# Power Query

# SWBAT organize, clean and format data using the pre-set Power Query tools.

## The joined data on the ‘Product Inventory’ table of the Customer List is split into 6 columns, each labeled with correct formatting and no resulting Power Query errors.

## Screenshot of final table in Power Query (include applied steps)

A screenshot of a computer

Description automatically generated with medium confidence

Code



# SWBAT organize clean and format data by creating custom M formulas.

The ‘Purchase List’ table is un-pivoted, organized, and has a date column that is correctly formatted as a date. There should be no resulting Power Query errors for any of the columns or rows.

Screenshot of final table in Power Query (include applied steps)

Table

Description automatically generated



# DAX

# SWBAT create a calculated column with DAX logic to generate a histogram

The income categories should be defined using a DAX formula. The DAX formula should aggregate the different predicted customer incomes into buckets which can be used to create a histogram. The appropriate bin size for the histogram can be determined by the student but should still be a good reflection of the range, distribution, and shape of the data. It is recommended that the histogram contain at least 4 columns. Refer to the histogram example in the instructions section.



## SWBAT create a calculated column or measure with DAX logic to generate a column chart

The product recommendations should be defined using a DAX formula. The DAX formula should use logic to determine which products are recommended to different income categories. The recommended product for each income category can be determined by the student.



# Visualization & Analysis

## SWBAT use linear regression to predict future outcomes

A formula is created that can be used to predict customer incomes based linear regression of sales and income. Using y = mx + b, the m and b variables are replaced with the actual values and presented in the written summary.

## SWBAT analyze data with histogram visualization

The histogram shows the distribution and shape of predicted income by category. The histogram is created using a column chart and DAX formula (the calculated column created earlier) to define the ranges/bins of the columns.

Chart, waterfall chart

Description automatically generated

## SWBAT analyze data with scatter plot and card visualization

The scatter plot with trendline and correlation coefficient quick measure (on a card) is used to perform a regression analysis of the relationship between average household income by state and average 6 months sales by state.

Chart, scatter chart

Description automatically generated

## SWBAT analyze data with heatmap visualization

The heatmap is used to visualize income household income distribution across the US.

Map

Description automatically generated

## SWBAT set up table relationships so that visualizations correctly cross filter

Cross-filter:  
The histogram columns can be used to update the heatmap.

Graphical user interface

Description automatically generated

The scatterplot can be used to update the histogram.

The scatterplot can be used to update the map.

Graphical user interface

Description automatically generated

Analysis Questions:

1. What is the correlation (R2 value) between sales and income?

Chart, scatter chart

Description automatically generated

The linear regression analysis was used to interpret the correlation between Avg. Income Vs Avg. Sales, in the next visual we can deduce that there is a strong correlation (0.78) between these two variables.

1. What is the correlation (R2 value) between customer ratings and product return rate?

Chart

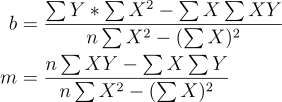
Description automatically generated

Customer rating Vs Return rate and Price, the visual indicates a negative correlation of 0.50 which is moderate

1. What are the linear regression formulas to predict customer income from customer sales?

The formula used to come to these conclusion is X=(b-Y)/-m.

Where Y=average purchases last 6 months by the customers and X= average income by state



n= the total amount of rows in the table where Y and X are, b= -722.14 and m= 0.0107.

Applying the first formula X= -722.14Y/-0.0107 we can predict customers incomes

1. Which customer do you predict has the highest income?

Jon little has the highest incomes prediction with 558143.93.

Text

Description automatically generated

1. Which product will be advertised the most?

Graphical user interface, text, application, chat or text message

Description automatically generated

The 2 most advertised products should be Winter gloves and Pleated Skirt.