26 / 10 / 2012

WEEKLY SALES REPORT

CASE
STUDY

PREPARED BY :

Misha Riaz

CASE
STUDY

You are the Data Analyst for a Chain of Departmental stores. The CEO has asked you to make a weekly sales dashboard/report. There is no data pipeline/warehouse available as such. Weekly data is extracted using a data tool connected to the POS at every store. The senior assistant (Suleman) has extracted a number of files for you to add to your report/dashboard. Every week Suleman will send you this data and you will expected to update this dashboard and then send it to the CEO via a link or otherwise.

Using Power BI over Streamlit

Power BI offers numerous advantages for data analysis and visualization. Its robust visualization capabilities enable users to gain insights from data efficiently. Integration with various data sources ensures seamless connectivity, allowing for comprehensive analysis across multiple sources. Moreover, it is a scalable solution capable of handling large datasets and complex analyses, making it suitable for businesses of all sizes. However, it has a learning curve for new users and may incur high licensing costs for larger deployments.

.Streamlit presents several advantages for data visualization and dashboard development. With its simplified and intuitive interface, it allows for quick development of dashboards. Its flexibility and customizability enable tailored visualization and interactivity, catering to specific business needs. However, Streamlit has limitations compared to Power BI, notably in its analytical capabilities and scalability for very large datasets or complex analyses. It may also require more manual effort for data preprocessing and integration.

Considering the scale of the business, Power BI would be the recommended tool. Its robust analytical features, scalability, and seamless integration capabilities make it ideal for handling the volume and complexity of the data involved. While Streamlit offers simplicity and flexibility, Power BI's comprehensive capabilities better suit the demands of a large-scale operation like ours.

Data Insights

## Overview of Store and Department Distribution

There are a total of 45 stores in the chain. Each store comprises 81 departments, which represent various sections within the stores.

Data Duration and Total Sales

The dataset spans a total of 94 weeks, providing a substantial historical perspective for analysis. Over the 94-week period, the cumulative sales across all stores amount to an impressive $4.40 billion. This extensive dataset offers valuable insights into long-term sales trends and patterns.

Year-on-Year Comparison

I compared the performance of Store 3, Department 1 in Week 20 of the current year to Week 20 of the previous year. The sales figures for Store 3, Department 1 were $6,121.23 in Week 20 of the current year and $4,660.39 in Week 20 of the previous year. Calculating the index of both, I found it to be 131.35, indicating an increase in sales compared to the previous year.

Comparing Performance
2011 2012

$6.1K
$4.7K

20
Week

131.35
Index
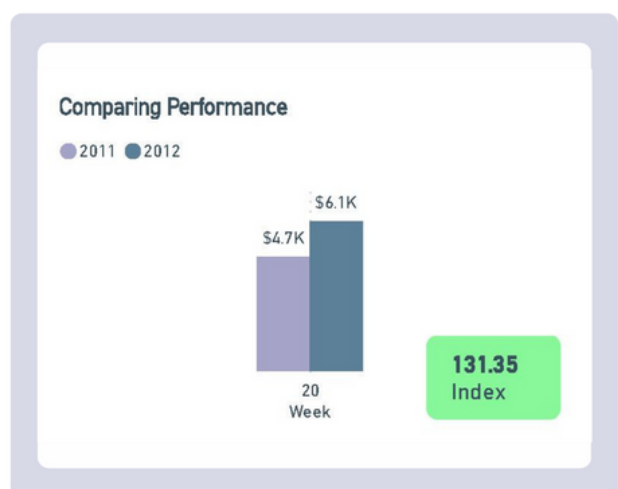
Data Insights

Overall Store Performance

I presented the performance of all stores for both years, 2011 and 2012. Meadowbrook Mart emerged as the top-performing store in both years, with total weekly sales of $111,092,293.33 in 2011 and $90,621,594.78 in 2012. This comparison allows for a clear understanding of how each store has performed over the two years, highlighting any shifts or trends in sales.
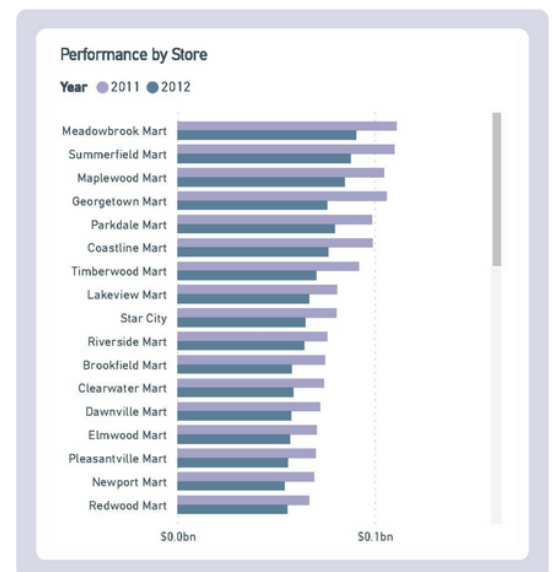
Overall Department Performance

Similarly, I showcased the performance of all departments for both years, 2011 and 2012. Software and apps ranked at the top for both years, with total weekly sales of $176,476,325 in 2011 and $148,101,504 in 2012. This analysis provides insights into the performance of different departments over time, enabling strategic decision-making based on sales trends.

Data Insights

Year-to-Date Sales Comparison

I calculated the Year-to-Date (YTD) sales for the current year, which amounted to $1,954,588,743.06, and compared it to the YTD sales for the previous year, which was $1,949,959,550. The resulting index was 100.24, indicating a slight increase in YTD sales compared to the previous year. As the index is greater than 100, it was displayed in green to denote positive performance.

YTD Sales

● YTD Sales Current Year ● YTD Sales Previous Year

$1.95bn $1.95bn

100.24
YTD Index

Data Insights

Year-to-Date Sales by Quarter:

I analyzed the YTD sales by quarter for both years, 2011 and 2012.

For the current year (2012):
- 1st quarter sales amounted to $592,457,701.69.
- 2nd quarter sales amounted to $1,210,765,416.38.
- 3rd quarter sales amounted to $1,181,577,178.93.
- 4th quarter sales amounted to $1,954,588,743.06.

For the previous year (2011):
- 1st quarter sales amounted to $529,391,742.99.
- 2nd quarter sales amounted to $1,127,339,797.31.
- 3rd quarter sales amounted to $1,766,698,266.85.
- 4th quarter sales amounted to $1,949,959,550.

This comparison provides a detailed view of sales performance across different quarters, allowing for the identification of seasonal trends or fluctuations in sales.
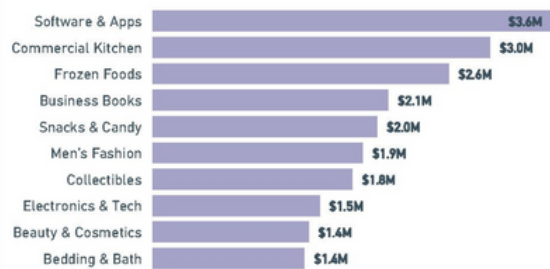
YTD Sales by Quarter

● YTD Sales Current Year ● YTD Sales Previous Year

Data Insights

Top 10 Stores and Departments

Identified the top 10 performing stores and departments based on sales data for the current week (19th to 25th Oct 2012). Selection criteria were solely based on sales performance during the specified week.

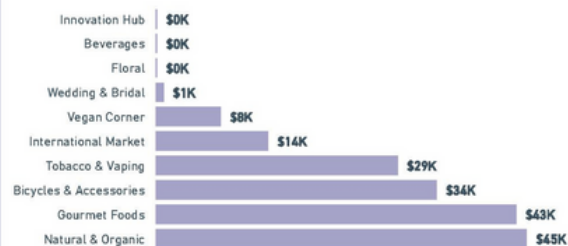### Best 10 Departments Based on Weekly Sales

Department	Weekly Sales
Software & Apps	$3.6M
Commercial Kitchen	$3.0M
Frozen Foods	$2.6M
Business Books	$2.1M
Snacks & Candy	$2.0M
Men's Fashion	$1.9M
Collectibles	$1.8M
Electronics & Tech	$1.5M
Beauty & Cosmetics	$1.4M
Bedding & Bath	$1.4M

Best 10 Stores Based on Weekly Sales

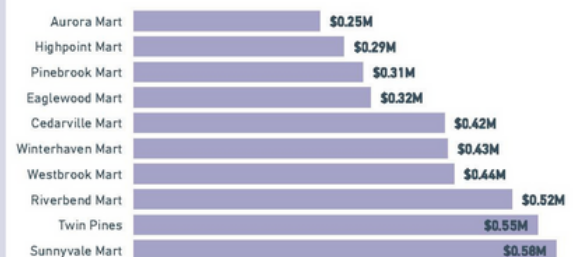| Store	Weekly Sales
Meadowbrook Mart	2.1M
Maplewood Mart	2.0M
Summerfield Mart	2.0M
Parkdale Mart	1.8M
Coastline Mart	1.7M
Timberwood Mart	1.6M
Georgetown Mart	1.6M
Riverside Mart	1.6M
Lakeview Mart	1.5M
Star City	1.4M

Bottom 10 Stores and Departments

Also analyzed sales data to identify the worst-performing stores and departments. This ensures a comprehensive view of sales performance, allowing for targeted efforts to address areas of underperformance.

Worst 10 Departments Based on Weekly Sales

Department	Weekly Sales
Innovation Hub	$0K
Beverages	$0K
Floral	$0K
Wedding & Bridal	$1K
Vegan Corner	$8K
International Market	$14K
Tobacco & Vaping	$29K
Bicycles & Accessories	$34K
Gourmet Foods	$43K
Natural & Organic	$45K

Worst 10 Stores Based on Weekly Sales

Store	Weekly Sales
Aurora Mart	$0.25M
Highpoint Mart	$0.29M
Pinebrook Mart	$0.31M
Eaglewood Mart	$0.32M
Cedarville Mart	$0.42M
Winterhaven Mart	$0.43M
Westbrook Mart	$0.44M
Riverbend Mart	$0.52M
Twin Pines	$0.55M
Sunnyvale Mart	$0.58M

Data Insights

Top 5 Store's Managers

Each week, the managers of the top 5 best performing stores, are eligible for a commission as per company policy.
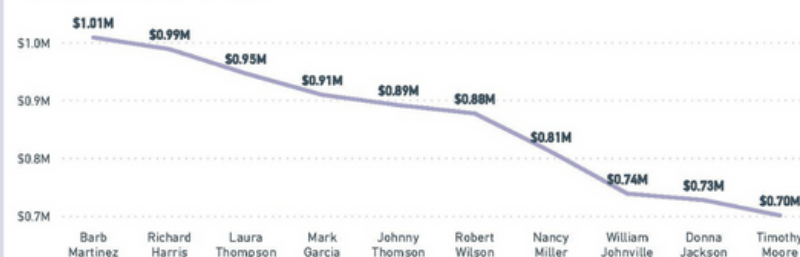
Top 5 Best Performing Store's Manager

Store Name	Manager Name	TotalWeeklySales ▼	Commission
Meadowbrook Mart	Barb Martinez	$2,097,266.85	$10,486.3343
Maplewood Mart	Laura Thompson	$2,018,010.15	$10,090.0508
Summerfield Mart	Richard Harris	$1,999,363.49	$9,996.8175
Parkdale Mart	Johnny Thomson	$1,847,990.41	$9,239.9521
Coastline Mart	Robert Wilson	$1,734,834.82	$8,674.1741
Total		**$9,697,465.72**	**$48,487.3286**

YTD values for the commissions

Analyzed the Year-to-Date (YTD) values for the commissions earned by the top 10 store's managers. This analysis provides insight into the cumulative performance of these stores over the course of the year, allowing the CEO to gauge their overall contribution to sales and commission earnings.

YTD Commission of Top 10 Managers

Manager	YTD Commission
Barb Martinez	$1.01M
Richard Harris	$0.99M
Laura Thompson	$0.95M
Mark Garcia	$0.91M
Johnny Thomson	$0.89M
Robert Wilson	$0.88M
Nancy Miller	$0.81M
William Johnville	$0.74M
Donna Jackson	$0.73M
Timothy Moore	$0.70M

Data Insights

New Week's Data

Upon receiving the new week's data for the week of **26th Oct 2012**, I proceeded to merge it with the existing dataset in the dashboard. The data merging process was completed within a maximum of 10 minutes. This included integrating the new sales data seamlessly into the existing dashboard to ensure that it reflects the most up-to-date information. The efficient handling of data updates demonstrates the dashboard's capability to adapt to changes in real-time, providing timely insights to stakeholders for informed decision-making.
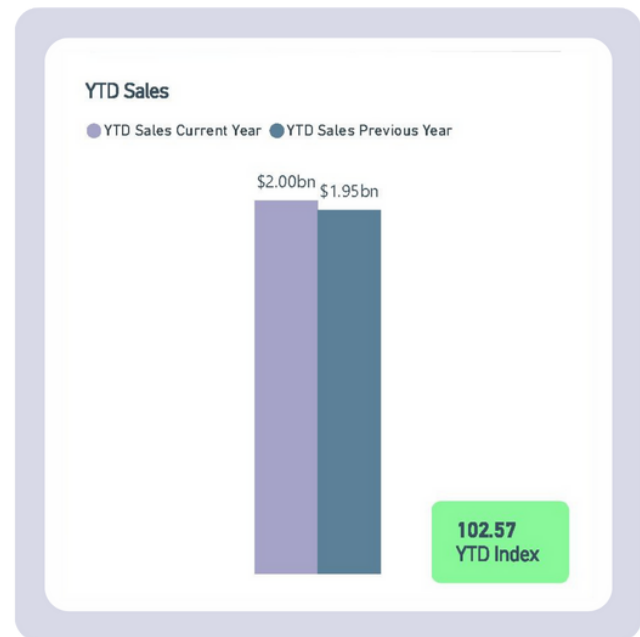
Total Sales Analysis (New Week)

The dataset now spans 95 weeks, with a cumulative total sales figure of $4.45 billion.

45	81	95	$4.45bn
Total Stores	Total Dept.	Total Weeks	TotalWeeklySales

Data Insights

## Year-to-Date Sales Comparison (New Week)

Year-to-Date (YTD) sales for the current year (2012) amount to $2,000,133,385.83, compared to $1,949,959,550 for the previous year (2011), resulting in an index of 102.57, denoted in green to signify positive performance.

Year-to-Date Sales by Quarter (New Week)

YTD sales analysis by quarter for both years showcases the progression of sales performance over the course of the year, providing valuable insights into seasonal trends and fluctuations.
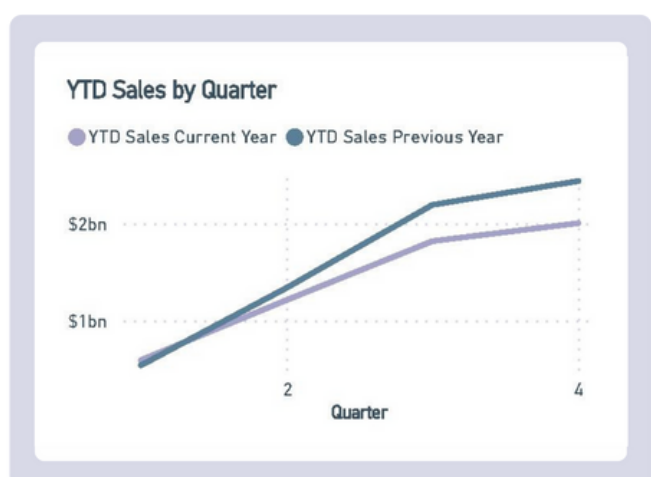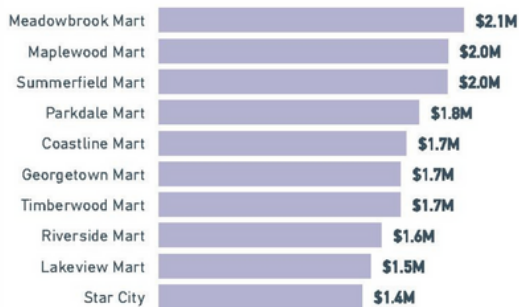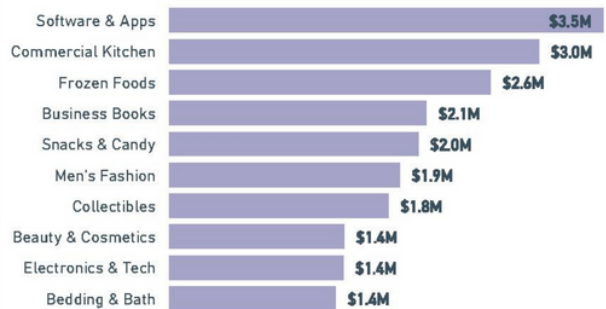
Data Insights

Performance of Stores and Departments (New Week)

The dashboard is updated with refreshed tables highlighting the top best and worst performing stores and departments based on new week sales data, providing stakeholders with current performance metrics.
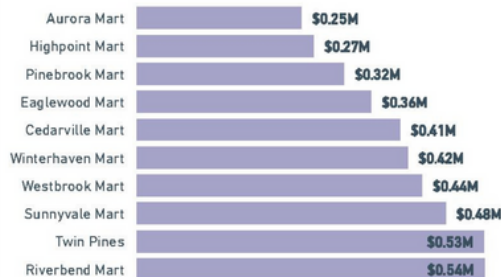
Best 10 Stores Based on Weekly Sales

Store	Weekly Sales
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Maplewood Mart	$2.0M
Summerfield Mart	$2.0M
Parkdale Mart	$1.8M
Coastline Mart	$1.7M
Georgetown Mart	$1.7M
Timberwood Mart	$1.7M
Riverside Mart	$1.6M
Lakeview Mart	$1.5M
Star City	$1.4M

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Snacks & Candy	$2.0M
Men's Fashion	$1.9M
Collectibles	$1.8M
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Electronics & Tech	$1.4M
Bedding & Bath	$1.4M

Worst 10 Stores Based on Weekly Sales

Store	Weekly Sales
Aurora Mart	$0.25M
Highpoint Mart	$0.27M
Pinebrook Mart	$0.32M
Eaglewood Mart	$0.36M
Cedarville Mart	$0.41M
Winterhaven Mart	$0.42M
Westbrook Mart	$0.44M
Sunnyvale Mart	$0.48M
Twin Pines	$0.53M
Riverbend Mart	$0.54M

Worst 10 Departments Based on Weekly Sales

Department	Weekly Sales
Fabric & Sewing	$0K
Beverages	$0K
Innovation Hub	$0K
Seasonal	$0K
Floral	$0K
Wedding & Bridal	$1K
Vegan Corner	$8K
International Market	$14K
Gourmet Foods	$36K
Bicycles & Accessories	$43K

Data Insights

Top 5 Store's Managers (New Week)

The top 5 best performing store managers and their commission details are presented, recognizing their exceptional performance in driving sales.
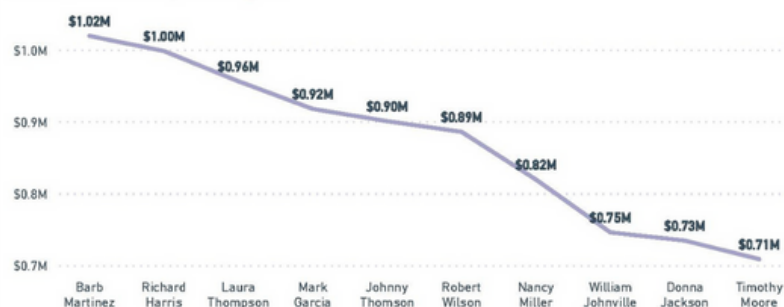
Top 5 Best Performing Store's Manager

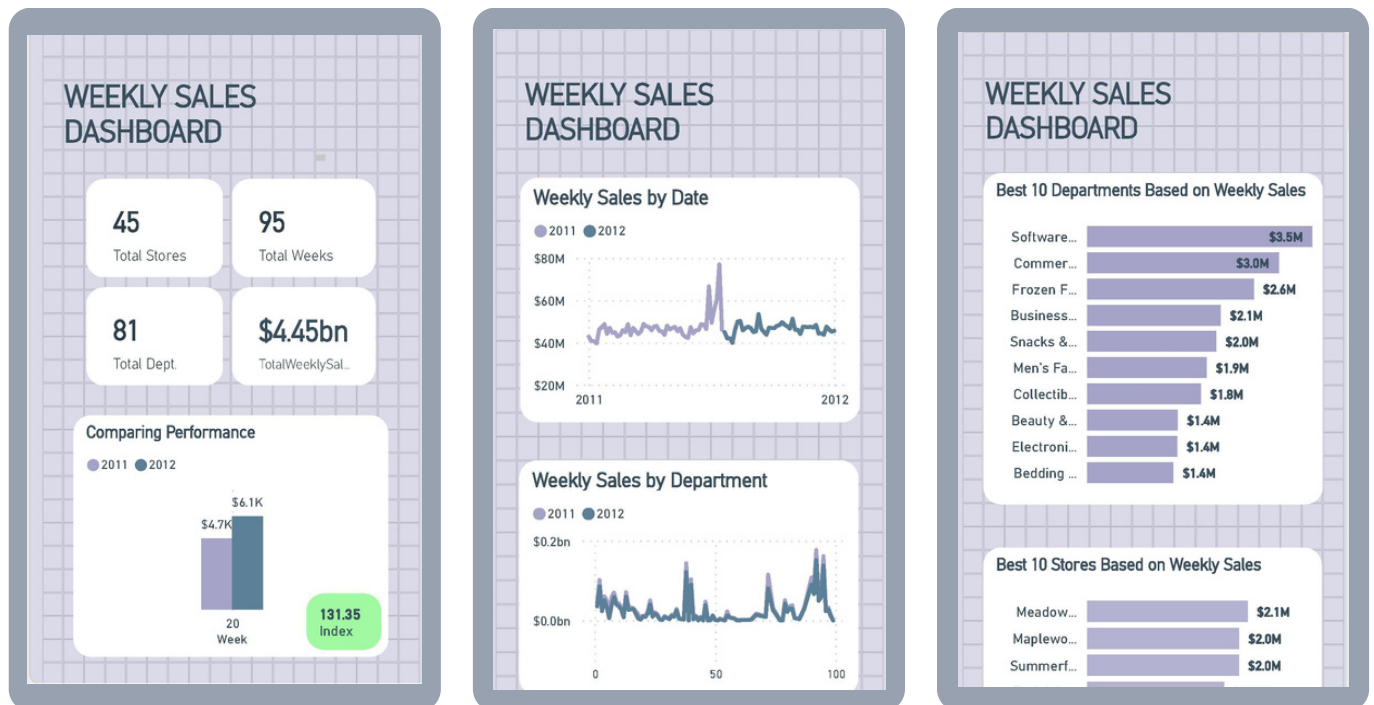| Store Name	Manager Name	TotalWeeklySales ▼	Commission
Meadowbrook Mart	Barb Martinez	$2,149,594.46	$10,747.9723
Maplewood Mart	Laura Thompson	$2,035,189.66	$10,175.9483
Summerfield Mart	Richard Harris	$2,031,658.49	$10,158.2925
Parkdale Mart	Johnny Thomson	$1,834,458.35	$9,172.2918
Coastline Mart	Robert Wilson	$1,744,349.05	$8,721.7453
Total		**$9,795,250.01**	**$48,976.2501**

YTD values for the commissions (New Week)

The YTD commission values for the top 10 stores are updated, allowing stakeholders to track their cumulative commission earnings over the years

YTD Commission of Top 10 Managers

Data Insights

Layout availability on mobile

WEEKLY SALES DASHBOARD

45	95
Total Stores	Total Weeks
81	$4.45bn
Total Dept.	TotalWeeklySal...

Comparing Performance
- 2011
- 2012

$6.1K
$4.7K

20 Week

131.35 Index

WEEKLY SALES DASHBOARD

Weekly Sales by Date
- 2011
- 2012

$80M
$60M
$40M
$20M

2011 — 2012

Weekly Sales by Department
- 2011
- 2012

$0.2bn
$0.0bn

0 — 50 — 100

WEEKLY SALES DASHBOARD

Best 10 Departments Based on Weekly Sales

Software...	$3.5M
Commer...	$3.0M
Frozen F...	$2.6M
Business...	$2.1M
Snacks &...	$2.0M
Men's Fa...	$1.9M
Collectib...	$1.8M
Beauty &...	$1.4M
Electroni...	$1.4M
Bedding...	$1.4M

Best 10 Stores Based on Weekly Sales

Meadow...	$2.1M
Maplewo...	$2.0M
Summerf...	$2.0M

Data Insights

Recommendation to the CEO

Establish a Centralized Data Repository: Investing in or developing a centralized data warehouse or data lake. This repository would serve as the single source of truth for all organizational data, including weekly sales data from each store. Centralization will improve data accessibility, integrity, and security.

Automate Data Collection and Integration: Automating the data collection and integration process as much as possible.

Invest in Data Literacy and Training: Encourage investments in data literacy programs for employees at all levels. Understanding how to interpret data and make data-driven decisions should be a core competency across the organization.

Explore Data Analytics and AI Opportunities: Once the foundation for data management and analysis is set, recommend exploring advanced analytics, predictive modeling, and artificial intelligence (AI) to uncover deeper insights and forecast trends. These technologies can significantly enhance decision-making and strategic planning.

Regular Review and Optimization: Finally, establishing a regular review process to assess the effectiveness of the data management and analytics systems. This process should identify opportunities for optimization and ensure that the organization's data capabilities evolve to meet changing business needs.