Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

Food & Beverages Sales Analysis BI Dashboard

The domain of the Project

Food & Beverages Sales

Analysis
(Power BI)

Under the guidance of
Mrs.Siddhika Shah

By
R.Saniya (M.B.A)

Period of the project
February 2025 to March 2025

SURE TRUST PUTTAPARTHI,

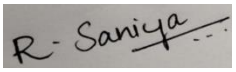
ANDHRA PRADESH

DECLARATION

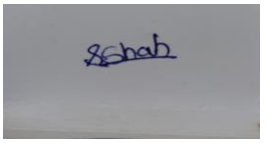
The project titled **"Food & Beverages Sales Analysis *With Power BI*"** has been mentored by **Mrs.Siddhika Shah** and organized by SURE Trust from February 2025 to March 2025**.** This initiative aims to benefit educated unemployed rural youth by providing hands-on experience in industry-relevant projects, thereby enhancing employability.

I,**R.Saniya** hereby declare that I have solely worked on this project under the guidance of my mentor. This project has significantly enhanced my practical knowledge and skills in the domain.

Name
R.Saniya

Signature


Mentor
Mrs.Siddhika Shah

Signature


Seal & Signature

Prof.Radhakumari
Executive Director & Founder
SURE Trust

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Executive Summary

This **Food & Beverages Sales Dashboard**, created using Power BI, provides a comprehensive visual analysis of sales data across various performance metrics. It offers key insights into total revenue, average ticket price, total orders, and product-level contributions. Interactive visuals highlight revenue trends by month, product group, and sales channels, helping to identify top-performing items like *Wheat Flour* and *Oil*, and channels such as *Online* and *Retail*.

The dashboard spans multiple pages **Revenue**, **Orders**, and **Sales** each offering a deep dive into different business perspectives. Filters and slicers enable dynamic interaction by product category, sales channel, quarter, and salesperson. Cities and individual contributors such as *Carla Ferreira* and *Julio Lima* are spotlighted for their performance, while quarterly breakdowns and supervisor-level sales help evaluate team effectiveness.

Custom DAX measures and drill-down visuals enhance interactivity, while donut charts, bar graphs, and line visuals provide easy interpretation of complex data. With rich visuals and actionable insights, this dashboard supports smarter decision-making, strategic planning, and performance optimization in the food and beverages sector.

Introduction

Background and Context

In the era of data-driven decision-making, transforming raw sales data into actionable business insights is vital for the food and beverage industry. Businesses in this sector generate large volumes of transactional, product-level, and channel-specific data daily. Analyzing this data manually is time-consuming and prone to oversight, potentially leading to missed growth opportunities.

Power BI serves as a robust solution to visualize and interpret sales trends, track product group performance, and evaluate sales team effectiveness. This project utilizes Power BI to analyze and present key aspects of food and beverage sales data including revenue trends, product categories, sales channels, order volume, and salesperson contributions through interactive and insightful dashboards. The goal is to empower stakeholders with real-time visibility into business performance and to support smarter, data-informed decisions that drive operational efficiency and profitability.

Problem Statement

Sales managers and analysts in the food and beverage industry often face challenges when attempting to derive actionable insights from large and scattered datasets. Identifying top-selling product groups, evaluating sales performance across different channels, and tracking individual salesperson contributions becomes difficult without a dynamic and interactive analytical platform. Manual data analysis is time-intensive and lacks the depth needed for quick, strategic decision-making. The core challenge lies in transforming raw sales data into a structured, visual format that highlights key performance indicators, supports sales planning, and helps optimize product and channel strategies for improved business outcomes.

Scope

This project focuses on building a multi-page interactive Power BI dashboard with the following components:

- **Revenue Overview Dashboard**: Displays total revenue, average ticket price, total orders, and key performance indicators across various filters such as time period, product group, and channel.

- **Product Group Analysis View**: Provides detailed insights into the performance of individual product groups and categories such as Wheat Flour, Oil, and Yeast, helping to identify high and low performers.
- **Channel and Salesperson Performance**: Visualizes sales contributions by channel (e.g., Online, Distributor, Retail) and tracks individual salesperson and supervisor effectiveness.
- **Quarterly and Monthly Trends**: Highlights sales trends over time, identifying peak periods and seasonal demand shifts.

These dashboards are designed to provide business intelligence to key stakeholders such as sales managers, regional supervisors, marketing strategists, and product planners by transforming raw sales data into real-time, actionable insights.

Non-ML Approach

This project is built entirely using Power BI's native capabilities, including data modeling, DAX calculations, and interactive visualizations. No machine learning techniques are used. All insights are generated through descriptive analysis and dynamic representation of time-series, categorical, and numerical data.

Limitations

The analysis is based on static historical datasets and does not reflect real-time sales updates.
- Data accuracy and insights are dependent on the completeness and quality of the input sales, product, and channel data.
- External influences such as seasonal promotions, competitor activity, or supply chain disruptions are not factored into the analysis.
- The dashboard is limited to descriptive analytics and does not incorporate predictive or prescriptive modeling techniques.

Innovation

This project stands out for its ability to deliver a 360-degree view of food and beverage sales performance using Power BI. It brings together diverse data fields such as product groups, channel-wise contributions, salesperson metrics, and time-based trends into a single, visually rich and interactive dashboard. By leveraging DAX measures, slicers, and drill-down functionality, the dashboard enables users to derive quick, data-driven insights. The automation of reporting and the strong visual storytelling approach make this project an effective tool for business intelligence and a foundation for future data analytics initiatives in the food and beverage industry.

Project Objectives

Project Objectives:

1. **Data Cleaning and Preparation**
   - Transform raw datasets into a structured format for Power BI analysis.
   - Handle missing values, rename columns, adjust data types, and create calculated columns/measures using DAX.
2. **Data Modeling**
   - Establish relationships between tables (e.g., sales, product details, shipping status) to enable cohesive data analysis.
   - Enable dynamic filtering for slicers and visuals across the dashboard.
3. **Visual Design and Layout**
   - Design a visually appealing and user-friendly dashboard.
   - Ensure charts, tables, slicers, and KPIs are well-organized for clarity and easy navigation across report pages.
4. **DAX Measures and Calculations**
   - Develop key metrics such as total sales, total units, returns, and customer reviews using DAX.
   - Provide business-specific insights to compare performance across various dimensions.
5. **Interactive Features and Filters**
   - Incorporate slicers (e.g., date, category, status) and navigation buttons for dynamic data exploration.
   - Allow users to focus on specific subsets of data without altering the underlying dataset.

Expected Outcomes

1. **Sales Dashboard**
    - Display overall and filtered sales values.
    - Track units sold and returns (lost sales).
    - Visualize sales distribution by state and city.
    - Show time-based sales trends (e.g., monthly).
2. **Product Dashboard**
    - Identify best-selling products and categories.
    - Track the number of customer reviews per product.
    - Compare product performance across multiple metrics.
    - Provide insights on shipping and order status.

Operational Benefits

- **Improved Business Insights**: Present intuitive visuals and dynamic filters for stakeholders, facilitating quick insights.
- **Enhanced Decision-Making**: Minimize the need for manual data analysis, enabling more informed decisions.
- **Scalable Power BI Solution**: Easily update with new datasets or extend functionality (e.g., trend forecasting or automated alerts).

Methodology and Results

Methods/Technology Used:

This project applies Data Analytics and Business Intelligence (BI) methodologies to transform raw food and beverage sales data into valuable insights. The key methodologies include:

- **Data Preprocessing**: Cleaning and transforming food and beverage sales, product, and order status data using Power Query Editor in Power BI.
- **Data Modeling**: Establishing relationships between tables (e.g., sales, products, reviews, and shipping), and creating DAX measures for calculations like total sales, units sold, returns, and customer reviews.
- **Interactive Visualization**: Using bar charts, line graphs, slicers, and buttons to uncover patterns in sales trends, product performance, and regional distribution.
- **Descriptive Analysis**: Summarizing sales history to highlight the food and beverage products and locations that contributed most to overall sales and units sold.
- **Diagnostic Analysis**: Analyzing returns, reviews, and delivery statuses to identify potential issues in sales or logistics, especially concerning food and beverage products.

Tools/Software Used:

- **Microsoft Power BI Desktop**: Primary tool for dashboard creation, data modeling, and interactive visualization of food and beverage sales data.
- **Power Query Editor**: Used for cleaning, filtering, and transforming raw data (e.g., sales, products, and order statuses) before analysis.
- **DAX (Data Analysis Expressions)**: For creating custom KPIs, aggregations, and calculations such as total sales, total units sold, and returns.
- **Excel/CSV Files**: Data source format for importing sales, product, and order status data for food and beverage items.
- **MS Excel or Google Sheets**: For initial inspection or minor data adjustments before importing into Power BI.

Data Collection Approach:

- **Sales Dataset**: Contains fields such as product name, sales amount, units sold, date of sale, and return status specifically for food and beverage items.
- **Product Dataset**: Includes product categories (e.g., beverages, snacks, prepared meals), item names, and review counts.
- **Order Status Dataset**: Tracks delivery status, including stages like shipped, returned, canceled, or lost, focusing on food and beverage orders.

All data was static and imported in CSV format, without integrating real-time APIs.

Project Architecture:

1. **Data Source Layer**
   - CSV files containing structured data related to sales, food and beverage products, order statuses, and customer reviews.
2. **Data Preparation Layer**
   - Power Query Editor was used to clean and transform the data. This included handling missing values, removing duplicates, changing data types, and renaming columns for clarity.
3. **Data Modeling Layer**
   - Logical relationships were created between tables (e.g., sales, products, and shipping). Calculated columns and DAX measures were developed for metrics like total sales, total units, returns, and customer reviews.
4. **Visualization Layer**
   - Dashboards were designed using various Power BI visuals such as bar charts, line graphs, KPIs, slicers, and tables to showcase sales trends, food and beverage product performance, and regional sales distribution.
5. **User Interaction Layer**
   - Slicers and buttons were incorporated to allow end-users to interact with the report, enabling them to filter by date, product category, city, or order status for dynamic exploration of food and beverage sales data.

Results

Sales Dashboard Outcomes:

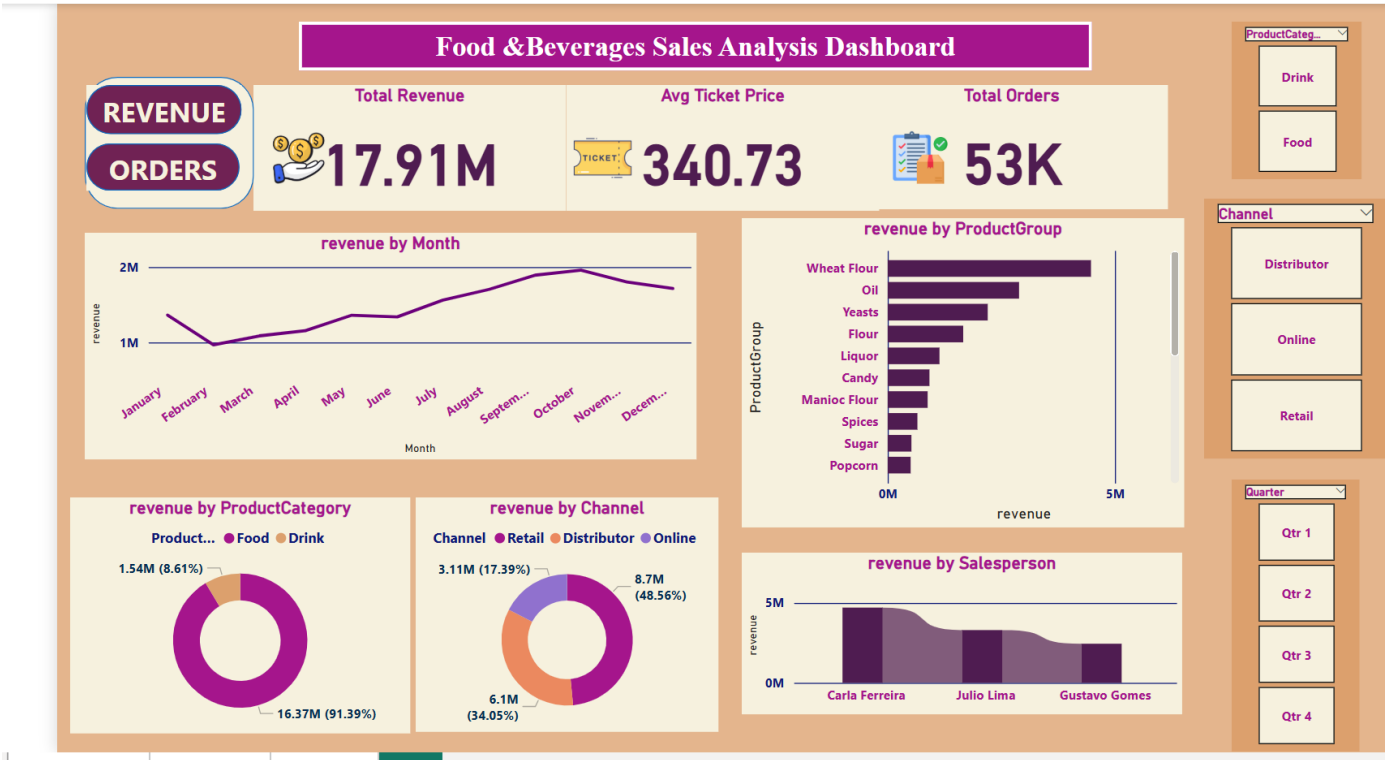
- **Top-Performing Regions**: Identified the states and cities contributing to the highest sales in food and beverages.
- **Sales Trends**: Visualized monthly sales patterns, helping to identify peak periods and fluctuations in revenue and units sold.
- **Logistical Insights**: Detected areas with high product returns or lost shipments, offering insights into potential issues in logistics or customer service within the food and beverage industry.

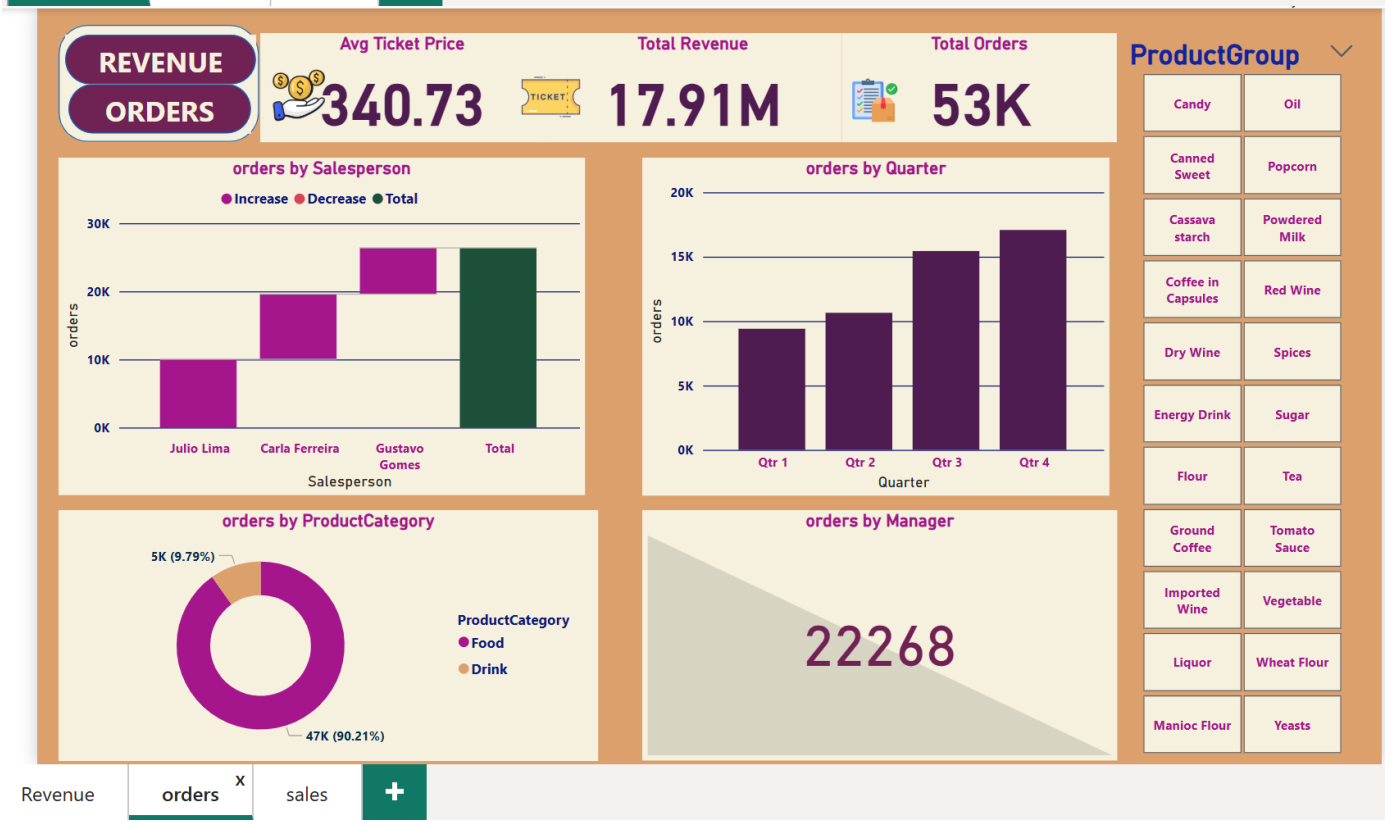
Product Dashboard Outcomes:

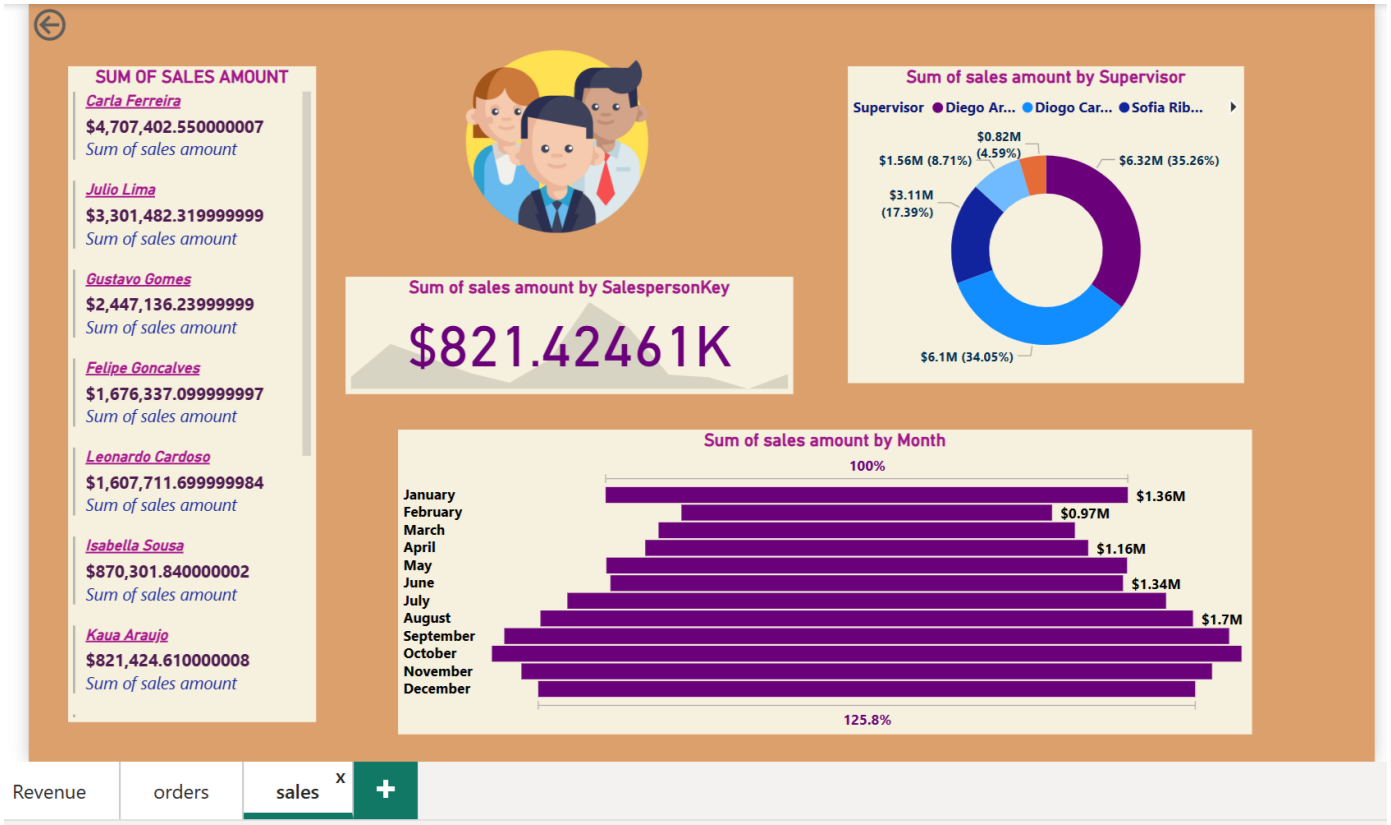
- **Best-Selling Products**: Highlighted the top-selling food and beverage products and categories, aiding inventory and sales strategies.
- **Customer Engagement**: Revealed insights into customer engagement through product reviews, helping identify popular or underperforming products.
- **Performance Comparison**: Enabled quick comparison of food and beverage product performance, providing valuable data to support marketing, sales, and inventory decisions.

Final Project Working Screenshots

Dashboard



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Julio Lima
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Gustavo Gomes
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Felipe Goncalves
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Leonardo Cardoso
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Sum of sales amount
Isabella Sousa
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Sum of sales amount
Kaua Araujo
$821,424.610000008
Sum of sales amount
Sum of sales amount by SalespersonKey
$821.42461K
Sum of sales amount by Supervisor
Supervisor
Diego Ar...
Diogo Car...
Sofia Rib...
$0.82M (4.59%)
$1.56M (8.71%)
$6.32M (35.26%)
$3.11M (17.39%)
$6.1M (34.05%)
Sum of sales amount by Month
100%
January
February
March
April
May
June
July
August
September
October
November
December
$1.36M
$0.97M
$1.16M
$1.34M
$1.7M
125.8%
Revenue
orders
sales

GitHub Link

https://github.com/sure-trust/R.SANIYA-g16-sql.git

Learning and Reflection

Learning and Reflection

This project has been an incredibly valuable learning experience, allowing me to grow both technically and analytically. By using Power BI to build a Food and Beverage Sales Dashboard, I gained practical knowledge in data visualization, dashboard creation, and business intelligence. I learned how to clean and structure raw sales data, establish relationships between tables, write DAX formulas, and design visuals that clearly communicate insights to end-users.

One of the key lessons I learned was how to tell a story with data. By incorporating interactive elements like slicers, buttons, and filters, I was able to create a dashboard that lets users explore different views of the data. This functionality empowers users to make informed business decisions quickly and efficiently.

I also came to realize the importance of data accuracy and consistency. Each chart, KPI, and table had to be precise to ensure that users could trust the insights being presented. Whether analyzing sales performance by city or tracking returns on products, it was critical to ensure that the visuals were both accurate and user-friendly.

On a personal level, this project enhanced my problem-solving skills, sharpened my attention to detail, and increased my confidence in using Power BI. I now feel better equipped to apply these skills to real-world situations and contribute to data-driven decision-making in business environments.

Overall, this project not only boosted my technical capabilities but also deepened my understanding of how data can be transformed into actionable insights, ultimately helping businesses make smarter, more informed decisions.

Conclusion and Future Scope

Objectives

The primary goals of this project were to:

1. **Clean and Prepare Raw Data**
   Transform raw food and beverage sales data into a clean and structured format using Power Query Editor in Power BI.
2. **Build Interactive Dashboards**
   Design dynamic, multi-page dashboards to visualize sales performance, product trends, and geographic distribution for food and beverage products.
3. **Perform Data Modeling**
   Create relationships between sales, products, and order status tables and define calculated columns and DAX measures for key metrics like total sales, units sold, and returns.
4. **Visualize Key Insights**
   Use visuals such as bar charts, line graphs, cards, and slicers to highlight food and beverage sales patterns, best-selling products, and high-return regions.
5. **Enable User Interactivity**
   Allow users to explore food and beverage sales data interactively by filtering through date ranges, product categories, and delivery statuses.
6. **Enhance Decision Making**
   Provide business stakeholders with insightful visuals that support quicker, data-driven decisions in areas such as sales strategy, inventory planning, and logistics.
7. **Ensure Scalability**
   Design the dashboard with flexibility to incorporate additional food and beverage data sources or advanced analytics features, such as forecasting, in the future.
8. **Improve Analytical Skills**
   Strengthen proficiency in data visualization, dashboard creation, and the use of BI tools like Power BI and DAX for real-world food and beverage sales analysis.

Achievements

1. **Successfully Designed Sales Dashboards**
   Developed a multi-page Power BI dashboard to visualize food and beverage sales performance, product insights, and geographic trends using interactive visuals and slicers.
2. **Advanced Data Modeling**
   Established clear relationships between sales, product, and order status tables; created calculated columns and DAX measures to generate meaningful KPIs such as total sales, units sold, and returns.
3. **Data Transformation and Cleaning**
   Used Power Query Editor to clean raw datasets by removing duplicates, correcting data types, renaming columns, and preparing the data for seamless analysis.
4. **Insightful Visualizations**
   Created impactful visual elements including bar charts, line graphs, cards, and slicers that highlight top-performing food and beverage products, review patterns, and region-wise sales distribution.
5. **User-Friendly Interface**
   Built an intuitive, easy-to-navigate dashboard layout that allows users to interact with data using category filters, date slicers, and status selection for focused analysis.
6. **Demonstrated Analytical Thinking**
   Uncovered valuable insights such as best-selling cities, high-return products, and sales trends—demonstrating strong analytical reasoning and business understanding in the food and beverage sector.
7. **Scalability and Future-Readiness**
   Designed the dashboard to be scalable, allowing for future integration of live data, trend forecasting, and additional analytical features in the food and beverage industry.
8. **Skill Development**
   Enhanced hands-on skills in Power BI, DAX, data modeling, and visual storytelling—boosting both technical expertise and real-world data analysis capability in the food and beverage space.

Conclusion

The Power BI dashboards developed in this project successfully transform raw food and beverage sales data into meaningful, visual insights. The dashboards highlight top-performing products, sales trends across states and cities, customer engagement through reviews, and order delivery outcomes. These insights help stakeholders quickly identify areas of success and concern—whether it's understanding peak sales periods, tracking high-return products, or evaluating regional performance.

By presenting complex sales data in a clear, interactive format, the dashboard enables more informed and timely business decisions. From sales managers to inventory planners, users can explore data with ease and draw conclusions that support strategic planning and operational efficiency. Overall, this project demonstrates how business intelligence tools like Power BI can unlock the full potential of food and beverage sales data, contributing to data-driven growth and success in the industry.

Future Scope

Real-Time Data Integration

Connect the dashboard to live data sources such as SQL databases, web APIs, or cloud platforms to enable real-time monitoring of food and beverage sales, returns, and delivery statuses. This will help teams respond quickly to changes and make more agile business decisions.

Predictive Analytics and Forecasting

Incorporate predictive models using Python or R to forecast future sales trends, identify high-demand periods (e.g., holiday seasons or product launches), or detect products likely to be returned. These models can help improve planning, inventory management, and sales strategy.

Geospatial Sales Analysis

Enhance the dashboard with map-based visuals (e.g., using Power BI Map or ArcGIS) to analyze regional food and beverage sales distribution. This will help identify high-performing and underperforming areas geographically, enabling more targeted marketing and distribution strategies.

User Alerts and Threshold-Based Notifications

Set up automated alerts for specific events, such as sudden sales drops, high return rates, or low stock levels. This will allow for quicker decision-making and better issue management, particularly for urgent food and beverage product inventory or sales concerns.

Role-Based Access and Custom Views

Implement role-based dashboard views tailored for different users (e.g., product managers, sales teams, and logistics personnel). This customization will make the tool more secure and relevant to each department’s needs, ensuring the right insights are accessible to the right people.

Mobile-Friendly Dashboards

Optimize the dashboard for mobile devices, ensuring that users can access food and beverage sales insights anytime and anywhere. This will improve usability and ensure that key stakeholders can make data-driven decisions on-the-go.

Expansion to Other Retail Data

Extend the dashboard to include additional data sources such as customer feedback, marketing campaign performance, and seasonal sales trends. This will create a more comprehensive and scalable BI solution for analyzing food and beverage retail performance and help drive growth in the industry.