

Project Proposal – Group 6

Creating Supply Chain Efficiencies: Assisting Warehouse Ordering by Predicting Sales

Team Members

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Project Description

This project aims at creating an efficient inventory planning process for an anonymous company by analyzing the Purchase, Sales and Products data for office products. This company acts as a distributor by purchasing the office products from manufacturers, holding them and then reselling them to its business customers.

The purpose of the project is to predict the sales volume based on the demand for different product categories. This will help maximize the sales revenue which, in turn, will improve profitability.

The project objective will be achieved by completing time series analysis. This analysis uses the SARIMAX model which makes use of the following techniques:

- Moving Averages
- AutoCorrelation Function (ACF)
- Partial AutoCorrelation Function (PACF)
- AutoRegressive model

This project outcome will assist in making predictions for order quantities for each product category to achieve the maximum sales.

Target Audience

The intended target audience who will benefit from this project will be the following company officials:

- Supply Chain team with focus on Procurement/ Inventory Planning specialists

Data Sources

The data used for this project comes from CSV files obtained from the company. The original data has been anonymized for the purpose of this project. The CSVs have 5-years worth of data (2018 to 2022) for Purchase, Sales and Products.

Platforms Used:

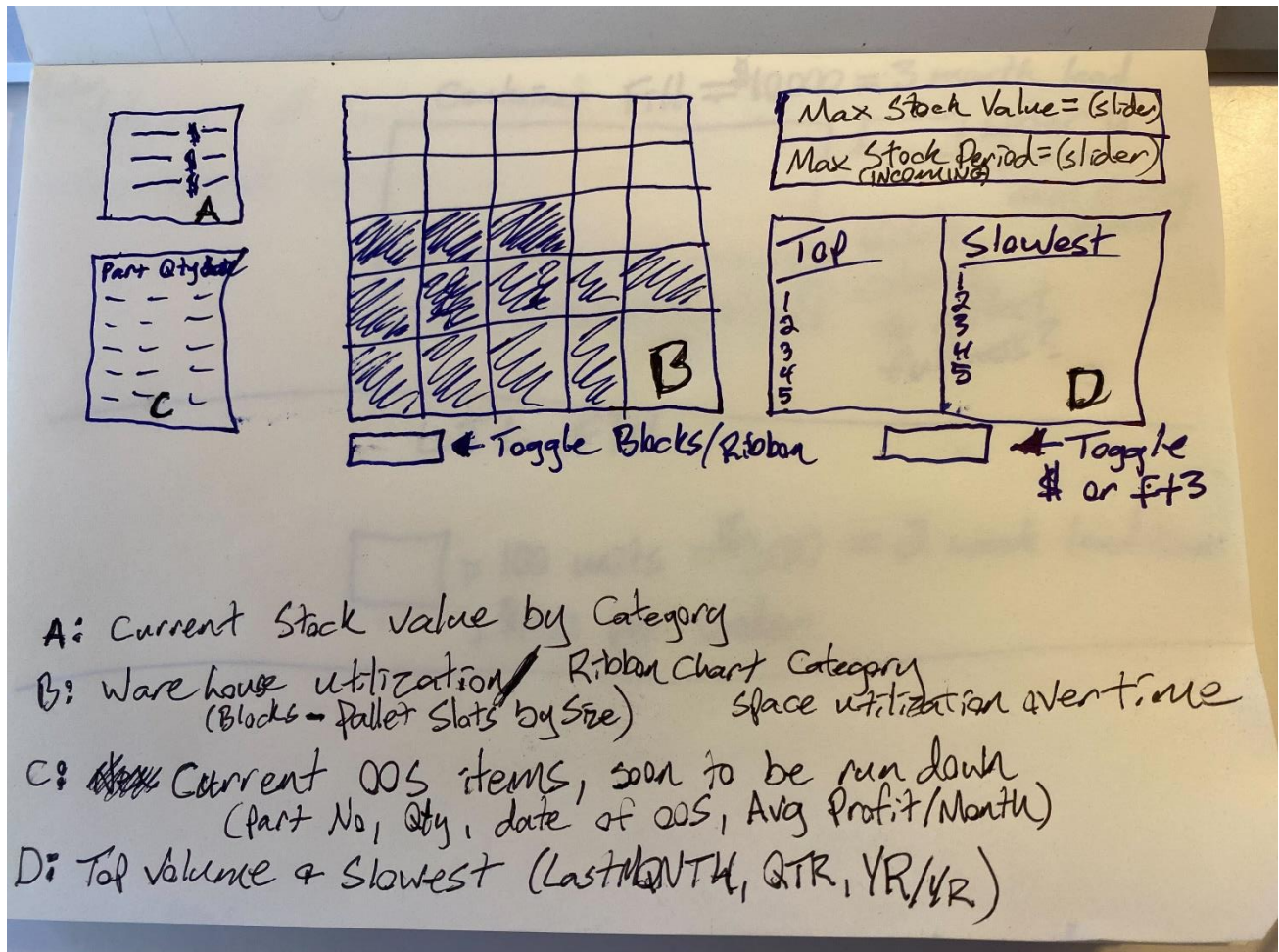
The following platforms will be used for ETL, machine learning and creating the dashboard:

- Amazon AWS for hosting the data
- PySpark on Databricks for ETL and SQL Database creation

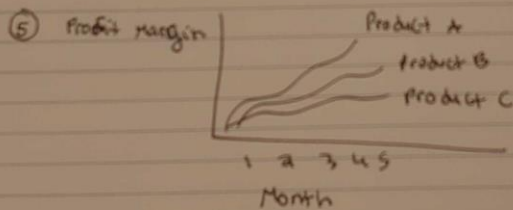
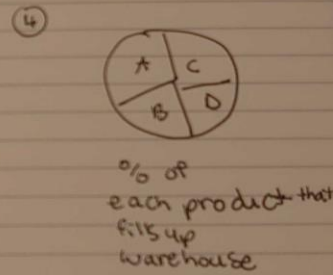
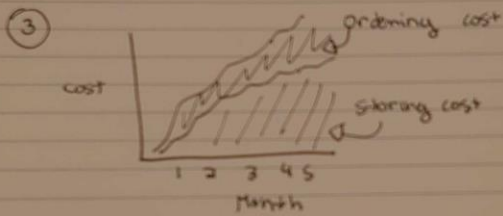
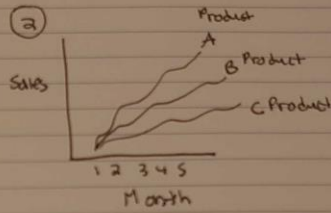
- Python for Time Series analysis using Machine Learning models
- Databricks Notebooks for EDA, Visualizations and Dashboard

Napkin Drawings:

Following are some napkin drawings we created to give an idea about what the dashboards will look like:



Dropdown: Product A ☐
 Multi-PC checkbox Product B ☐
 Product C ☐
 Product D ☐



DASHBOARD

Dropdown

Product list

Sales Trend

Sales

Time

Total Sales

Product Sales

Profit

Scatter

Shipping Time

Cost

Volume (in warehouse)