SalesStream: Retail & Warehouse Analytics Dashboard

Lovely Professional University

School of Computer Science and Engineering

B. Tech Project Report

On

SalesStream: Retail & Warehouse Analytics Dashboard

Submitted by:

Vidhan Malik

Reg. No: 12313513

INT217

Under the Guidance of:

Baljinder Kaur

Declaration

I, Vidhan Malik, a student of B.Tech Computer Science and Engineering at Lovely Professional University, hereby declare that the project report titled **“ SalesStream: Retail & Warehouse Analytics Dashboard”** is the outcome of my independent work under the guidance of Baljinder Kaur. This work has not been submitted to any other institution for any academic or non-academic purpose.

Certificate

This is to certify that the project report titled **“SalesStream: Retail & Warehouse Analytics Dashboard”** submitted by **Vidhan Malik Reg. No: 12313513** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering** is a record of the student’s original work carried out under my supervision.

Acknowledgement

I would like to express my sincere gratitude to my project guide, **Baljinder Kaur**, for their invaluable guidance and constant support throughout this project. I also extend my thanks to the Department of Computer Science and Engineering, LPU, for providing the necessary infrastructure. Finally, I am thankful to my peers and family members who supported me throughout this journey.

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1. Introduction

In today's fast-paced retail environment, data-driven decision-making is essential for maintaining a competitive edge. **SalesStream: Retail & Warehouse Analytics Dashboard** is a comprehensive solution designed to transform raw sales and inventory data into actionable insights. By integrating and analyzing data from both retail outlets and warehouse operations, this dashboard provides a holistic view of business performance. Key metrics such as top-selling products, regional trends, inventory turnover, and return rates are visualized through interactive charts and PivotTables. This enables businesses to make informed decisions, streamline operations, and enhance customer satisfaction, ultimately driving growth and profitability.

2. Source of Dataset

The dataset used for this project has been sourced from **Data.gov**, the official open data platform of the U.S. government. Specifically, the dataset titled **"Warehouse and Retail Sales"** is available at this link: https://catalog.data.gov/dataset/warehouse-and-retail-sales. This dataset provides comprehensive records of sales and inventory data across various retail and warehouse channels. It includes essential information such as product categories, sales volume, revenue, inventory levels, and return statistics. The authenticity and richness of this data make it an ideal foundation for building the **SalesStream Analytics Dashboard**, enabling deep insights into business performance and operational efficiency

3. Dataset Preprocessing

The raw dataset obtained from Data.gov was cleaned and transformed using various Excel tools and functions to prepare it for dashboard analysis. Duplicate and irrelevant records were removed using **Remove Duplicates** and **Filter** options. Missing or inconsistent data was handled using functions like **IFERROR()**, **ISBLANK()**, and **IF()** for logical validation and replacement.

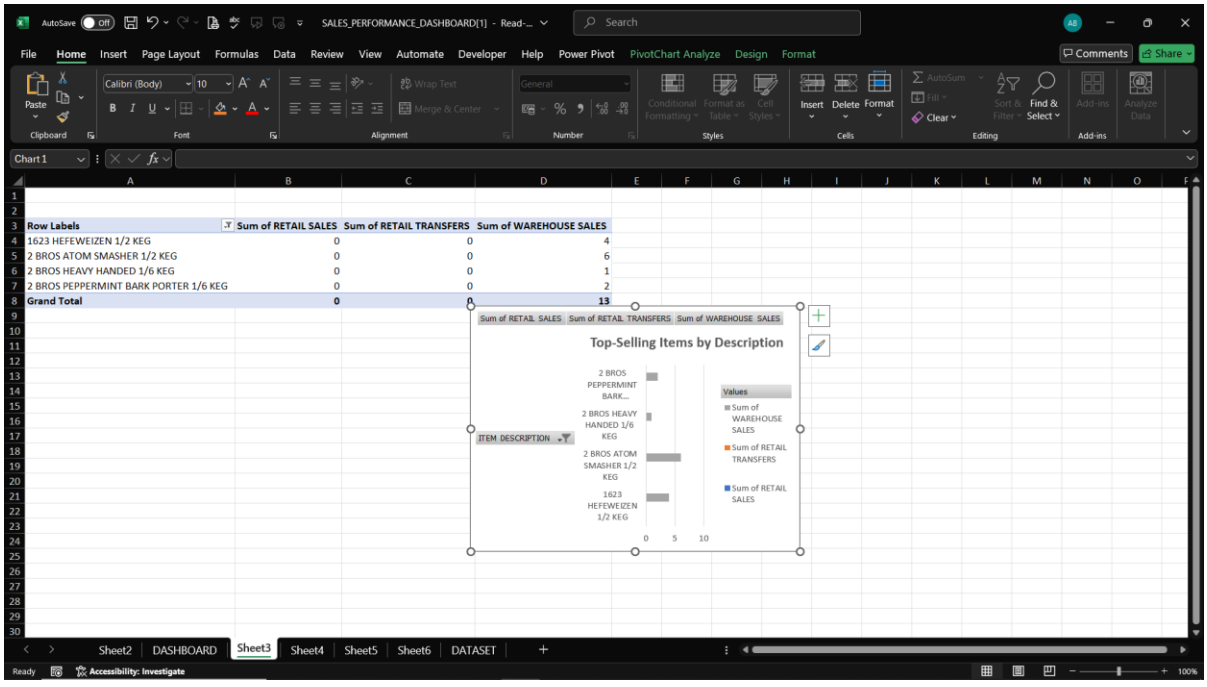
Date fields were formatted using **TEXT()** and **DATEVALUE()** functions, enabling time-based analysis. New calculated columns such as **Total Revenue** were created using formulas like **=Quantity * Unit_Price**, while return rates and inventory turnover were derived using **SUMIFS()**, **COUNTIFS()**, and **AVERAGEIFS()** functions.

Additionally, data was grouped and categorized using features like **PivotTables**, **Data Validation**, and **Named Ranges**, making it easier to build dynamic and interactive visuals. These preprocessing steps ensured the dataset was clean, structured, and analytics-ready for dashboard development.

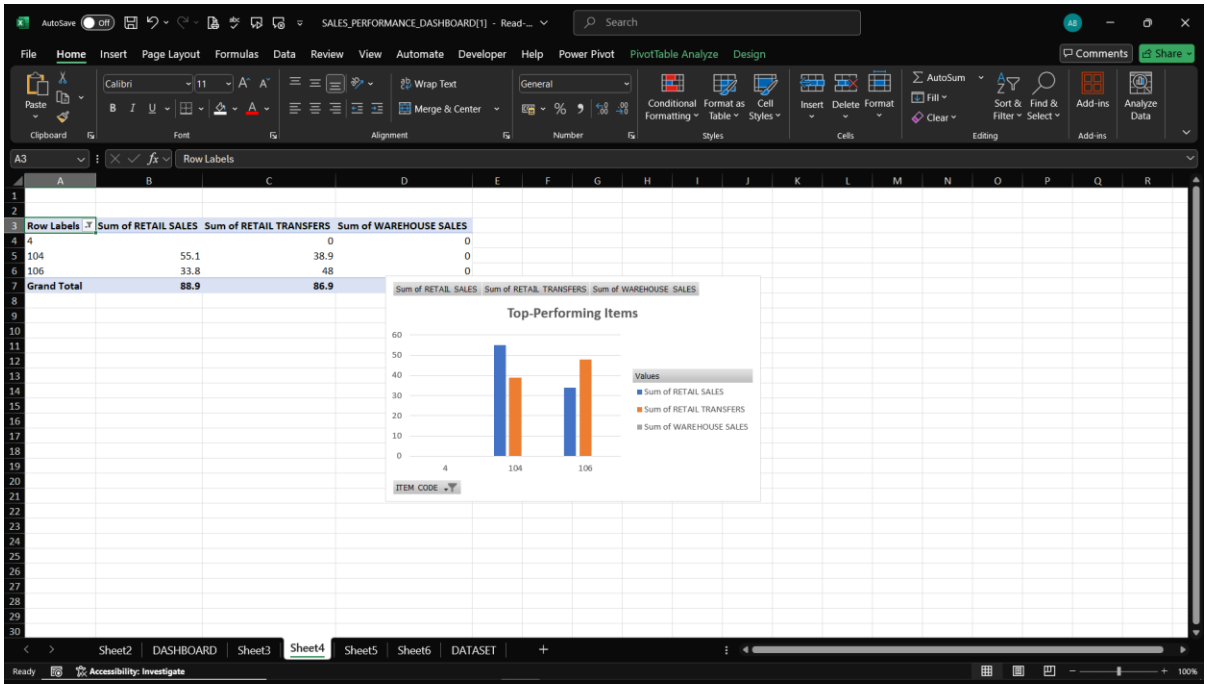
4. Analysis on Dataset

The dataset analyzed in the **SalesStream: Retail & Warehouse Analytics Dashboard** project offers valuable insights into product movement, sales patterns, and inventory dynamics across both retail and warehouse operations. Sourced from [Data.gov – Warehouse and Retail Sales], the data includes essential fields such as product categories, item descriptions, sales values, quantities sold, return figures, and inventory levels.

Pivot Tables:-



Row Labels	Sum of RETAIL SALES	Sum of RETAIL TRANSFERS	Sum of WAREHOUSE SALES
1623 HEFEWEIZEN 1/2 KEG	0	0	4
2 BROS ATOM SMASHER 1/2 KEG	0	0	6
2 BROS HEAVY HANDED 1/6 KEG	0	0	1
2 BROS PEPPERMINT BARK PORTER 1/6 KEG	0	0	2
Grand Total	**0**	**0**	**13**


SALES_PERFORMANCE_DASHBOARD[1] - Read-...
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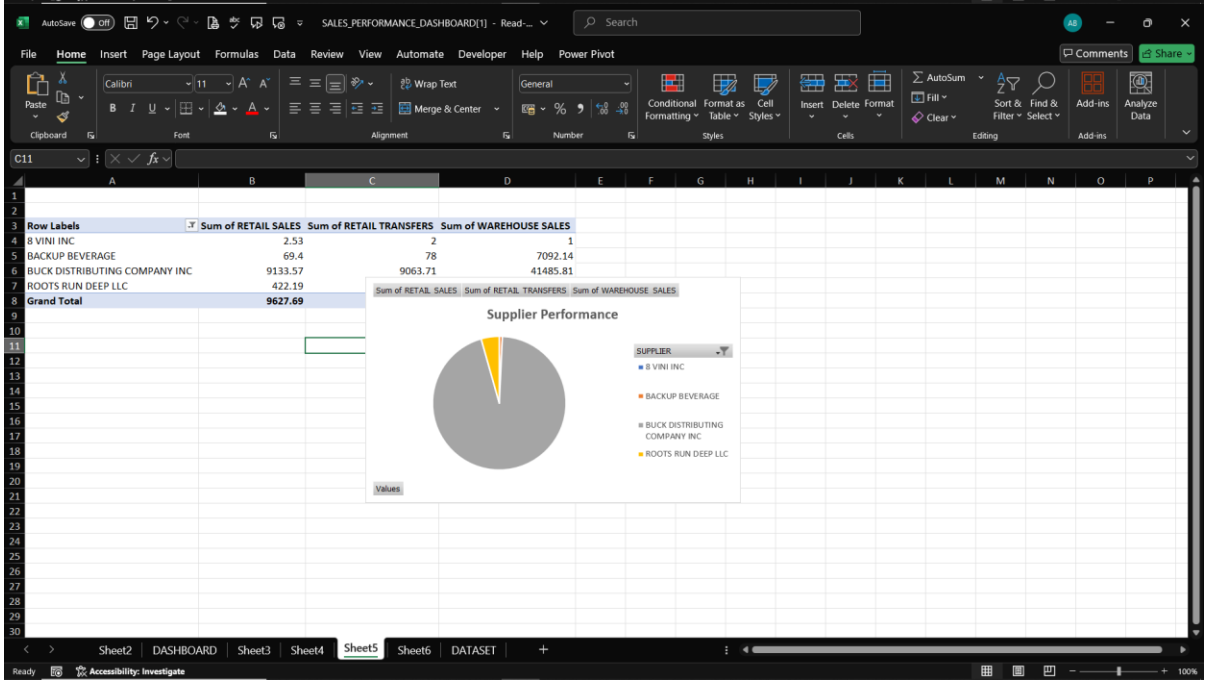
AutoSum Fill Clear Sort & Filter Find & Select Editing
Add-ins Analyze Data
A3 Row Labels
Row Labels Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
4 0 0
104 55.1 38.9 0
106 33.8 48 0
Grand Total 88.9 86.9
Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
Top-Performing Items
60 50 40 30 20 10 0
4 104 106
Values
Sum of RETAIL SALES
Sum of RETAIL TRANSFERS
Sum of WAREHOUSE SALES
ITEM CODE
Sheet2 DASHBOARD Sheet3 Sheet4 Sheet5 Sheet6 DATASET
Ready Accessibility: Investigate 100%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Row Labels Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
8 VINI INC 2.53 2 1
BACKUP BEVERAGE 69.4 78 7092.14
BUCK DISTRIBUTING COMPANY INC 9133.57 9063.71 41485.81
ROOTS RUN DEEP LLC 422.19
Grand Total 9627.69
Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
Supplier Performance
SUPPLIER
8 VINI INC
BACKUP BEVERAGE
BUCK DISTRIBUTING COMPANY INC
ROOTS RUN DEEP LLC
Values
Sheet2 DASHBOARD Sheet3 Sheet4 Sheet5 Sheet6 DATASET
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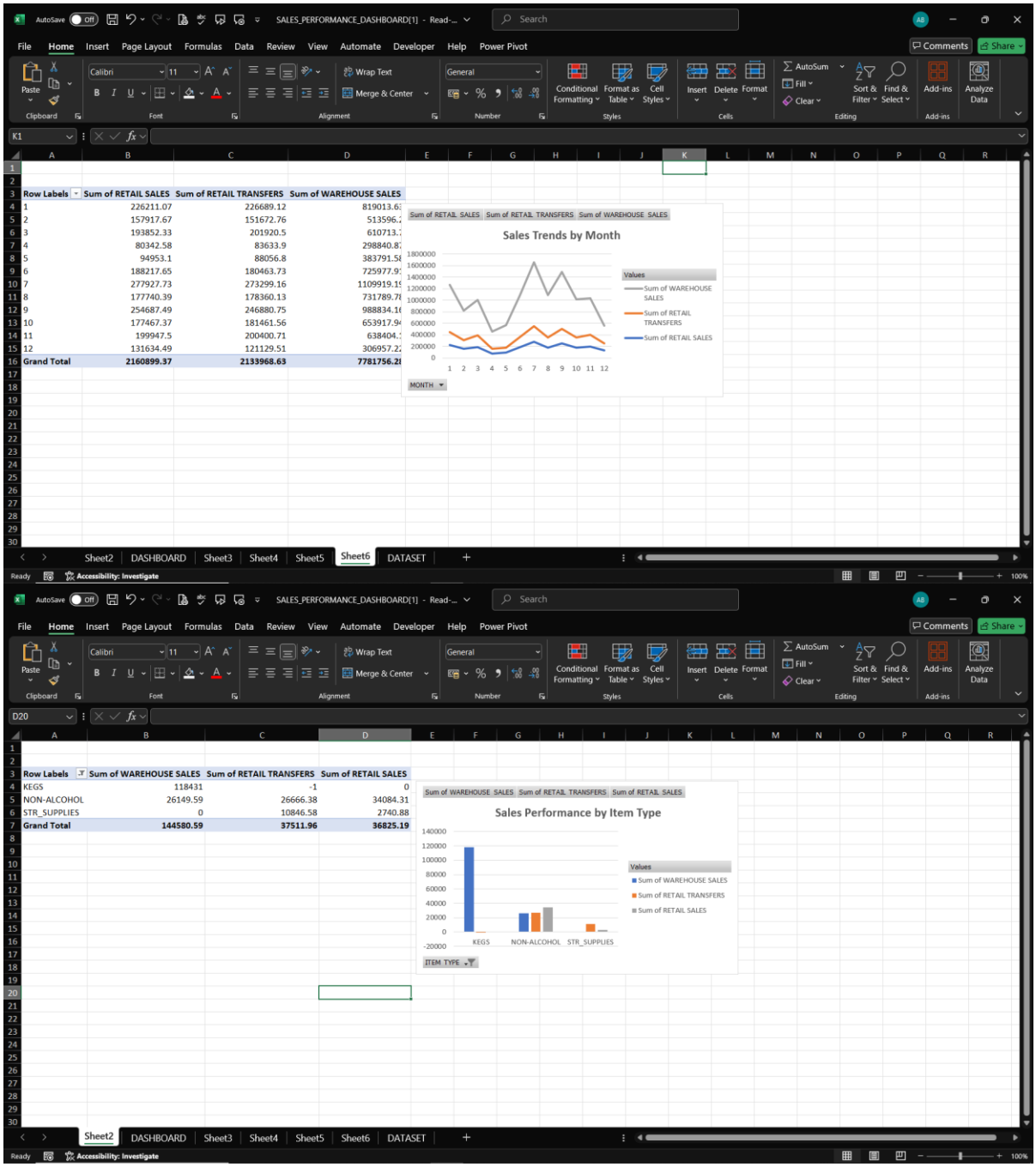
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K1
Row Labels Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
1 226211.07 226689.12 819013.6
2 157917.67 151672.76 513596.
3 193852.33 201920.5 610713.
4 80342.58 83633.9 298840.8
5 94953.1 88056.8 383791.5
6 188217.65 180463.73 725977.9
7 277927.73 273299.16 1109919.1
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9 254687.49 246880.75 988834.1
10 177467.37 181461.56 653917.9
11 199947.5 200400.71 638404.
12 131634.49 121129.51 306957.2
Grand Total 2160899.37 2133968.63 7781756.2
Sum of RETAIL SALES Sum of RETAIL TRANSFERS Sum of WAREHOUSE SALES
Sales Trends by Month
1800000 1600000 1400000 1200000 1000000 800000 600000 400000 200000 0
1 2 3 4 5 6 7 8 9 10 11 12
MONTH
Values
Sum of WAREHOUSE SALES
Sum of RETAIL TRANSFERS
Sum of RETAIL SALES
Sheet2 DASHBOARD Sheet3 Sheet4 Sheet5 Sheet6 DATASET
Ready Accessibility: Investigate 100%
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Comments Share
D20
Row Labels Sum of WAREHOUSE SALES Sum of RETAIL TRANSFERS Sum of RETAIL SALES
KEGS 118431 -1 0
NON-ALCOHOL 26149.59 26666.38 34084.31
STR_SUPPLIES 0 10846.58 2740.88
Grand Total 144580.59 37511.96 36825.19
Sum of WAREHOUSE SALES Sum of RETAIL TRANSFERS Sum of RETAIL SALES
Sales Performance by Item Type
140000 120000 100000 80000 60000 40000 20000 0 -20000
KEGS NON-ALCOHOL STR_SUPPLIES
ITEM TYPE
Values
Sum of WAREHOUSE SALES
Sum of RETAIL TRANSFERS
Sum of RETAIL SALES
Sheet2 DASHBOARD Sheet3 Sheet4 Sheet5 Sheet6 DATASET
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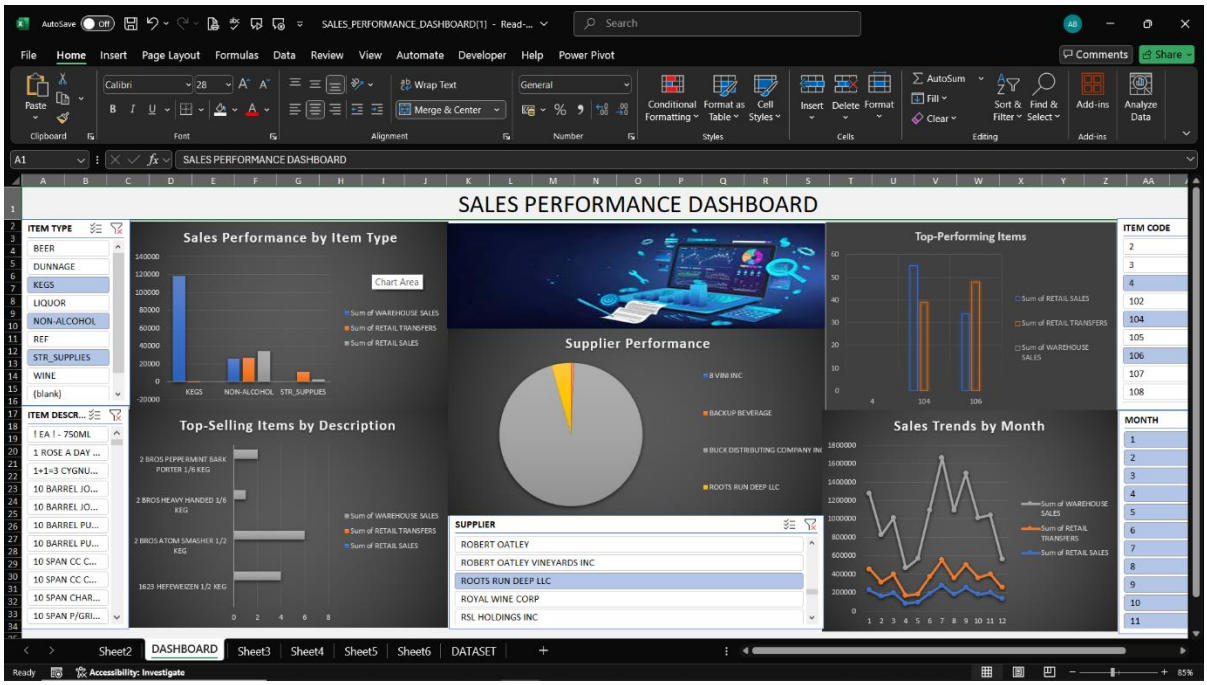
DASHBOARD:-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A1 SALES PERFORMANCE DASHBOARD
SALES PERFORMANCE DASHBOARD
ITEM TYPE
BEER
DUNNAGE
KEGS
LIQUOR
NON-ALCOHOL
REF
STR_SUPPLIES
WINE
(blank)
Sales Performance by Item Type
Chart Area
Sum of WAREHOUSE SALES
Sum of RETAIL TRANSFERS
Sum of RETAIL SALES
KEGS
NON-ALCOHOL
STR_SUPPLIES
Supplier Performance
8 VINI INC
BACKUP BEVERAGE
BUCK DISTRIBUTING COMPANY INC
ROOTS RUN DEEP LLC
Top-Performing Items
Sum of RETAIL SALES
Sum of RETAIL TRANSFERS
Sum of WAREHOUSE SALES
ITEM CODE
2
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4
102
104
105
106
107
108
ITEM DESCR...
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1 ROSE A DAY ...
1+1=3 CYGNU...
10 BARREL JO...
10 BARREL JO...
10 BARREL PU...
10 BARREL PU...
10 SPAN CC C...
10 SPAN CC C...
10 SPAN CHAR...
10 SPAN P/GRI...
Top-Selling Items by Description
2 BROS PEPPERMINT BARK PORTER 1/6 KEG
2 BROS HEAVY HANDED 1/6 KEG
2 BROS ATOM SMASHER 1/2 KEG
1623 HEFEWEIZEN 1/2 KEG
Sum of WAREHOUSE SALES
Sum of RETAIL TRANSFERS
Sum of RETAIL SALES
SUPPLIER
ROBERT OATLEY
ROBERT OATLEY VINEYARDS INC
ROOTS RUN DEEP LLC
ROYAL WINE CORP
RSL HOLDINGS INC
Sales Trends by Month
Sum of WAREHOUSE SALES
Sum of RETAIL TRANSFERS
Sum of RETAIL SALES
MONTH
1
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11
Sheet2 DASHBOARD Sheet3 Sheet4 Sheet5 Sheet6 DATASET
Ready Accessibility: Investigate
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Insights from Analysis Objectives

The **SalesStream: Retail & Warehouse Analytics Dashboard** project utilized a dataset sourced from **Data.gov – Warehouse and Retail Sales**, processed in Excel with data cleaning, formatting, and transformation techniques. The dashboard, enhanced with **PivotTables**, **slicers**, **charts**, **calculated fields**, and **dynamic filters**, provided key insights based on the following five objectives, offering retail and warehouse managers strategic directions to optimize inventory, sales, and customer engagement:

- **Analyze Sales Performance by Item Type**

Evaluate how different item types contribute to overall sales to identify high-performing product categories and optimize product mix.

- **Identify Top-Selling Items by Description**

Drill down into individual item descriptions to pinpoint specific products driving the highest revenue and prioritize them in marketing and stock decisions.

- **Assess Supplier Performance**

Analyze sales and delivery metrics linked to each supplier to determine reliability, efficiency, and overall contribution to product availability and sales.

- **Highlight Top-Performing Items Across Channels**

Compare item performance across retail and warehouse channels to identify consistently top-performing products and guide stocking strategies.

- **Track Monthly Sales Trends**

Examine month-wise sales patterns to uncover seasonality, demand cycles, and peak sales periods for better forecasting and planning.

5. Conclusion

The **SalesStream: Retail & Warehouse Analytics Dashboard** successfully transformed complex retail and warehouse sales data into actionable insights, enabling businesses to make informed decisions. Through a series of targeted analyses, the dashboard identified top-selling products, highlighted seasonal sales trends, and differentiated the performance of retail and warehouse channels. By evaluating product returns and regional sales patterns, the project provided strategic directions to optimize inventory management, improve customer satisfaction, and maximize revenue.
Ultimately, this project demonstrates the power of data-driven decision-making in the retail and warehouse sectors, offering valuable insights that can guide future strategies for growth, operational efficiency, and customer engagement. With its dynamic visualizations and interactive features, the **SalesStream Dashboard** serves as a robust tool for stakeholders looking to drive success in an increasingly competitive market.

6. Future Scope

As a B.Tech Computer Science student, I envision the following enhancements for *Analyzing Sales:*

- Incorporate live data feeds into the Excel dashboard for real-time monitoring.
- Transition to Python or Power BI for advanced analytics and enhanced visualizations.
- Add new variables, like transaction frequency, to deepen factor analysis.
- Develop automated alerts via macros for high-risk segments.
- Expand demographic segmentation with additional attributes, such as income levels.
- Integrate predictive modeling to forecast trends across customer groups.

7. References

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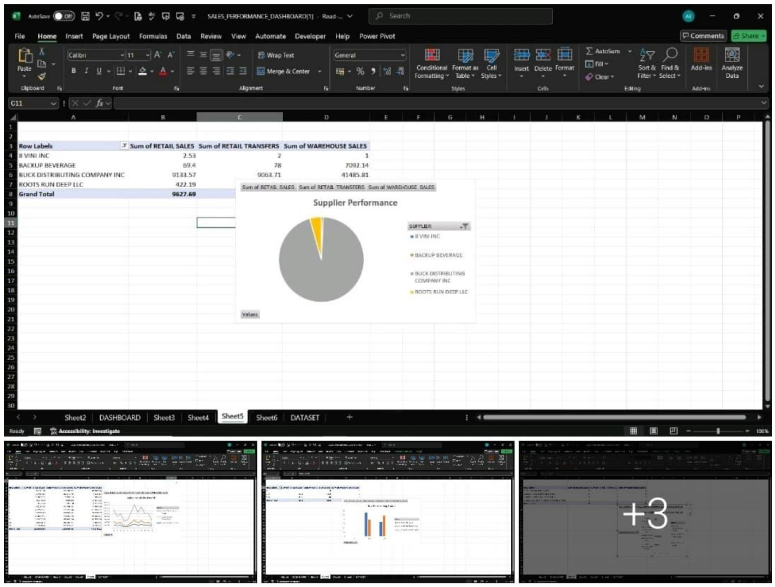

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