

**Hierarchical Clustering.** Prof. Carolina Ruiz. Department of Computer Science. WPI

Consider the following dataset of one-dimensional instances: {6, 12, 15, 23, 30, 42, 46}.



1. Follow the “Single Link” (= MIN) version of hierarchical clustering to cluster this dataset. Show your work step by step and the resulting dendrogram.

Assume that you want to cluster the dataset into exactly 2 clusters. Which 2 clusters would single link hierarchical clustering output from the dendrogram above?

2. Follow the “Complete Linkage” (= MAX) version of hierarchical clustering to cluster this dataset. Show your work step by step and the resulting dendrogram.

Assume that you want to cluster the dataset into exactly 2 clusters. Which 2 clusters would complete linkage hierarchical clustering output from the dendrogram above?

3. Follow the "Group Average" version of hierarchical clustering to cluster this dataset. Show your work step by step and the resulting dendrogram.

Assume that you want to cluster the dataset into exactly 2 clusters. Which 2 clusters would group average hierarchical clustering output from the dendrogram above?

4. Follow the "Distance between Centroids" version of hierarchical clustering to cluster this dataset. Show your work step by step and the resulting dendrogram.

Assume that you want to cluster the dataset into exactly 2 clusters. Which 2 clusters would distance between centroids hierarchical clustering output from the dendrogram above?