1: k-means

Problem: Use k-means with k=2 and k=3 to cluster the data. When using k=2, start with data points 9 and 15 as initial seeds. When using k=2, start with data points 6, 9 and 15 as initial seeds.

Result:

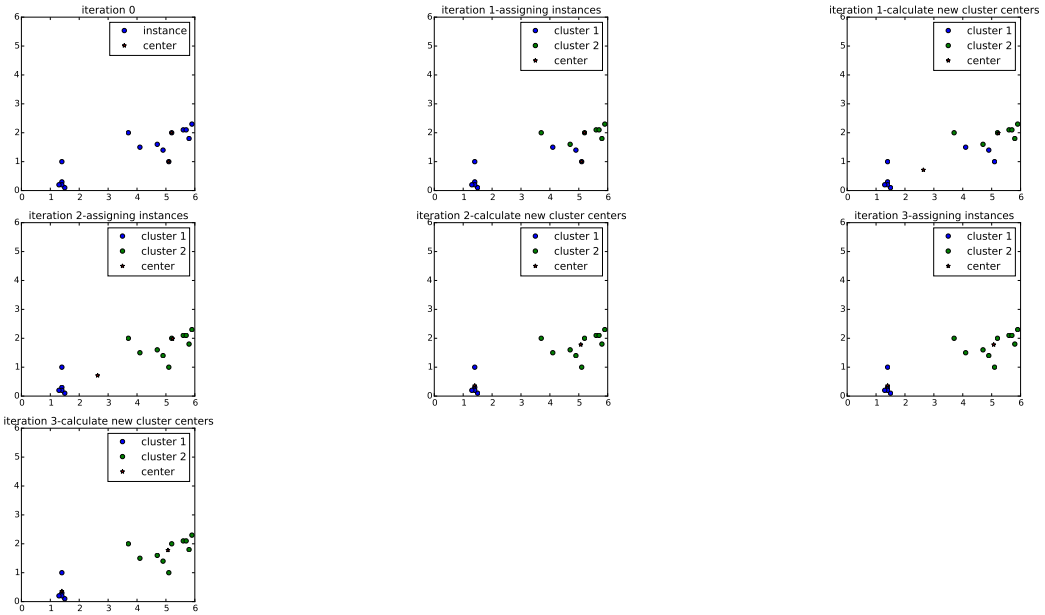

Figure 1: k=2, data points 9 and 15 as initial seeds

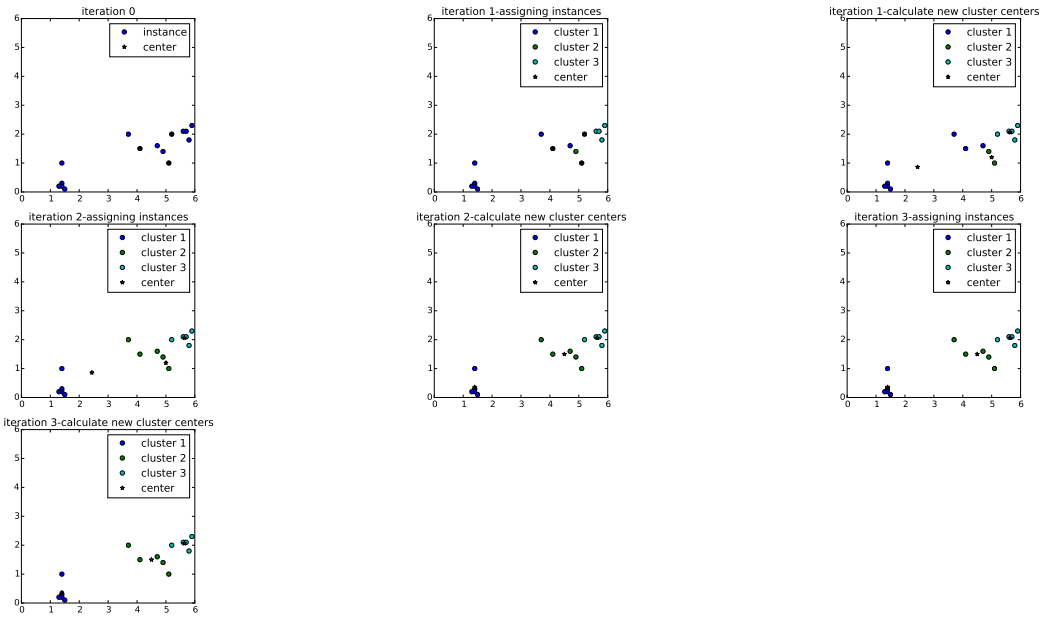

Figure 2: k=3, data points 6, 9 and 15 as initial seeds

2: single-link agglomerative clustering

Problem: Use single-link agglomerative clustering to cluster the data. From the hierarchy, identify the clusters obtained if partitioning the data into 2 clusters and if partitioning the data into 3 clusters.

Result:

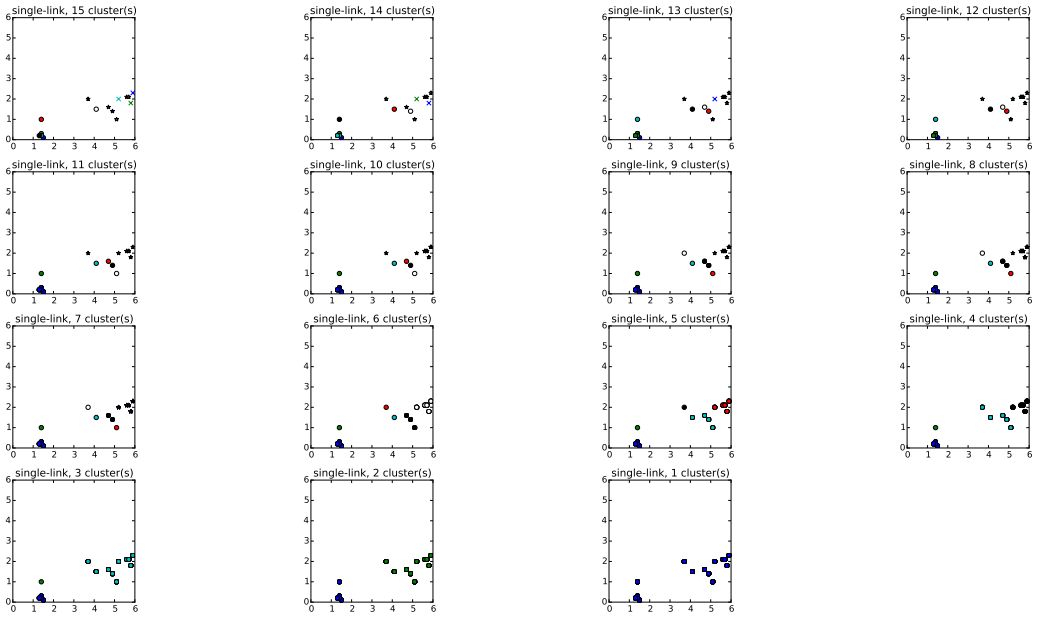

Figure 3: Single-link Agglomerative Clustering

3: complete-link agglomerative clustering

Problem: Use complete-link agglomerative clustering to cluster the data. From the hierarchy, identify the clusters obtained if partitioning the data into 2 clusters and if partitioning the data into 3 clusters.

Result:

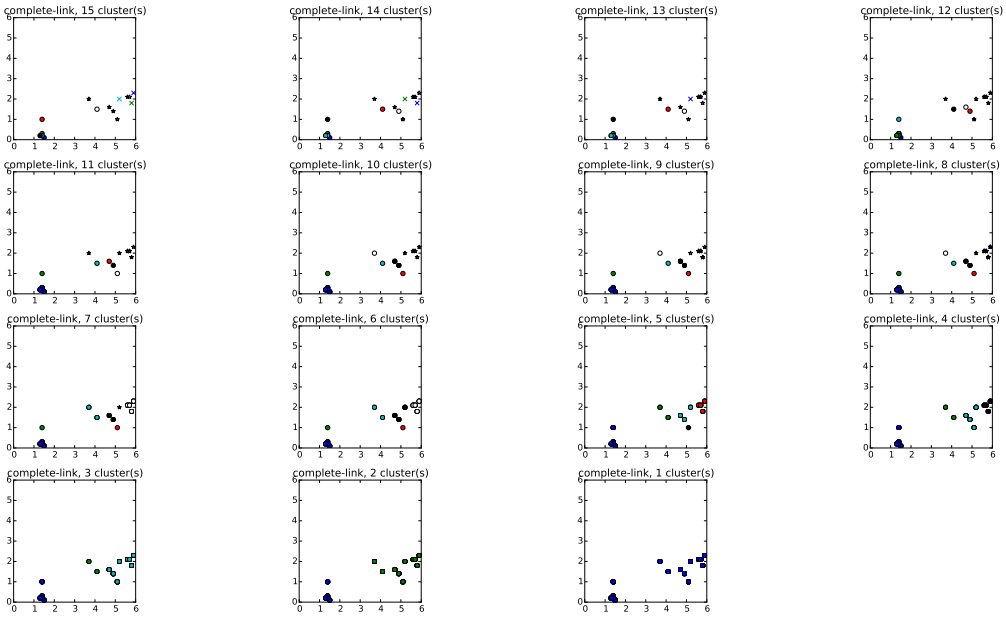

Figure 4: Complete-link Agglomerative Clustering