ReadMe:
Visual Analytics Based Inventory Replenishment

Thank you for participating in the Visual Analytics Based Inventory Replenishment competition! This document will give background information on the files available and the delivery expectations.

If you have any questions, please reach out on the Hackathon Hotline Discord channel.

General Item Data:

- All the data provided is related to one item (Article / SKU)
- The items are sold in bags.
- Bags are transported on pallets of approximately 16 sq. ft.
- 50 bags will be stacked on one pallet.
- 2 pallets can be stacked. Thus, 16 sq. ft. space can be used to store 100 bags.

Stores Data:

- The data for 20 store is provided for analysis and prediction.
- The store numbers are fictitious and are numbered 1-20.

Side Lot Images:

- Images showing the side lots of 20 stores are provided.
- The right bottom corner of each picture shows the scale.

Sales Data (Excel file, Sales Data sheet)

- Historic sales data (since 2016) for all 20 stores, organized by day for the item, has been provided.
- TIME_DIM_KEY – Indicates sales date in YYYYMMDD format.
- SALES_UNITS – Indicates the number of bags of the item sold on each day for each store.
    - Sales are treated +ve and Returns are treated -ve.
    - This column will have net sales units.
    - -ve indicates that day there were more returns than the sales.

Weather Data (Excel file, Climatology Day, Forecast Day, and History Day sheets)

- The weather data for all 20 store locations is available in 3 sheets contained in the excel file.
- CLIMATOLOGY_DAY – This is a general 366-day weather data.
    - DOY_STD indicates day of the year – 1 indicates January 1st.

    - This can be used for a one-year general forecast.
- FORECAST_DAY – Indicates a 15 – 16 days weather forecast.
- HISTORY_DAY – Indicates historic weather data.

Challenge Details:

Compute available space for the item:

- Compute square footage available in the side lot using image analysis (exclude any material filled in space while calculating the square footage available).
- Assume 50% of the available square footage will be available for the item.
- Using the general item information provided, compute how many bags can be accommodated based on the available square footage.

Sales Forecast Prediction:

- Predict the next 14-day sales forecast based on the sales and weather data provided.

Recommend Order Units:

- Assume that the store has the next 4 days of forecasted sales on hand.
- Compute order units (number of bags) as 14-day sales forecast, minus on hand items, and cap the order units based on the side lot square footage available.

Good Luck!