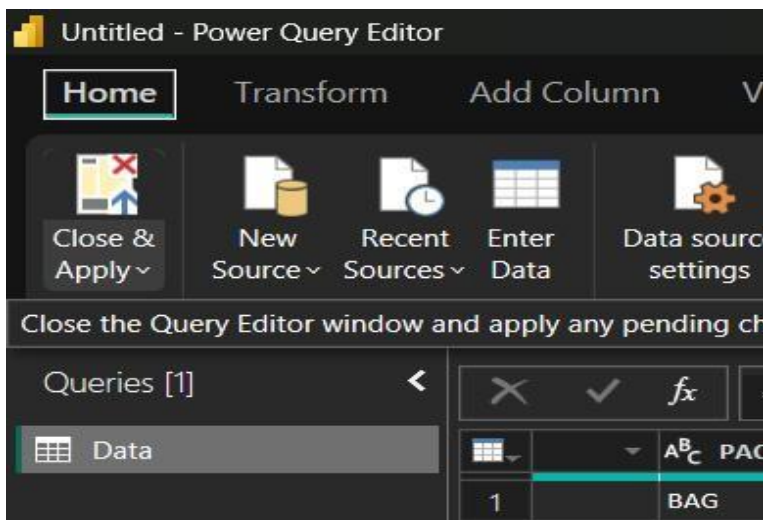
Step 6: Change Data Types for Accuracy

- Ensure "SALES VOLUME IN EUR" and "SALES VOLUME IN KG" are set to Decimal Number.
- Ensure "YEAR" is set to Whole Number.
- Ensure "CATEGORY", "BRAND", "PACKAGE TYPE", and "PRODUCT TYPE" are set to Text.
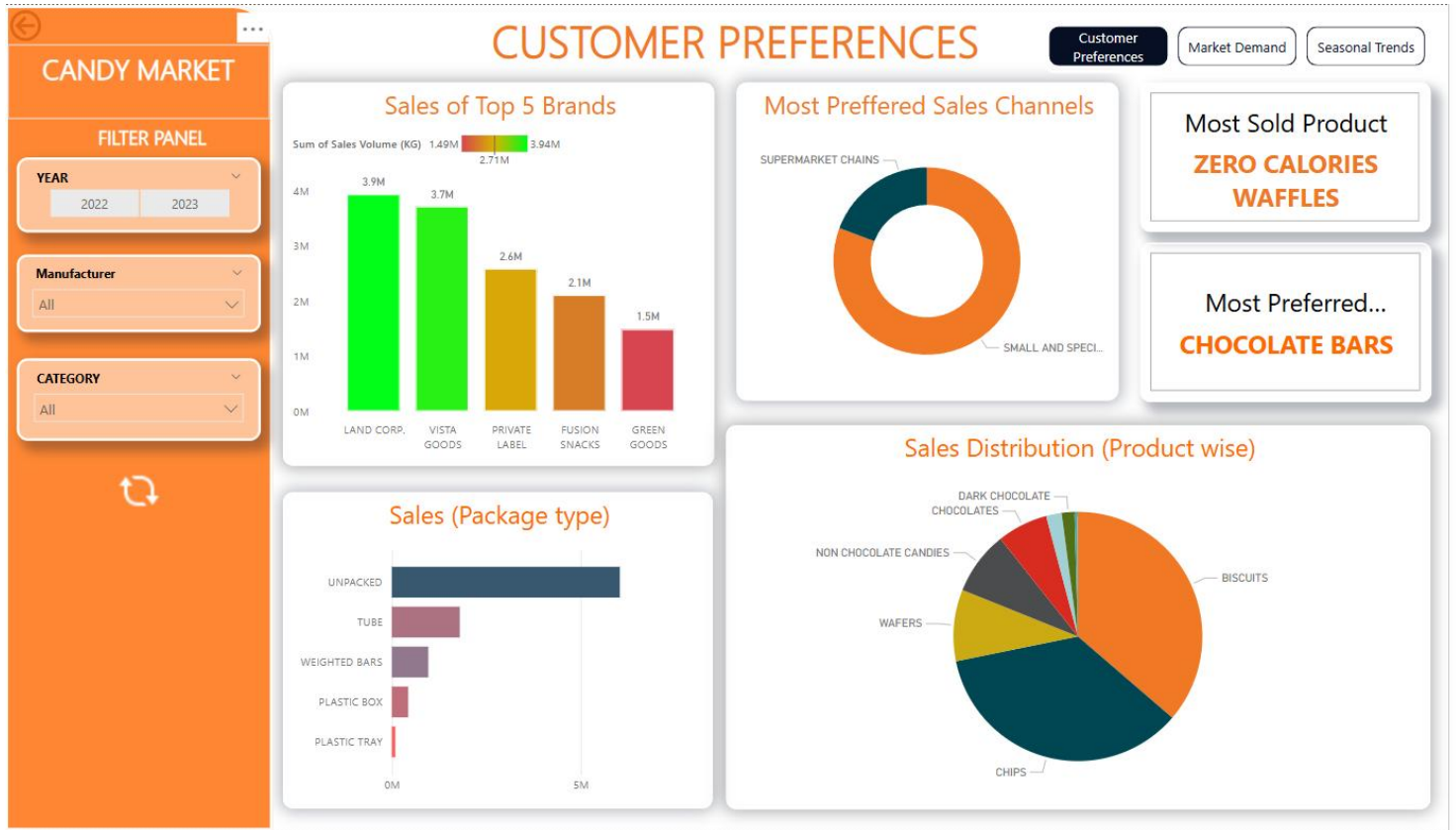
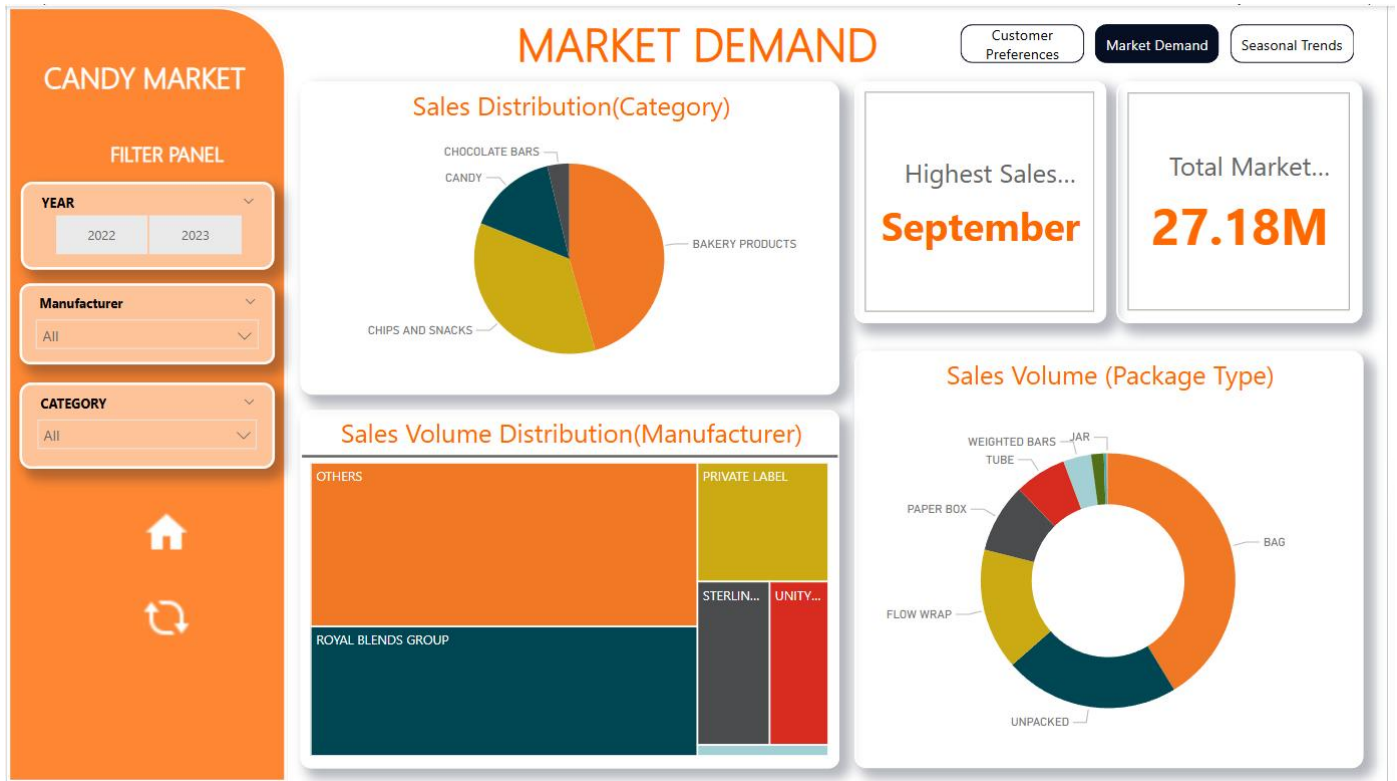**Step 7: Load Transformed Data into Power BI**

1. Click Close & Apply.

Dashboards :-

Customer Preferences Dashboard:-

Business Intelligence

Market Demand Dashboard :-

Seasonal Trends Dashboard :-

Analytical questions with answers your dashboard is answering :-

1. What is the total revenue generated from candy sales?

 Answer:

 Graph: Total Sales Revenue chart

2. What is the contribution of different distribution channels to total sales?

 Answer:

 Graph: Sales by Distribution Channel chart

3. Which is the most Preferred Category among customer?

 Answer:

 Graph: Most Preferred Category card

4. What are the seasonal trends in candy sales?

 Answer:

 Graph: Seasonal Candy Sales Patterns chart

5. What types of packaging are most preferred by consumers?

 Answer:

 Graph: Packaging Preference chart

6. Which manufacturers are leading in sales, and how do they compare?

 Answer:

 Graph: Sales Breakdown by Manufacturer chart

7. What is the Market Demand for Candy? Answer:

 Graph: Total Market Demand chart

8. How do sales volumes (in KG) compare to revenue (in EUR) across manufacturers?

 Answer:

 Graph: Sales Volume vs. Revenue by Manufacturer chart

9. Which product types or brands have the highest YoY growth?

 Answer:

 Graph: YoY Growth % by Category chart

10. Which packaging type is preferred by customers?

Answer:

 Graph: Packaging Preference chart

11. How do packaging types perform in different distribution channels?

Answer:

 Graph: Packaging Type vs. Distribution Channel chart

12. How do product sales vary based on packaging type over time?

Answer:

 Graph: Product Performance by Packaging Type chart

13. How does the candy market share compare among different manufacturers?

Answer:

 Graph: Candy Market Share chart

14. How Does the Candy Market Share Compare Among Different Manufacturers?

Answer:

 Graph: Candy Market Share Chart (Pie/Donut Chart)

Conclusion :-

The **Candy Market Dashboard** provides **valuable insights** into customer preferences, market demand, and seasonal trends. By analyzing **online vs. offline sales**, businesses can identify the most profitable sales channels. **Monthly sales trends** reveal seasonal demand fluctuations, helping in inventory planning. **Top brands and manufacturers** highlight market leaders, while **packaging preferences** offer insights into consumer buying behavior. Comparing **sales volume and revenue** enables better pricing strategies. Additionally, **YoY growth analysis** helps predict future trends. With a **data-driven approach**, businesses can optimize marketing, improve product offerings, and enhance decision-making, ensuring sustained growth in the competitive candy industry.