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**College/Company:** ASU/Department of VA

**Specialization:** Data Science

**GitHub Repo link:**

**Meta Data:**

<b>Number of Observations</b>	1219
<b>Number of files</b>	1
<b>Number of features</b>	12
<b>Formal of file</b>	.csv
<b>Data Size</b>	1.09 MB

## I. Introduction

- The problem addressed in this document is the challenge faced by a large Australian company in accurately predicting the amount of stock needed for each product.
- This problem is significant because having too little stock can result in missed opportunities for revenue and positive customer feedback, while having too much stock can lead to waste and financial losses.
- The purpose of this project is to analyze data and identify the periods of the year with the highest demand for specific products to help the company manage supply and demand more effectively.
- The data analysis will involve creating visual charts with Jupyter notebook and Python, using tools such as pandas and seaborn to compare factors that influence the sales of items.

## II. Problem Description

- The objective of this study is to find the trends of highest sales, price discount, in-store promo, catalog promo, store end promo, Google mobility, COVID flag, V-day, Easter, and Christmas.
- This problem is crucial to the field of the supply chain because it will help the company determine the highest supply and demand, so they can provide the customer with the needed supply.
- In the past, the problem was addressed by maintaining the required supply for demand.
- During the COVID-19 pandemic, supply chain issues resulted in delays, shortages, and higher costs. However, as mentioned in a Wall Street Journal article, supply and demand issues have almost been resolved because shipping costs have lowered, and Asia is now free from COVID-19.
- Kraft Heinz Co, Airbus SE, and Boeing Co. are some of the companies that are currently struggling with supply and demand. Kraft is having problems with packaging, while Airbus SE and Boeing Co. are facing challenges due to excessive demand, and they cannot meet the customers' supply needs.
- Some possible solutions for these companies include keeping more inventory on hand, experimenting with new transportation methods, and investing in technology that provides feedback on tracking supplies more efficiently.

### III. Conclusion

- The solution to the problem of accurately predicting the amount of stock needed for each product involves analyzing sales data and trends to identify the periods with the highest demand for specific products.
- By creating visual charts with Jupyter notebook and Python, the company can better manage its supply and demand by maintaining an appropriate level of inventory.
- While the COVID-19 pandemic caused supply chain issues, some companies, including Kraft Heinz, Airbus SE, and Boeing Co., are still struggling with supply and demand.
- These companies can address these issues by increasing inventory levels, experimenting with new transportation methods, and investing in technology to better monitor shipments and inventory.

### IV. References

- Wall Street Journal. (2021, September 30). Supply-Chain Headaches Ease for Many Companies. Wall Street Journal. <https://www.wsj.com/articles/supply-chain-headaches-ease-for-many-companies-42f3de8b>