K-means clustering

- Implement K-means clustering (use only numpy and scipy functions)
- Calculate the sum of squared errors (also known as distortion) for k=3
- Bonus
  - Calculate the sum of squared errors for k=2-10
  - Use the elbow method to find the optimal cluster number

Principal Component Analysis
Gaussian Mixture Model
(Homework)

- Implement PCA using numpy and scipy functions
- Transform the heart disease using PCA and keep only the first two components
- Cluster the transformed heart disease data using a Gaussian Mixture Model (scikit-learn implementation) with 3 components
- Compare these results with the K-means clustering (k=3). (you can use the scikit-learn implementation)
- Visualize the two clustering results