KMEANS:

**Advantages :**  
1) If variables are huge, then  K-Means most of the times computationally faster than hierarchical clustering, if we keep k smalls.  
  
2) K-Means produce tighter clusters than hierarchical clustering, especially if the clusters are globular.

3) Kmeans is quite fast

**Disadvantages:**

When the data is non globular shapes

Effected with outliers

It does not work well with clusters (in the original data) of Different size and Different density

Different initial partitions can result in different final clusters.

Sensitive to scale: rescaling your datasets (normalizaHon or standardizaHon) will completely change results. While this itself is not bad, not realizing that you have to spend extra attention to scaling your data might be bad.

**Hierarchical Clustering:**

**Advantages**

• Hierarchical clustering outputs a hierarchy, ie a structure that is more informaHve than the unstructured set of flat clusters returned by k-means. Therefore, it is easier to decide on the number of clusters by looking at the dendrogram (see suggesHon on how to cut a dendrogram in lab8).

• Easy to implement

**Disadvantages**

• It is not possible to undo the previous step: once the instances have been assigned to a cluster, they can no longer be moved around.

• Time complexity: not suitable for large datasets

• IniHal seeds have a strong impact on the final results

• The order of the data has an impact on the final results •

Very sensiHve to outliers