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

Sample Super Store Analysis

The domain of the Project

Sample Super Store Analysis BI Dashboard

(SQL and Power BI)

Under the guidance of

Mrs. Siddhika Shah

By

Rahul Singla (BTech (IT)-3rd year)

Period of the project

December 2024 to March 2025

SURE TRUST PUTTAPARTHI,

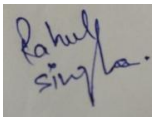
ANDHRA PRADESH

DECLARATION

The project titled **"*Transaction Fraud Detection BI Dashboard With Power BI*"** has been mentored by **Mrs. Siddhika Shah** and organized by SURE Trust from December 2024 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, **Mrs. Siddhika Shah,** 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.

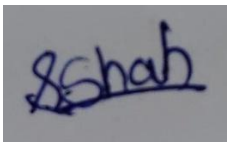
Name **Signature**



Rahul Singla

Mentor **Signature**

Mrs. Siddhika Shah



Seal & Signature

Prof.Radhakumari
Executive Director & Founder
SURE Trust

Table of Contents

8.2. Achievements

8.3. Conclusion

8.4. Future Scope

Executive Summary

The *Sample Super Store Project* is a data visualization and business intelligence project aimed at analysing sales data to derive actionable insights for decisionmaking. Using Power BI, this project visualizes KPIs such as sales, profit, discount, customer segments, geographical distribution, and product categories. The ultimate goal is to assist management in identifying key trends, highperforming areas, and areas needing improvement.

Introduction

Background and Context

In today's competitive market, businesses rely heavily on data to drive strategic decisions. The Sample Super Store dataset provides detailed information on orders, sales, profits, and customer demographics. By visualizing this data using Power BI, we aim to explore patterns that can help improve sales strategy and optimize inventory and customer service.

Problem Statement

Retail businesses often struggle with understanding performance across regions, segments, and product categories. Lack of visual insight can lead to missed opportunities and inefficiencies. This project addresses that problem by converting raw data into meaningful visuals that are easy to interpret and act upon.

Scope

- Analyse sales and profit trends across regions and categories
- Identify top-performing and under-performing products
- Evaluate customer segmentation and order behaviour
- Develop interactive dashboards with slicers, filters, and visuals

Limitations

- Dataset is limited to historical data from a single source
- No integration with real-time data
- External business factors are not considered (e.g., market trends, seasonality)

Innovation

This project leverages **Power BI's** advanced features like **DAX measures**, **drillthrough reports**, **interactive dashboards**, and **geographical heat maps** to create a comprehensive, user-friendly analytical tool for business users.

Project Objectives

Project Objectives:

1. Data Cleaning and Preparation

To pre-process and transform raw datasets into a structured format suitable for analysis in Power BI. This includes handling missing values, renaming columns, changing data types, and creating calculated columns/measures using DAX.

2. Design Interactive Dashboards

To build two separate yet user-friendly and visually interactive dashboards—one for crime analysis and another for fraud detection—that allow users to filter, slice, and drill down data effectively.

3. Enable Insightful Data Visualization

To utilize Power BI's advanced visuals (bar charts, pie charts, heat maps, cards, etc.) to highlight key metrics such as crime frequency, fraud transactions over time, user behaviour, and geographical insights.

4. Support Data-Driven Decision Making

To provide law enforcement agencies, financial analysts, and other stakeholders with real-time, visual representations of data that support timely and accurate decision-making.

5. Lay the Groundwork for Predictive Analytic

To design dashboards in a way that can be expanded in the future to include machine learning models for forecasting crimes or detecting fraudulent patterns.

Expected Outcomes:

Project Objectives and Expected Outcomes

- To create a visually intuitive dashboard for business stakeholders
- To derive insights that help boost sales and reduce losses
- To showcase mastery in using Power BI for business analytics

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Deliverables

- Power BI Dashboard (.pbix file)
- Report with visual summaries and insights
- GitHub repository with project documentation

Methodology and Results

Methods/Technology Used

The project applies Data Analytics and Business Intelligence (BI) methodologies to transform raw data into meaningful insights. It includes:

- Data Cleaning and Transformation using Power Query
- Custom Measures using DAX
- Interactive Reports and Visuals
- Drill-through, Tooltips, Filters, and Slicers

Tools/Software Used

- Microsoft Power BI Desktop: Primary tool for data visualization, modeling, and dashboard creation.
- Power Query Editor: For data transformation and cleaning
  .
- DAX (Data Analysis Expressions): For custom calculations and KPIs.
- Excel/CSV Files: Used as the source for importing datasets.
- (Optional): MS Excel or Google Sheets for initial data review before loading into Power BI.

Data Collection Approach

The data was collected from the widely used “Sample Superstore”

dataset, often found in Tableau or Power BI sample projects. It includes fields such as Order ID, Product, Category, Sales, Profit, and more.

The data was downloaded in CSV format, and no real-time APIs were used. The datasets simulate real-world scenarios to test the effectiveness of visual dashboards in identifying meaningful patterns.

Project Architecture

1. Data Source Layer

- CSV files containing crime and transaction data.

2. Data Preparation Layer

- Power Query Editor used for transforming and cleaning the data (removing duplicates, changing data types, renaming columns).

3. Data Modeling Layer

- Relationships built between tables, calculated columns and measures created using DAX.

4. Visualization Layer

- Dashboards created using visuals like bar charts, slicers, heatmaps, pie charts, cards, and line graphs.

5. User Interaction Layer

- Filters and slicers enable end-users to interact dynamically with data (e.g., select specific years, transaction types, or crime locations).

Results:

- **Top Performing Category:** Technology

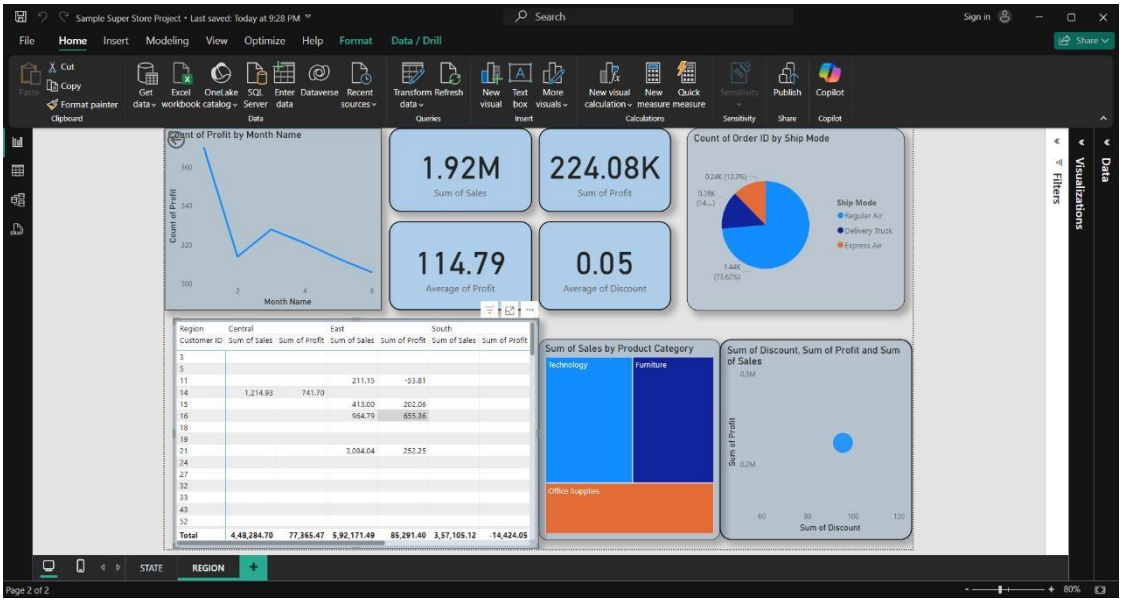
Most Profitable Region: West

- **High Loss Category:** Tables under Furniture
- **Customer Segment with Highest Sales:** Consumer
- **Key Insight:** High discounts negatively impact profit

Final Project Working Screenshots

DashBoards :-

STATE



REGION

GitHub Link

https://github.com/sure-trust/RAHUL-SINGLA-g16-sql/tree/main/Final%20capstone%20project

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Learning and Reflection

Learning and Reflection

During the course of this project, I developed a strong understanding of how business intelligence tools like Power BI can transform raw data into actionable insights. I learned the importance of data cleaning, modeling, and visualization techniques, as well as how to use DAX to create calculated fields and dynamic reports.

This project strengthened my ability to work with datasets, interpret trends, and communicate findings through visual storytelling. Additionally, I gained hands-on

experience in dashboard design, interactivity with slicers and filters, and understanding how different visualizations can help different stakeholders.

Experience

Working on this project was a rewarding and enriching experience. I faced challenges like identifying the right visuals for the right insights, maintaining visual clarity, and avoiding clutter. Through continuous practice and iteration, I improved my skills in choosing the best charts, using color psychology, and optimizing performance in Power BI. This experience has prepared me to take on more advanced business intelligence and analytics projects in the future.

Conclusion and Future Scope

Objectives

The primary objective of this project was to analyze sales data from a sample superstore and identify business trends and opportunities for improvement. This was successfully achieved through data visualization, exploration, and interactive dashboards.

Achievements

- Successfully created dynamic and interactive dashboards using Power BI
- Identified key insights such as top-performing segments, profit-loss trends, and high-discount loss areas
- Built a well-structured report using slicers, KPIs, maps, and filters
- Enhanced my skills in DAX, data modeling, and Power Query

Conclusion

The Sample Super Store Project clearly demonstrated how effective data visualization can simplify complex business data and drive better decision-making. Through the use of Power BI, this project revealed hidden patterns, segment-wise performance, and provided strategic insights for growth and optimization. **Future Scope**

- Integrating real-time data sources (e.g., SQL Server, Azure) for live dashboards
- Implementing advanced analytics techniques like forecasting and clustering
- Creating automated alerts for threshold-based metrics (e.g., when profit drops below a certain value)
- Extending this analysis to include customer feedback, seasonal trends, and marketing campaign impacts