UNSUPERVISED LEARNING

DIABETES DATASET

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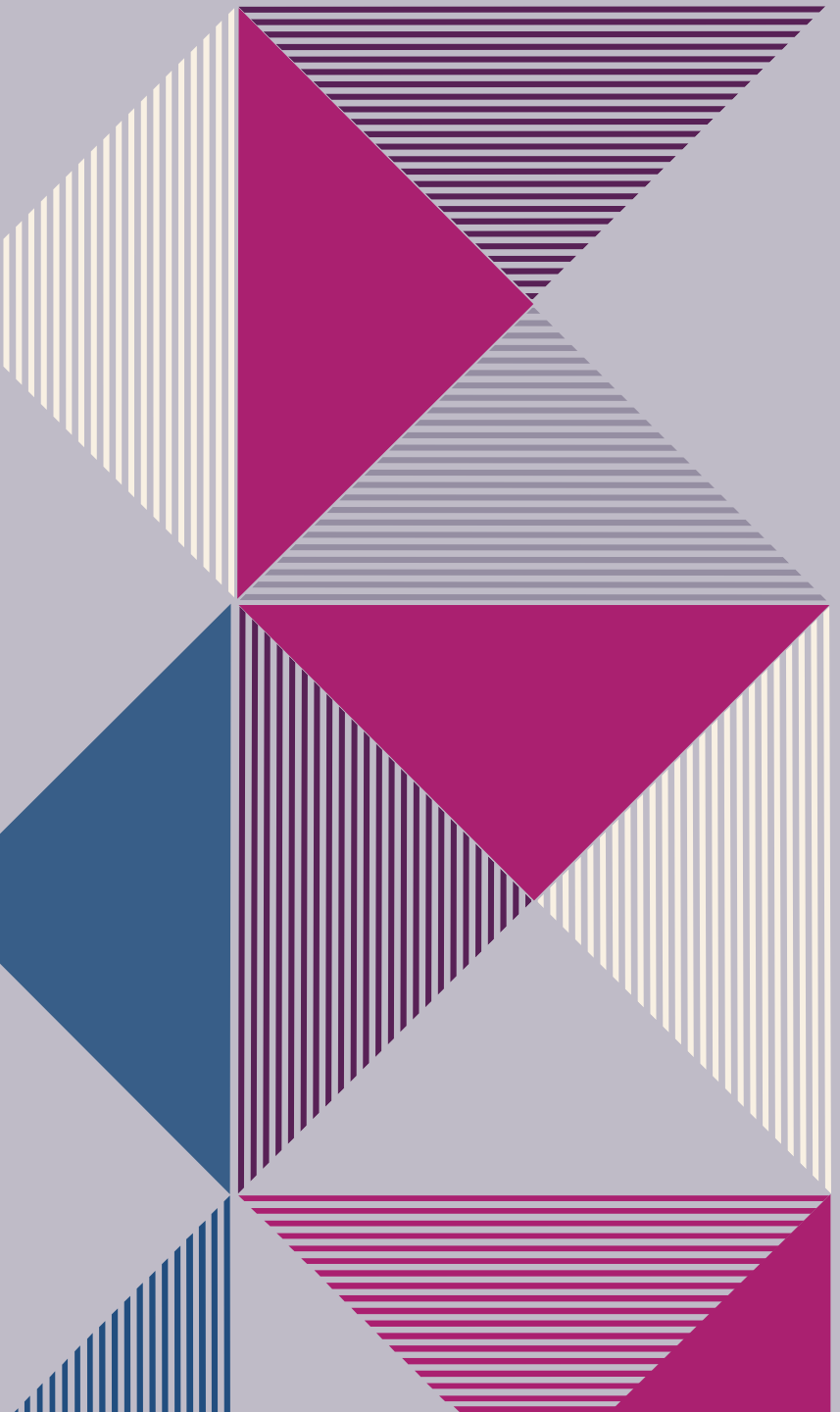
FLOW STRUCTURE

- ❑ Project Goal
- ❑ EDA – Exploratory Data Analysis
- ❑ K-Means Clustering
- ❑ Hierarchical Clustering
- ❑ PCA
- ❑ Conclusion

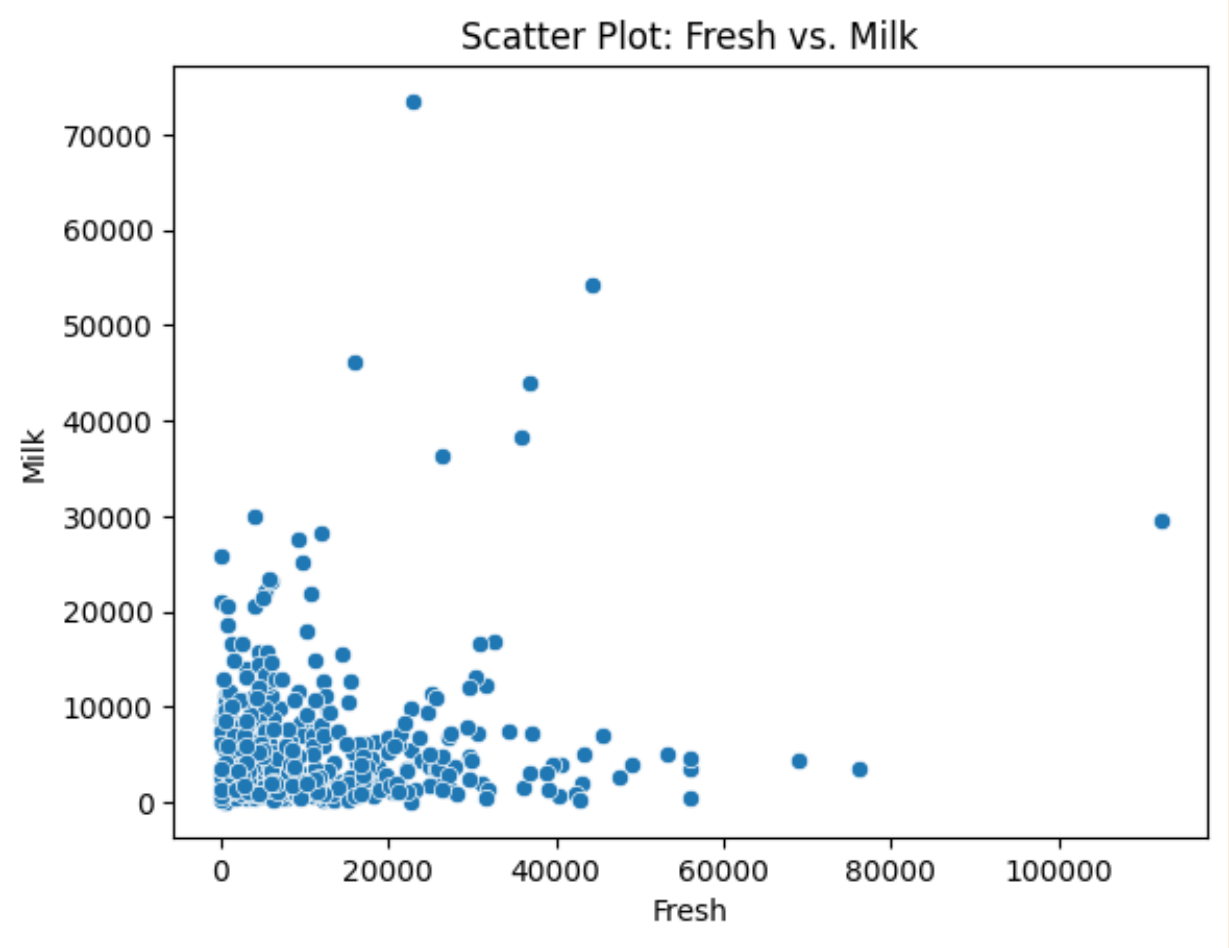


PROJECT GOAL

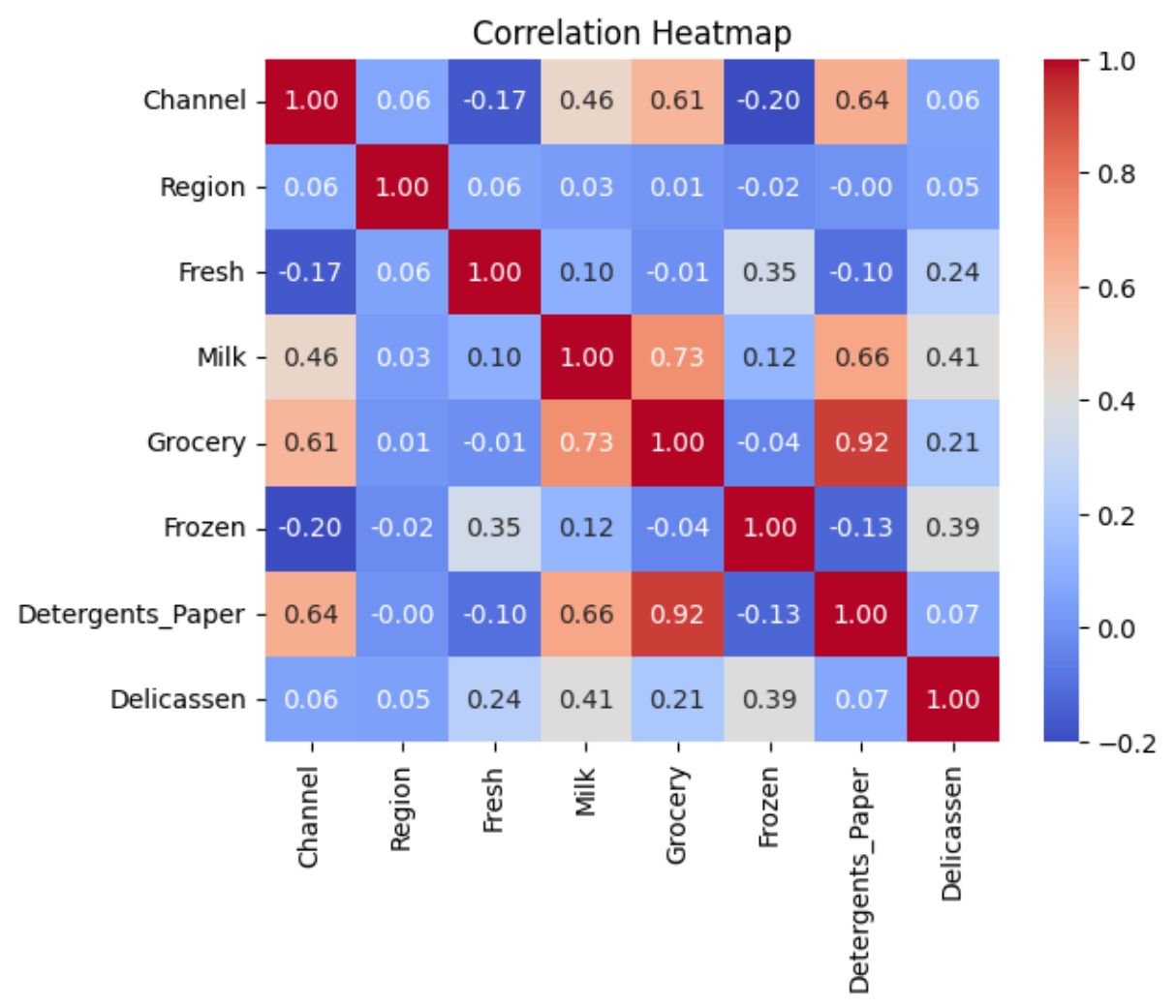
- Unsupervised Learning Techniques
- gain insights from the data sets to make informed decisions

EXPLORATORY DATA ANALYSIS

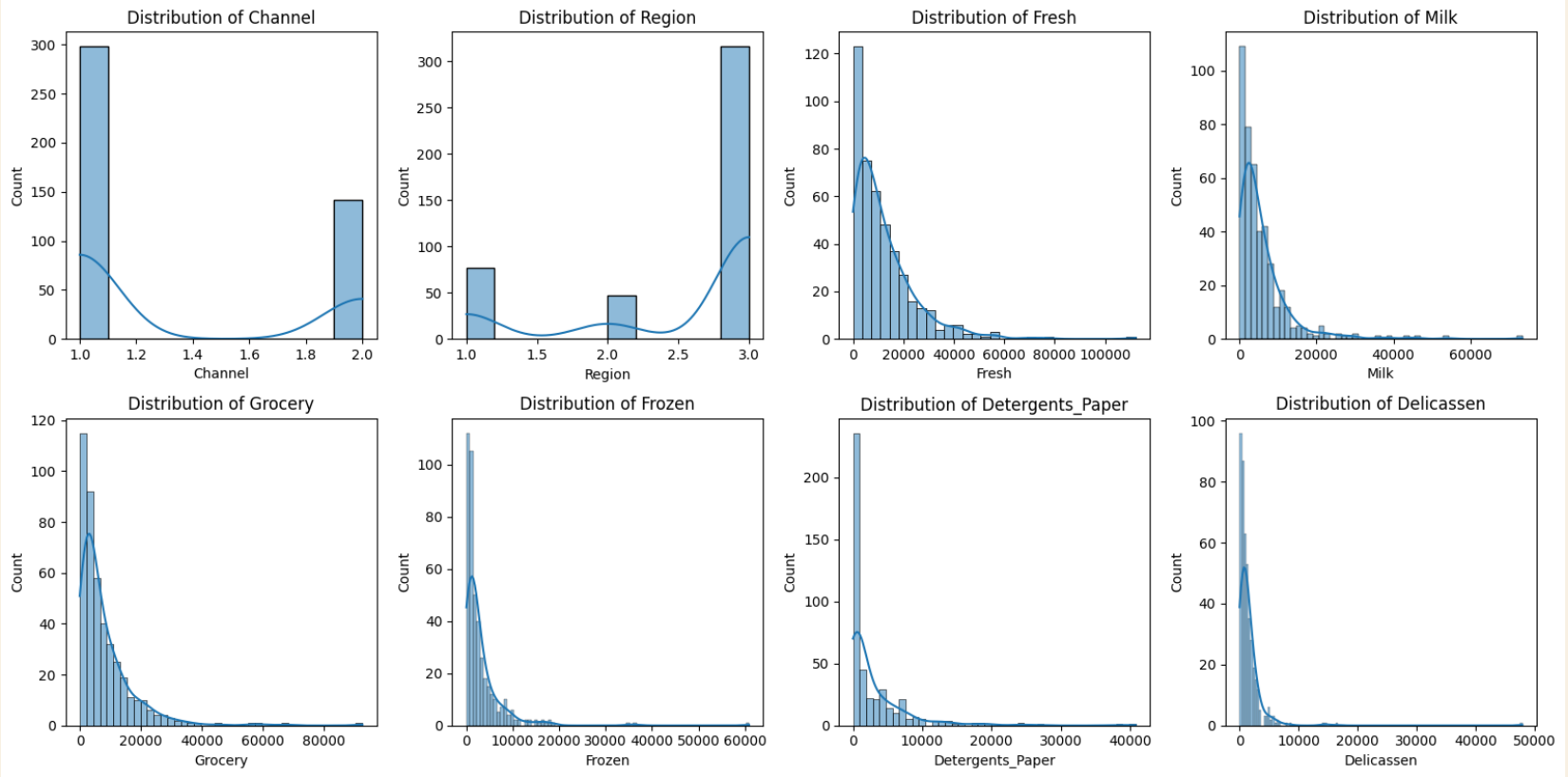
FRESH VS MILK



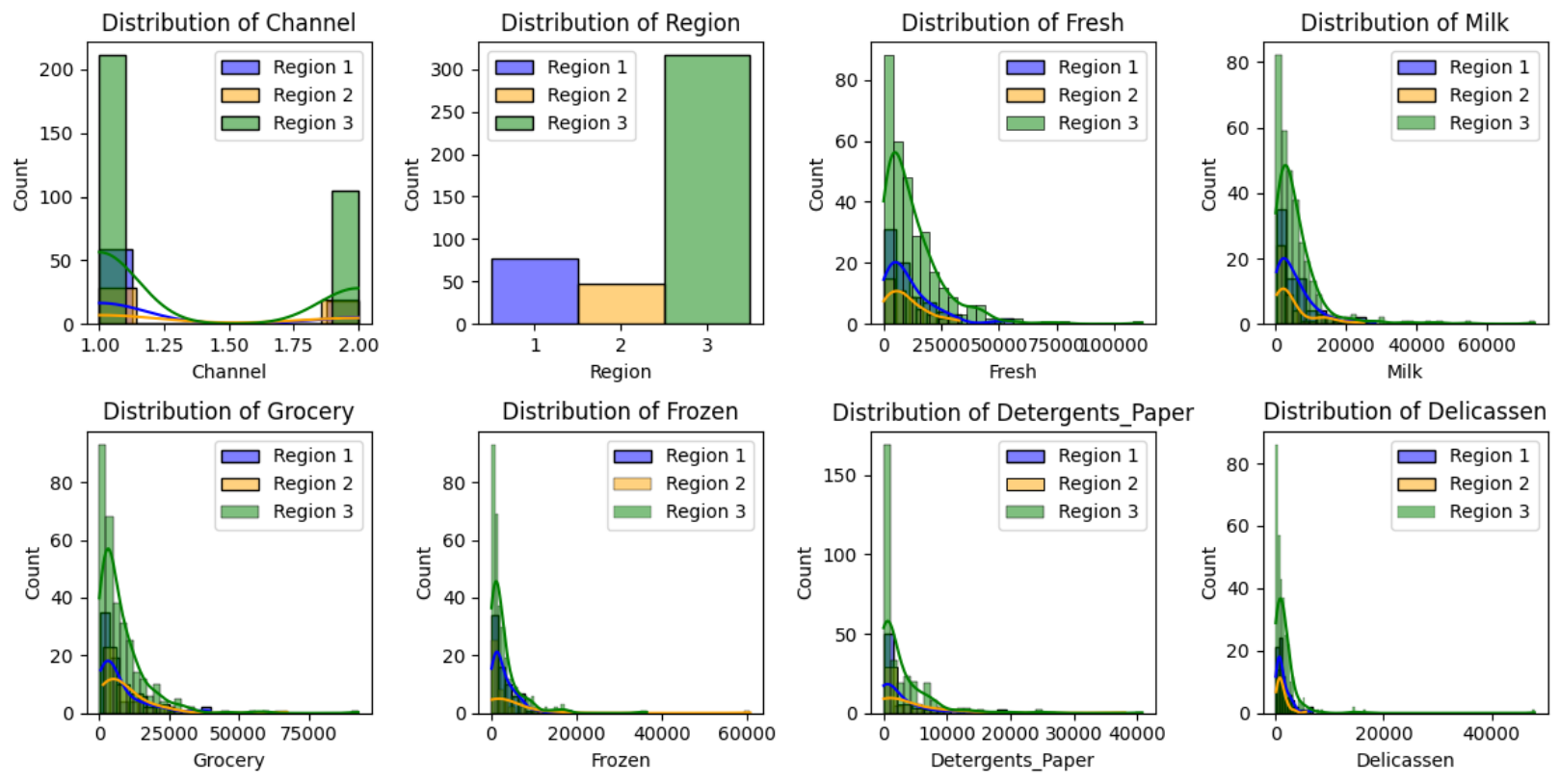
CORRELATION HEATMAP



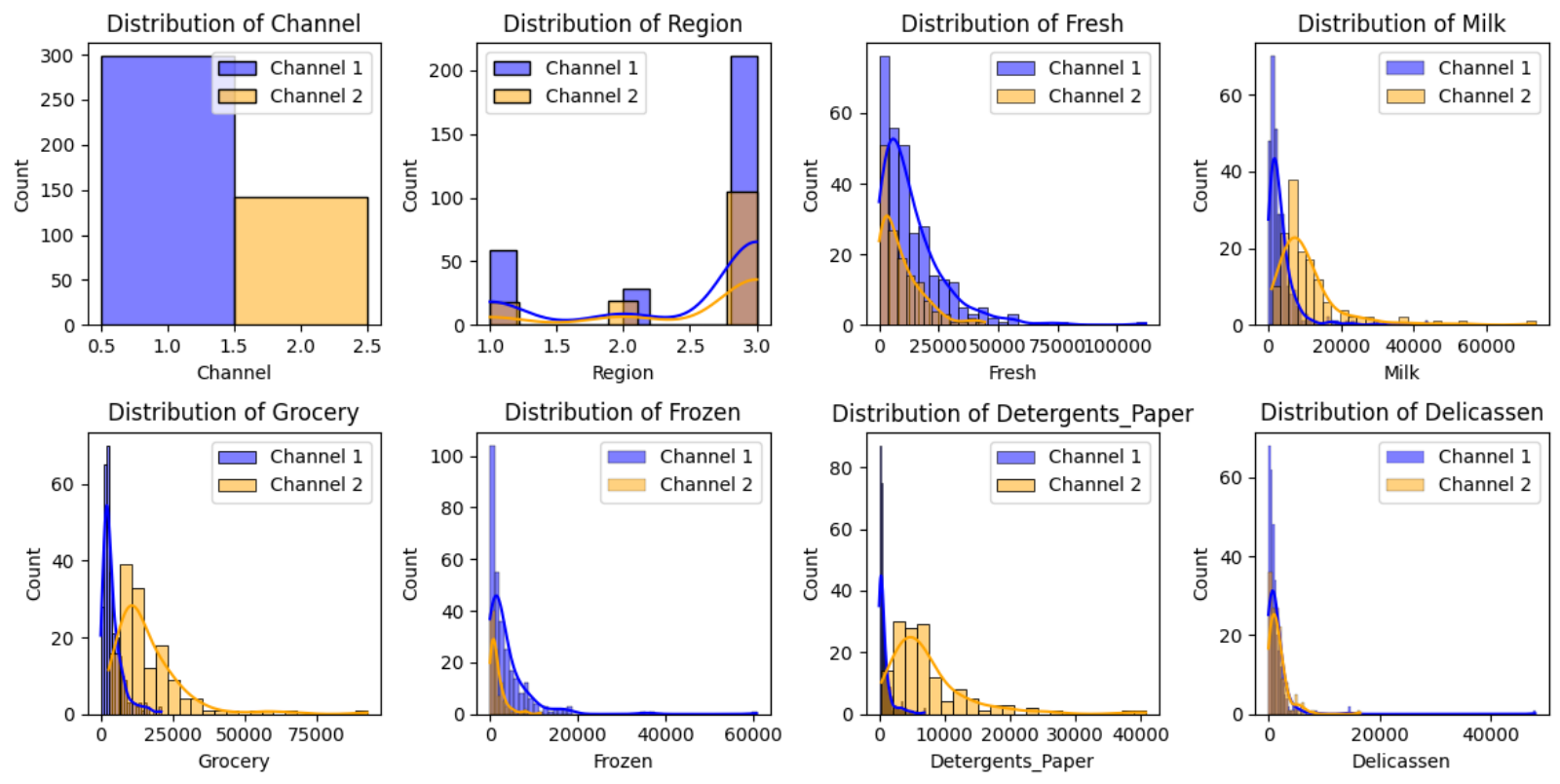
DISTRIBUTION OF EACH VARIABLE



DISTRIBUTION OF EACH VARIABLE WITH REGIONS



DISTRIBUTION OF EACH VARIABLE WITH CHANNELS



K-MEANS CLUSTERING

HYPOTHESIS

Different customer segments can be identified based on their purchasing behavior in the 'Fresh', 'Milk', 'Grocery', 'Frozen', 'Detergents_Paper', and 'Delicassen' categories.

PROCESS

- Use Elbow Method to determine K value
- Perform K–Means clustering
- SSE = 1074854303.35

SSE is high so scale the data for better result

SCALING

- For better SSE can use two scaling methods

1. Standardization
2. Normalization

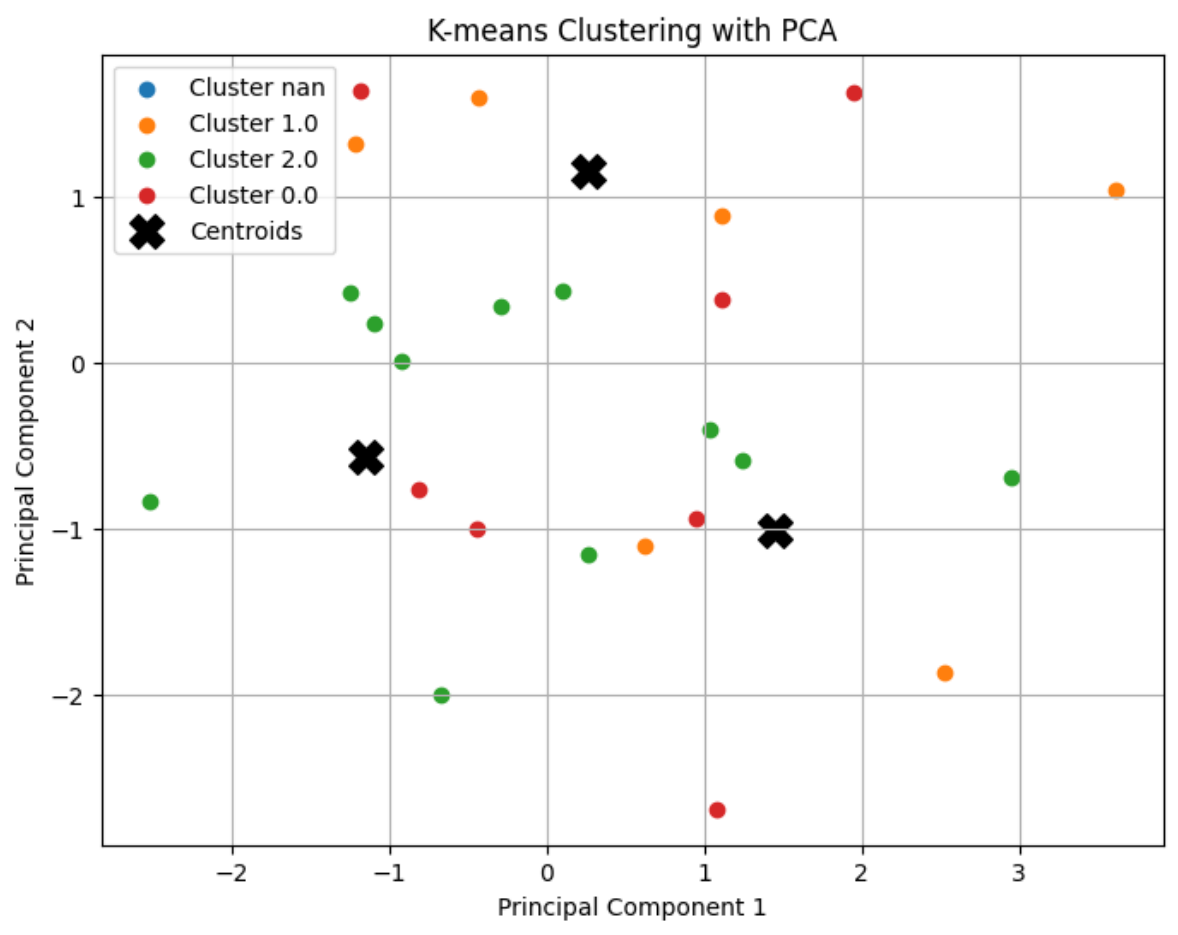
Used Standardization

SCALED DATA

- Use Elbow Method to determine K value
- Perform K–Means clustering
- SSE = 490.07

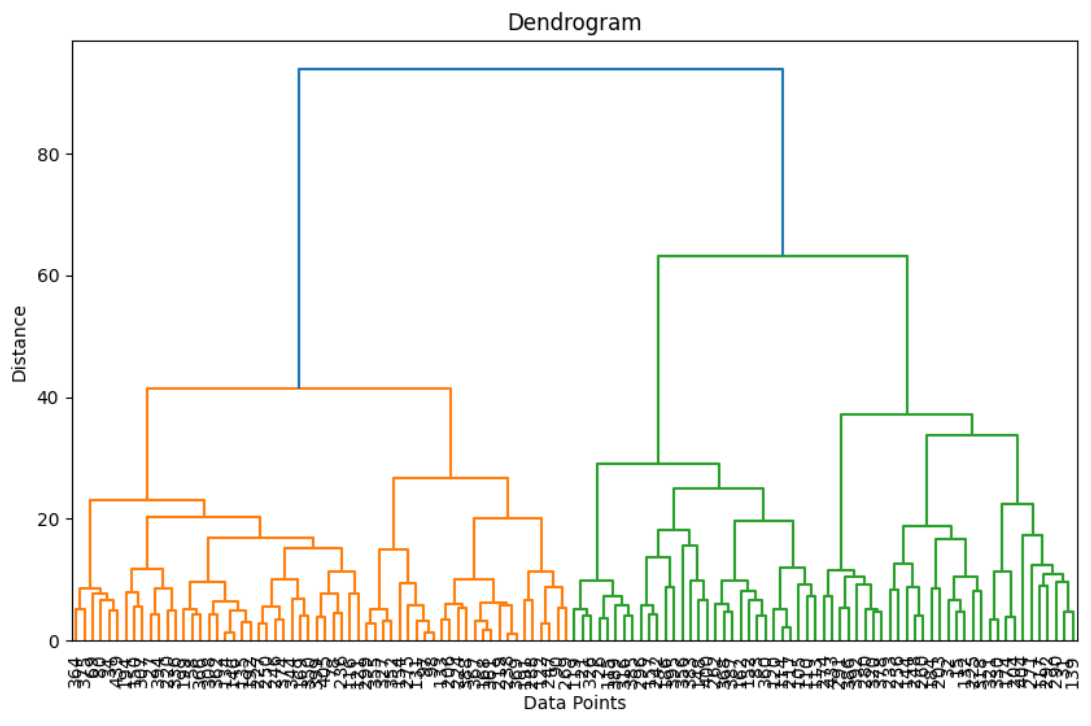
well-defined clusters

K-MEANS CLUSTERS WITH PCA



HIERARCHICAL CLUSTERING

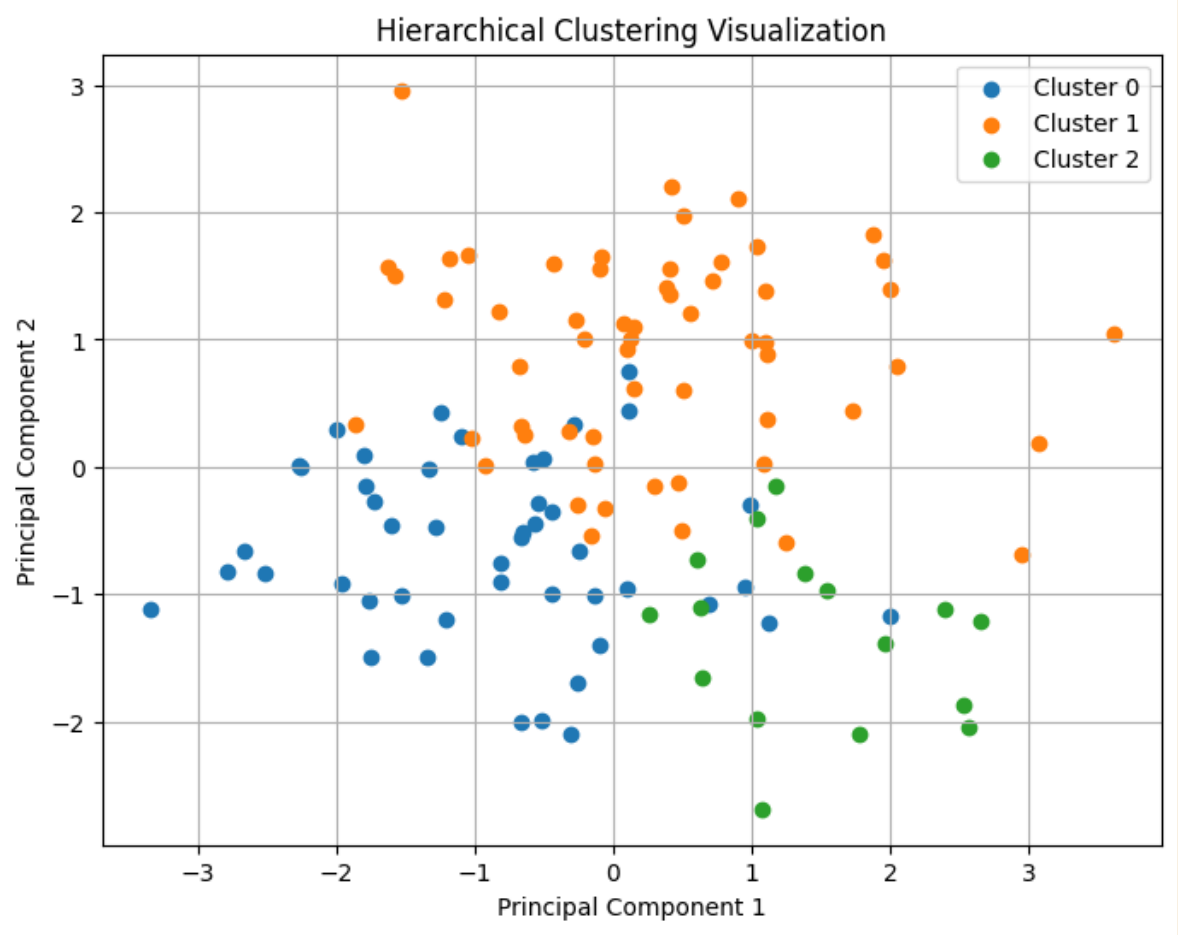
DENDROGRAM



- Number of clusters = 3
- Created cluster assignment for PCA and visualization
- Can use PCA or t-SNE

PCA

HIERARCHICAL CLUSTERING



CONCLUSION

- The scatter plot obtained from K-means clustering shows more scattered and disrupted data points, indicating that the clusters may not be well-defined or separated in the reduced space.

- The hierarchical clustering diagram exhibits well-defined clusters, suggesting that the algorithm has effectively grouped similar data points together based on the similarity measure, resulting in more cohesive and distinct clusters.

THANK YOU