

Creating Sales Dashboard in Power BI

Date: November 30, 2024

Executive Summary

In this assignment, we focused on developing a dashboard and generating insights from the data populated in the previous assignment. Using Power BI, a powerful and user-friendly data visualization tool, we created a comprehensive dashboard. Power BI's interface is similar to Excel but provides enhanced visualization capabilities and analytical power, making it an ideal tool for tasks that require both ease of use and advanced functionality.

We began by connecting an Excel file containing two worksheets to Power BI. This involved using the **Get Data** option to import the data, after which we explored it by checking for existing relationships between the tables using the Autodetect feature, verifying and adjusting data types, and creating calculated columns as necessary.

After exploring the data, we created a line graph to visualize the relationship between the Reflecting Week Ended and the Insured Unemployment Rate. This process included customizing the graph to improve its presentation and utilizing Power BI's forecasting tools to analyze historical data and identify seasonality trends. Through this, we gained a better understanding of Power BI's forecasting functionality and its ability to enhance data insights. The completed line graphs provided a clear representation of the trends and are included in the appendices of the report.

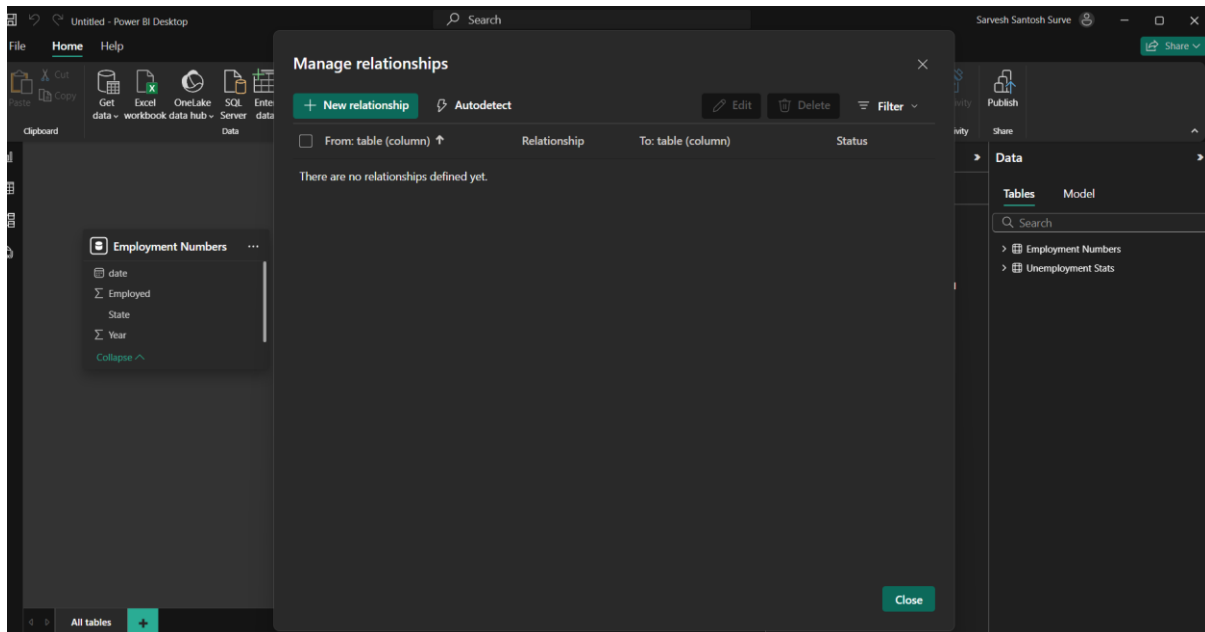
We also worked on integrating Power BI with an Oracle Autonomous Database to incorporate data which we populated in assignment 4 into our dashboard. This required downloading the database Wallet and relevant Microsoft tools, configuring the connection by providing server details, username, and password, and finally importing the necessary tables (Dim_Customer, Dim_Product, Dim_Date, and Fact_Sales) into Power BI. After successfully importing the data, we explored the relational model to identify existing relationships between the tables. While relationships between Dim_Customer and Fact_Sales and between Dim_Product and Fact_Sales were automatically detected, there was no initial relationship between Dim_Date and

Fact_Sales. This was due to a mismatch in the date format of the DATEKEY field. Once the format was corrected, the relationship was successfully established, ensuring the data could be used effectively in the visualizations.

With the data relationships established, we moved on to creating visualizations, including bar charts, line graphs, pie charts, KPI cards, and year filters to enable interactive exploration of the data. We also added sales forecasting based on historical data, which provided insights into potential future trends. The final dashboard is an intuitive and comprehensive representation of the data, designed to provide actionable insights. Screenshots of the completed dashboard are included in the appendices for reference.

In conclusion, this assignment offered a hands-on opportunity to work with Power BI for data visualization and integration with external databases. We learned how to explore data effectively, establish and rectify relationships between tables, and use Power BI's advanced features such as forecasting to create meaningful insights. The process demonstrated the importance of data consistency, the value of visualization in understanding complex datasets, and the potential of tools like Power BI in turning raw data into actionable insights. The final dashboard is a robust and visually engaging tool that showcases the effectiveness of our approach and provides a solid foundation for further analysis.

Appendix A: Screenshot of Relationship between Employment Numbers & Unemployment Stats



Autodetect did not find any relationships between the data and it is because we did not defined any primary and foreign keys relationship between the data and also there are no common columns between data hence power bi cannot automatically detect relationship. Also if there are any mismatch in format of the common filed, autodetect will not detect any relationship.

Appendix B: Screenshot after creating a new column “TrueEmployed” in Employment Numbers.

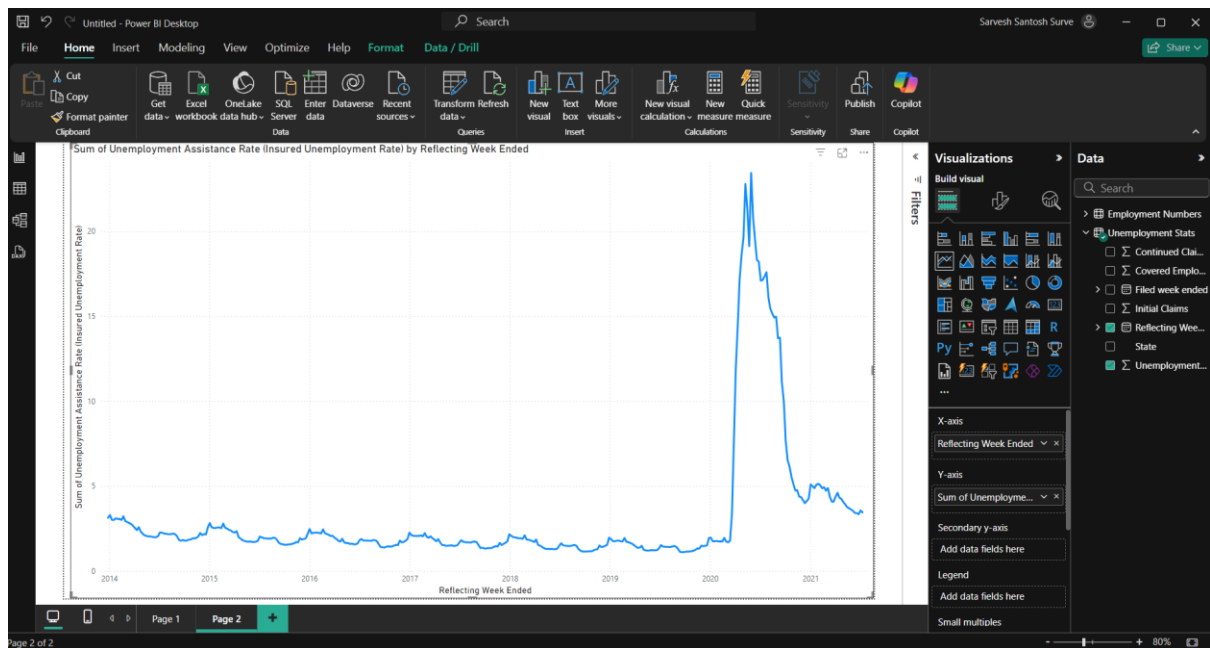
The screenshot shows the Power BI Desktop interface with the 'TrueEmployed' column created in the 'Employment Numbers' table. The table view shows data for various states and dates, with the 'TrueEmployed' column calculated as 'Employed * 1000'.

State	Year	date	Employed	TrueEmployed
NY	2021	01 June 2021	8717	8717000
NY	2021	01 May 2021	8628	8628000
NY	2021	01 April 2021	8661	8661000
NY	2021	01 March 2021	8640	8640000
NY	2021	01 February 2021	8326	8326000
NY	2021	01 January 2021	8322	8322000
NY	2020	01 December 2020	8446	8446000
NY	2020	01 November 2020	8468	8468000
NY	2020	01 October 2020	8434	8434000
NY	2020	01 September 2020	8387	8387000
NY	2020	01 August 2020	8381	8381000
NY	2020	01 July 2020	8062	8062000
NY	2020	01 June 2020	7955	7955000
NY	2020	01 May 2020	7518	7518000
NY	2020	01 April 2020	7373	7373000
NY	2020	01 March 2020	9044	9044000
NY	2020	01 February 2020	9130	9130000
NY	2020	01 January 2020	9135	9135000
NY	2019	01 December 2019	9136	9136000
NY	2019	01 November 2019	9159	9159000
NY	2019	01 October 2019	9185	9185000
NY	2019	01 September 2019	9182	9182000
NY	2019	01 August 2019	9168	9168000
NY	2019	01 July 2019	9209	9209000
NY	2019	01 June 2019	9178	9178000
NY	2019	01 May 2019	9120	9120000
NY	2019	01 April 2019	9119	9119000

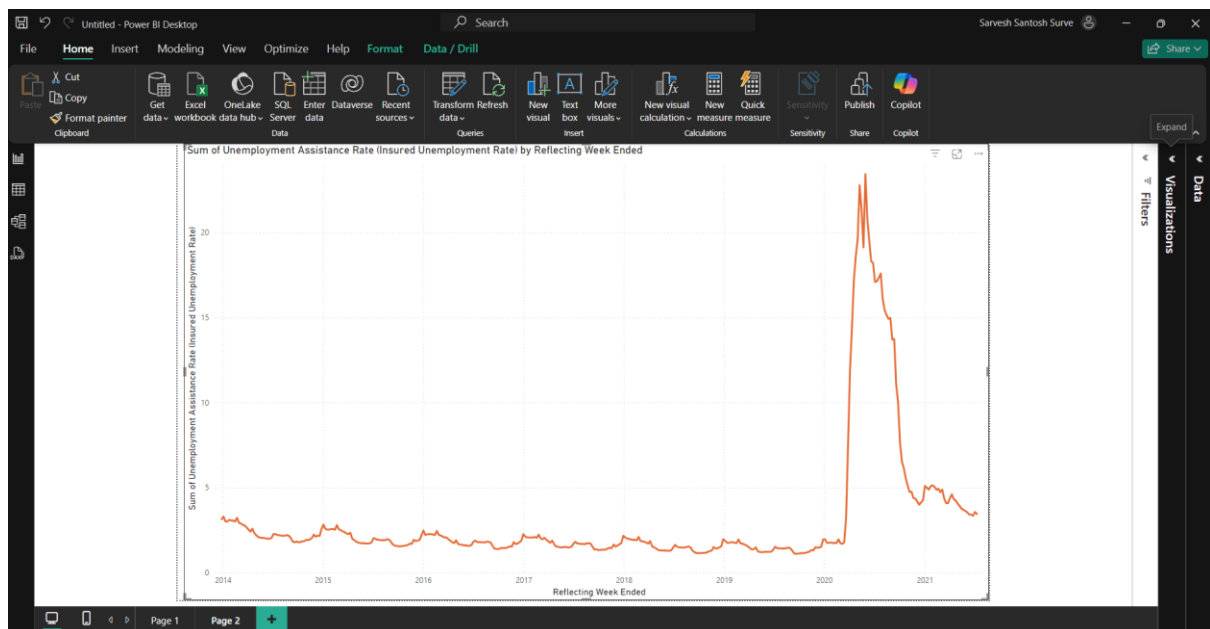
Question: What was the TrueEmployed value for Saturday, February 1, 2014?

TrueEmployed value for Saturday, February 1, 2014 is 8818000

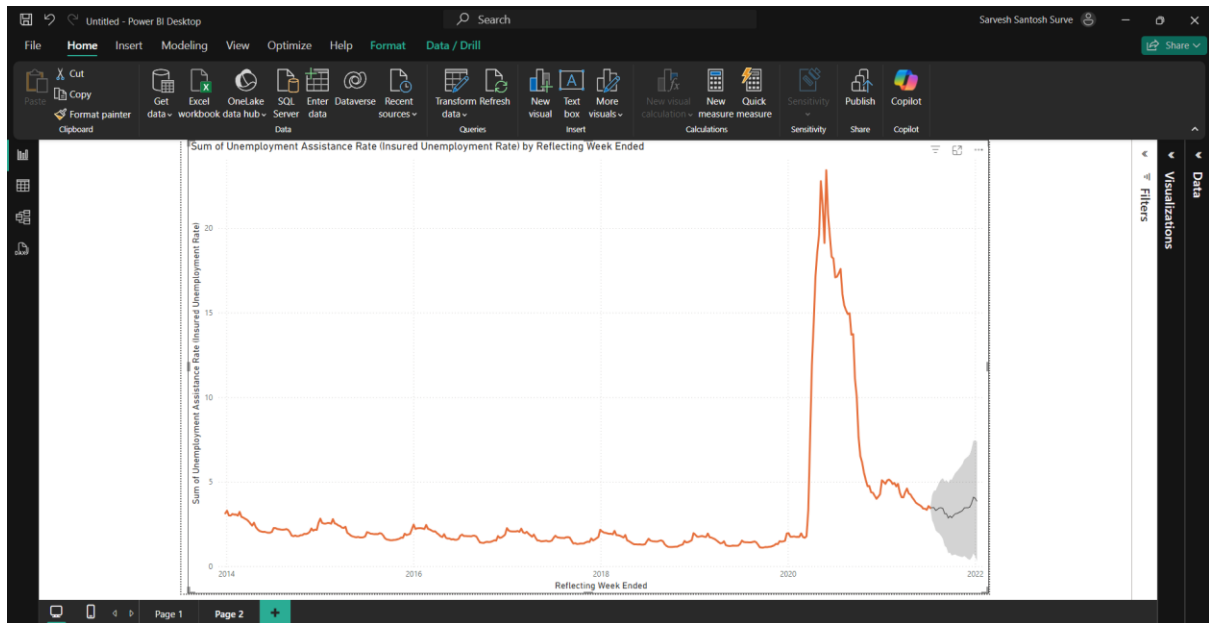
Appendix C: Screenshot of line chart between Reflecting Week Ended & Insured Unemployment Rate



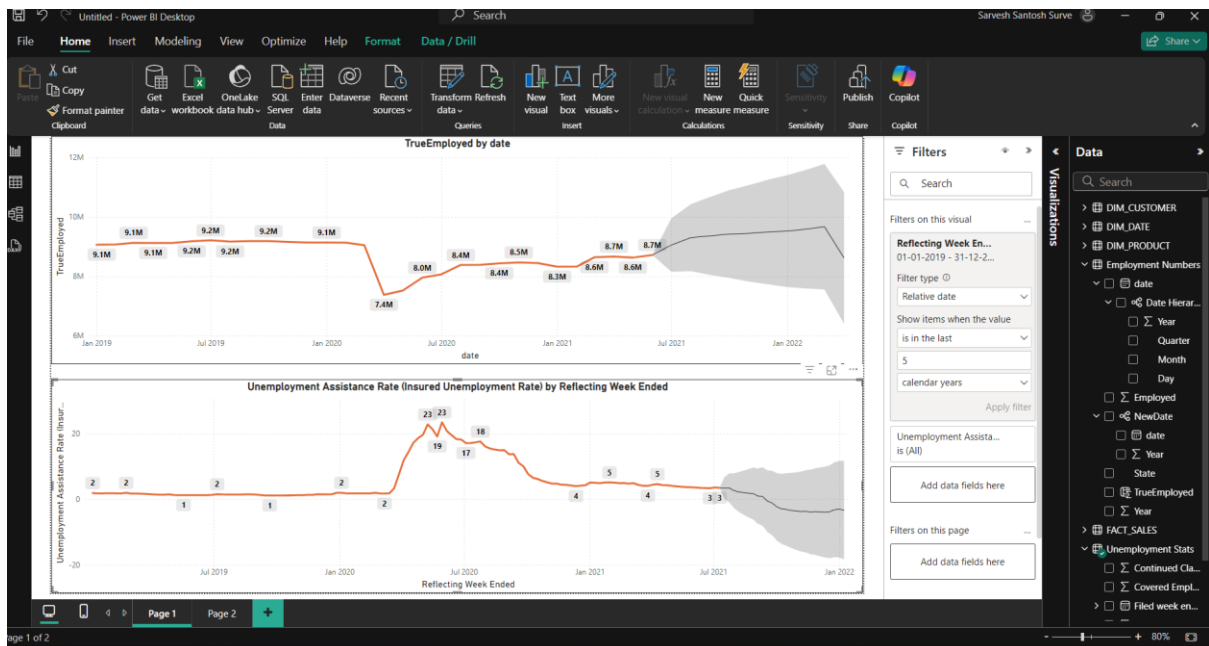
Appendix D: Screenshot of above chart after changing color of the line.



Appendix E: Screenshot after adding forecast.



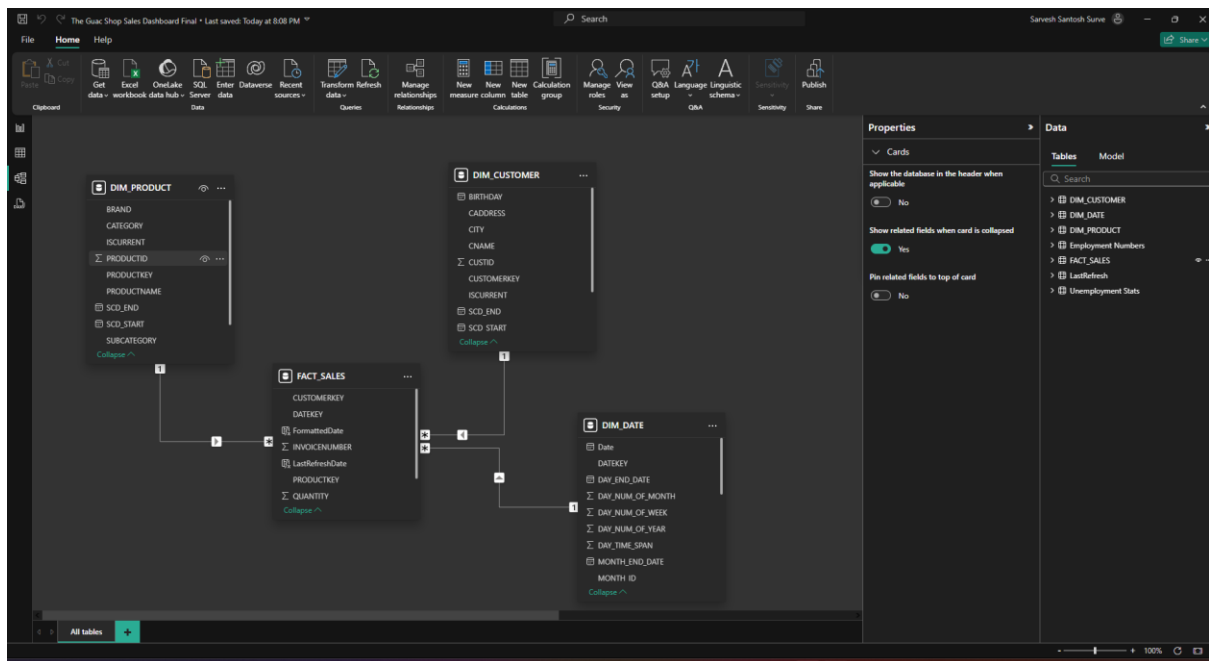
Appendix F: Screenshot of two line charts and filtering the data for last 5 calendar year.



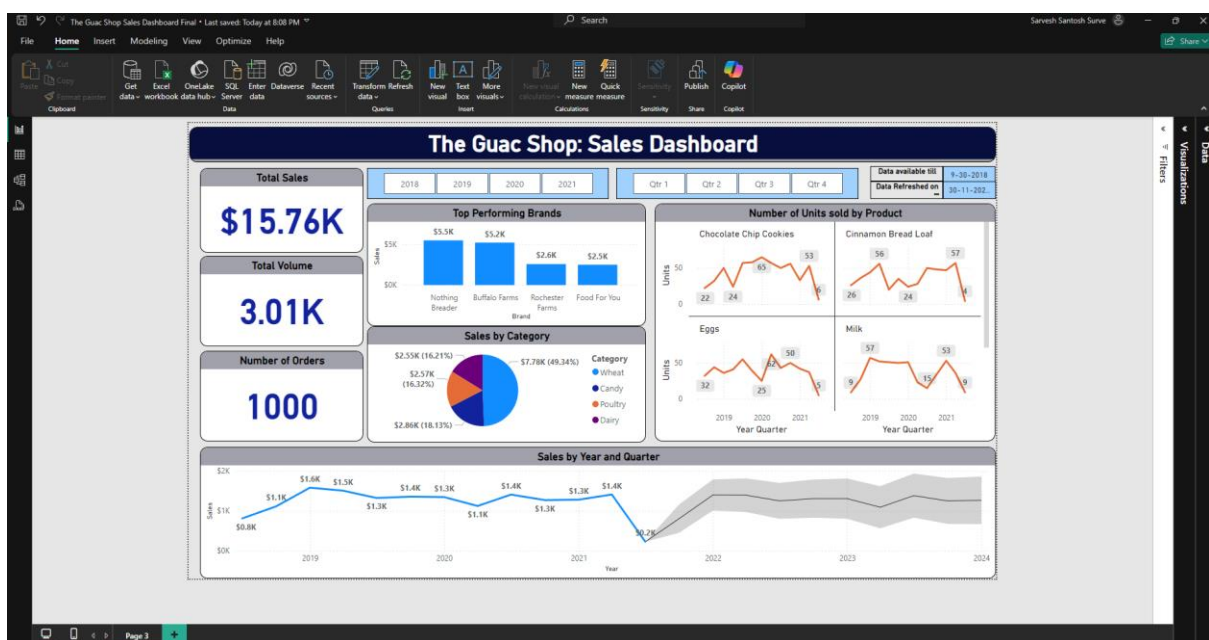
Question: Write 2-4 sentences in your report detailing any insights you can draw from these two line charts.

In the above two line charts we can conclude that employment number saw a significant drop in year 2020 and this is due the impact of COVID-19 pandemic. Also due the drop in employment number we can see the unemployment Assistance Rate spiked during the same period. After COVID-19 number of employment gradually increasing as the world returns to normalcy.

Appendix G: Screenshot relationship between tables from Oracle Database.



Appendix H: Screenshot of Final Dashboard.



Question: Write 4-6 sentences describing your dashboard (tell your story!)

This dashboard provides a comprehensive overview of sales performance at The Guac Shop. It highlights **\$15.76K in total sales**, driven by top-performing brands like Nothing Breader and Buffalo Farms. Sales are distributed across key categories such as Wheat and Dairy, with wheat contributing nearly **49.34%** of the total. The quarterly sales trend shows steady growth over time, with spikes in specific product demand, such as Chocolate Chip Cookies and Milk. The dashboard also tracks data availability till **9-30-2018** and a recent refresh on **30-11-2024**, ensuring data relevance for decision-making.