UNSUPERVISED LEARNING

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AGENDA

Introduction

EDA

KMeans

Hierrachy

PCA

INTRODUCTION

The dataset is “Wholesale Data” from Kaggle. It refers to a client of a wholesale distributor.

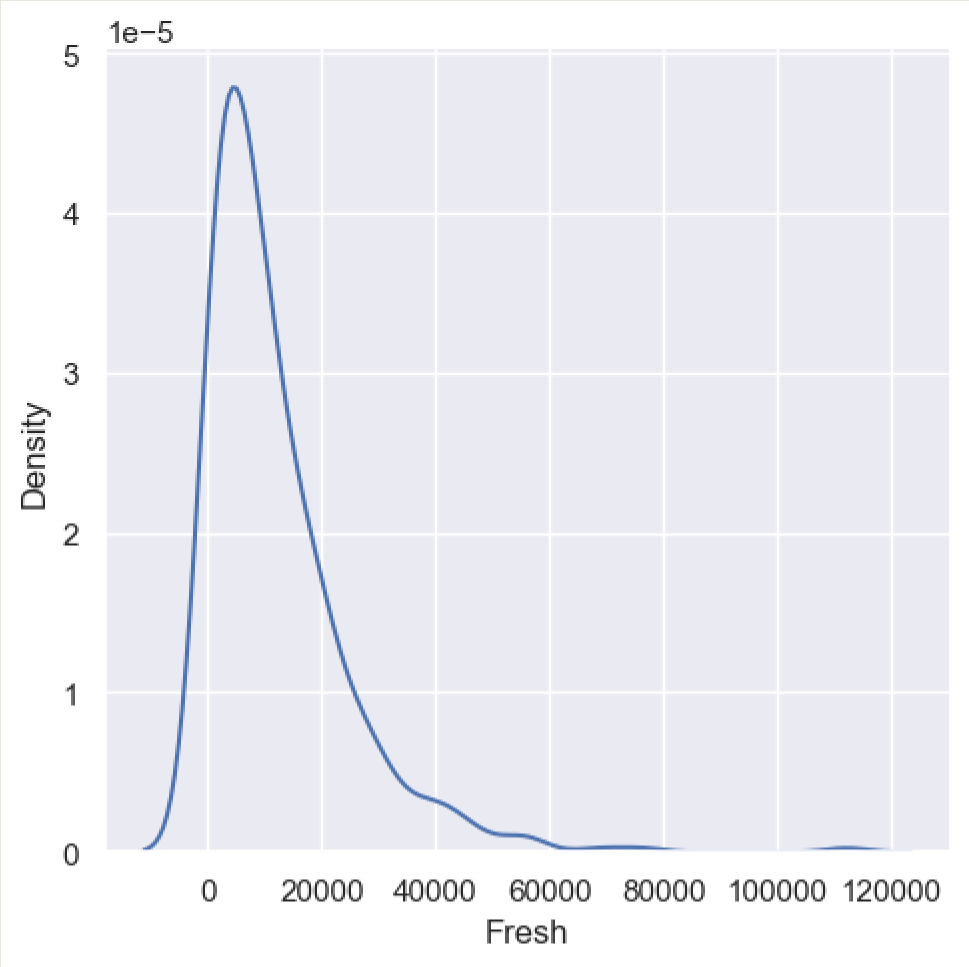
In this project, we will do the EDA and use K-means, hierarchy to identify the number of clusters.

We will also use PCA for feature reductions

EDA

During the EDA, there are some steps have been done

- Check missing values
- Check outliers
- Use data visualization to show the distribution of data
- Show the pairplot

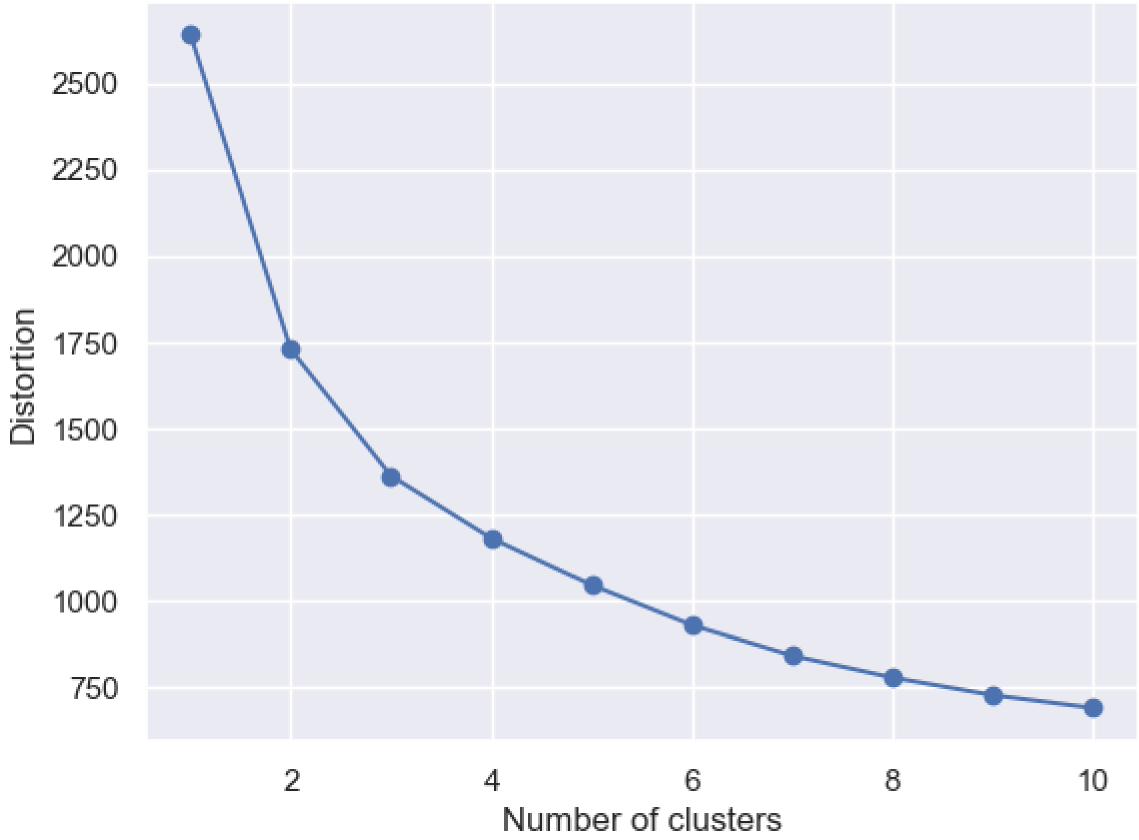


Summary

- There are 440 datapoints (observations)
- There are 8 features, including 2 categorical features (\`Channel\`, \`Region\`) and 6 numerical features
- There are no missing values.
- There are outliers in numerical features, which should be handled.

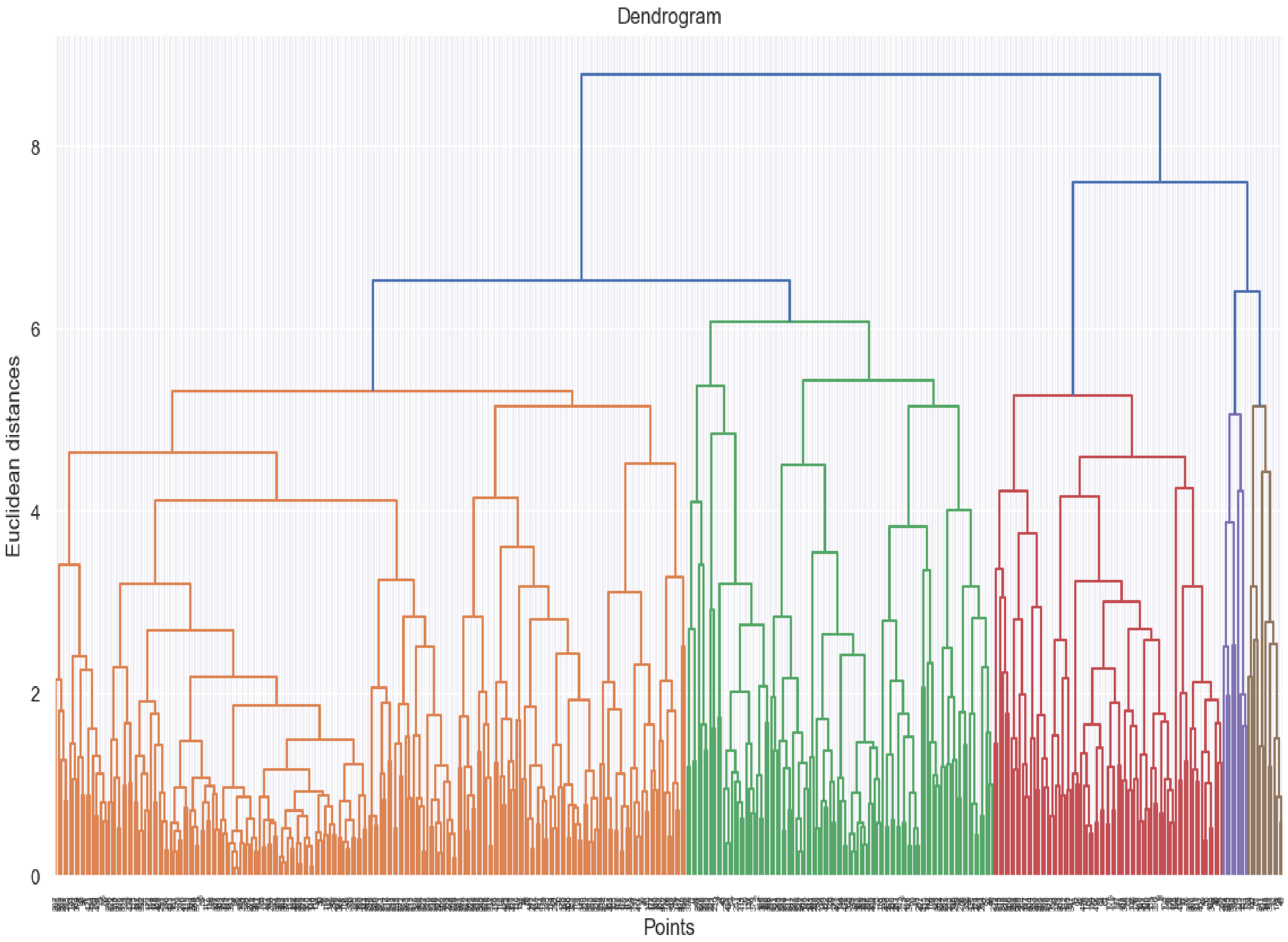
K-MEANS

- Using the Elbow method to identify the optimum number of clusters in K-Mean
- Summary: The optimum number can be from 5-6



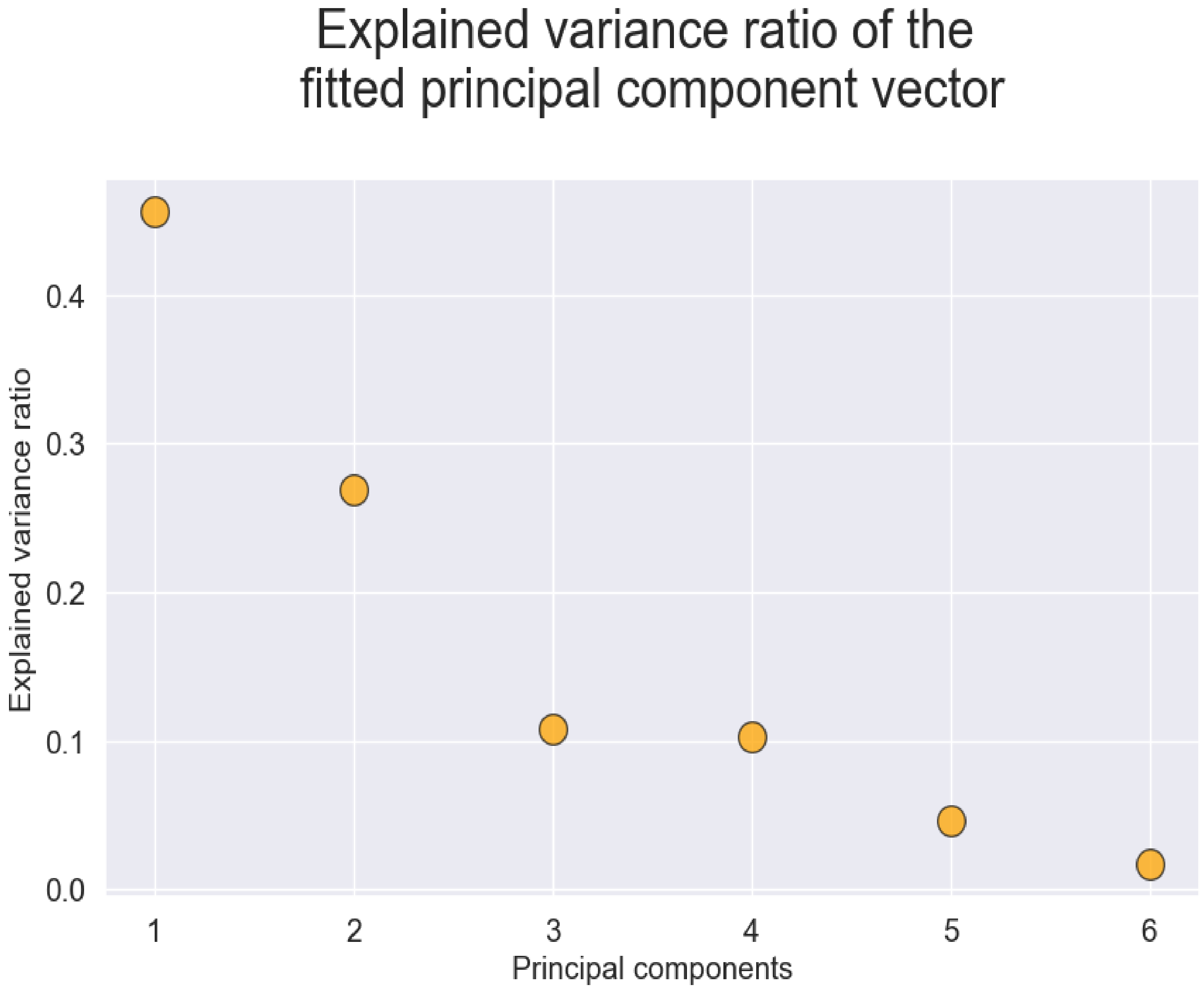
HIERRACHY

- Using the Dendogram to check the number of clustering
- Summary: The optimum number is 5



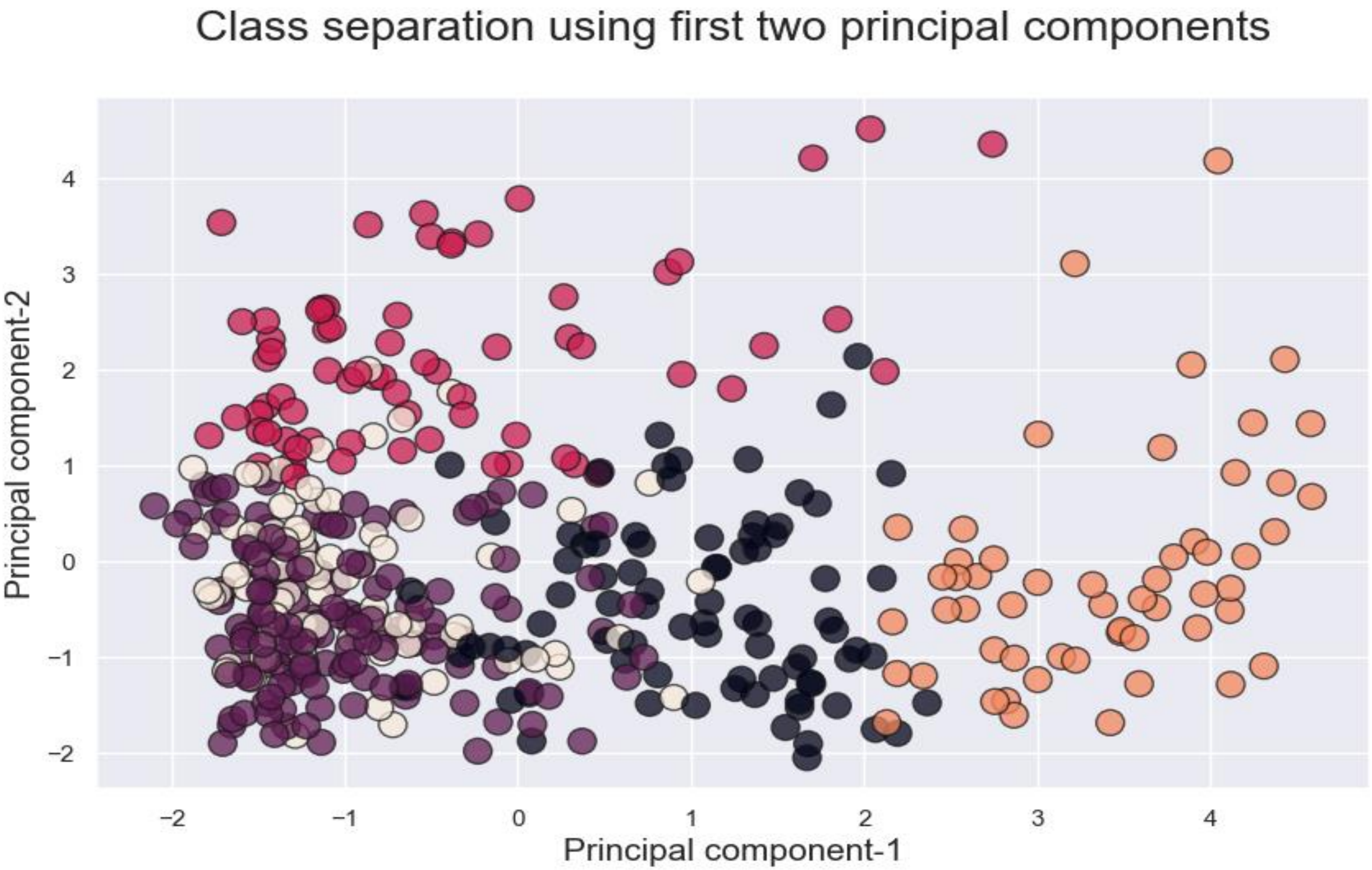
PCA

- Check the variance ratio
- Summary: The first 2 components has most of the information



PCA

- The class separation using the first 2 components
- We can see there are 5 clusters



CONCLUSION

- There are outliers in the dataset that must be handled

- The data should be scaled for learning

- The K-means clustering and hierarchy clustering can be used together to cross-check the optimum cluster number

- PCA has 2 components, the first holds 45% and the second holds 27% of the information

THANK YOU