Feature Extraction Workshop

1. In this workshop, we shall perform Feature Extraction using PCA.

2. Please use the dataset *wine.csv* for the questions that follow.

3. Plot the distributions, differentiated by 'Cultivar', for the following features:
   - Alaclinity of ash
   - Flavanoids
   - Hue
   - Proline

4. Perform feature-scaling on the dataset.

5. Plot the distributions, differentiated by 'Cultivar', for the following features after feature-scaling:
   - Alaclinity of ash
   - Flavanoids
   - Hue
   - Proline

6. Generate 4 new set of features using PCA.

7. Print out the amount of variance captured for each Principal Component.

8. Print out the total amount of variance captured for the 4 Principal Components.

9. Print out the minimim number of Principal Components required to capture at least 85% of the information of the dataset

10. What is the maximum number of Principal Components that can be generated from our dataset?