Hierarchical Clustering

BY MG ANALYTICS

Agglomerative clustering

- It creates a hierarchy of clusters, and presents the hierarchy in a dendrogram.
- This method does not require the number of clusters to be specified at the beginning.
- Distance connectivity between observations is the measure.
- This is a bottom-up approach.
- Each observation starts in its own cluster.
- the similarity (or the distance) between each cluster is computed and then we merge the two most similar ones at each iteration until there is only one cluster left.

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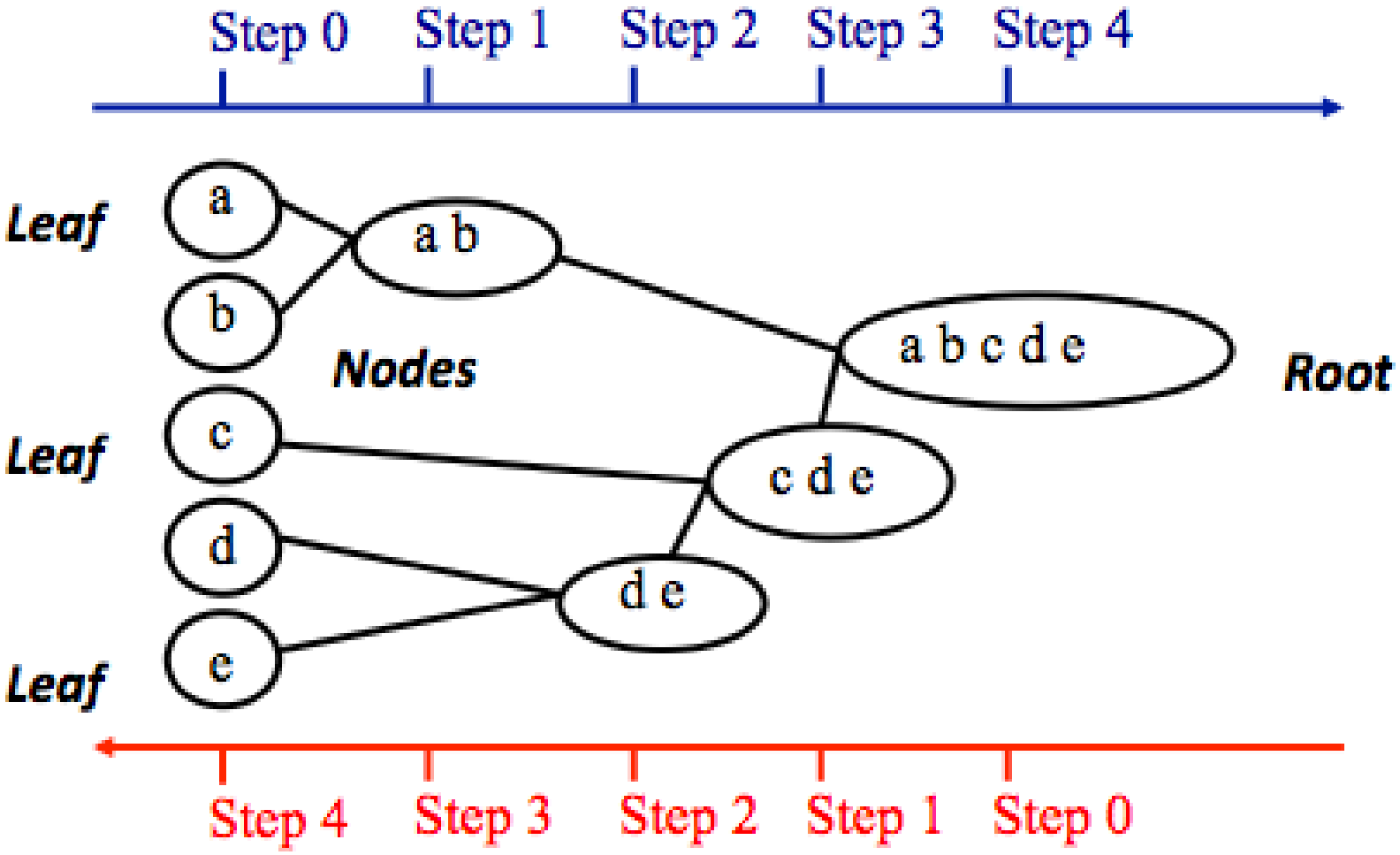
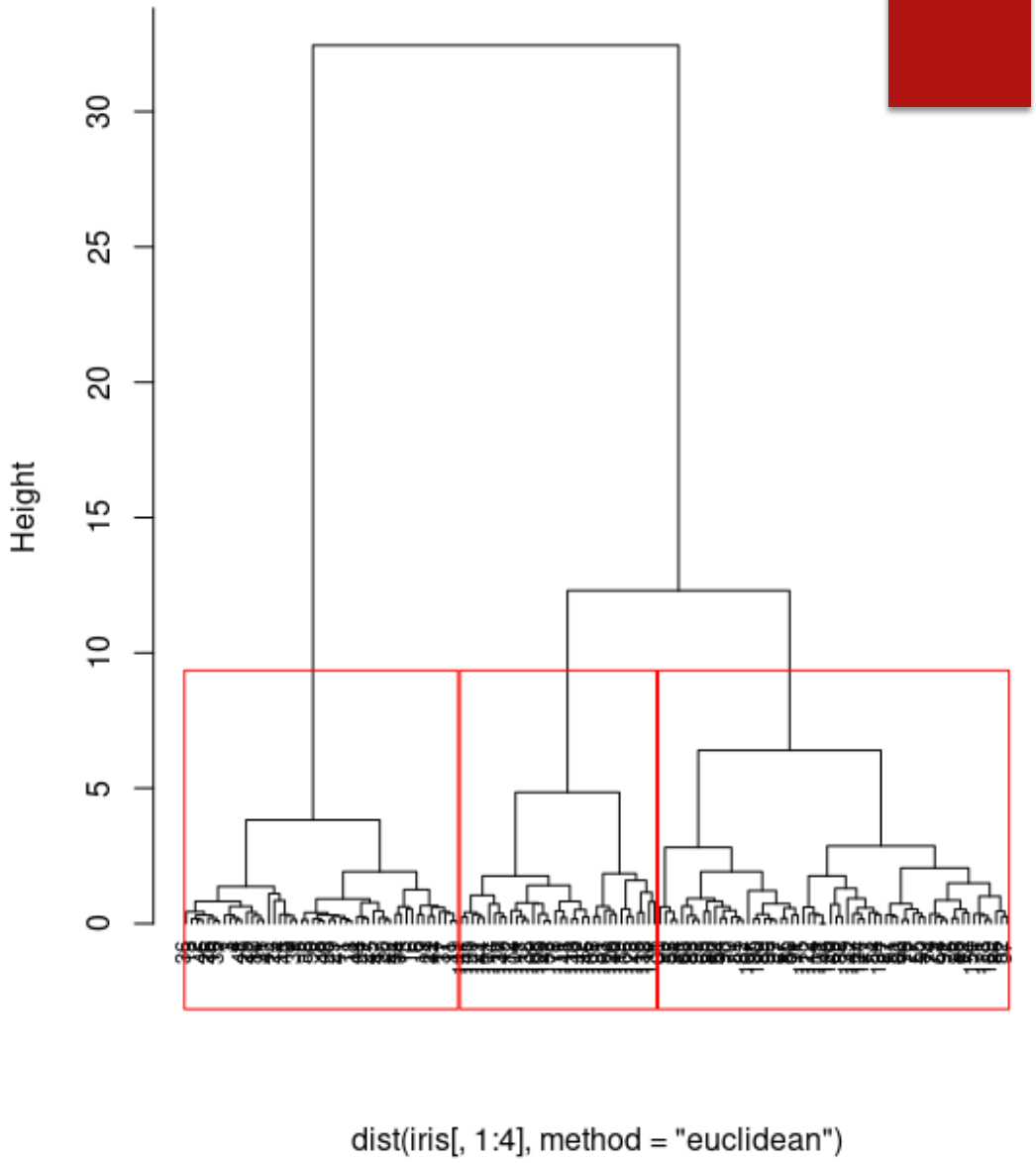

Step 0
Step 1
Step 2
Step 3
Step 4
Leaf
a
b
Leaf
c
d
Leaf
e
a b
Nodes
c d e
d e
a b c d e
Root
Step 4
Step 3
Step 2
Step 1
Step 0

- A tree that shows how clusters are merged/split hierarchically
- Each node on the tree is a cluster
- Each leaf node is a singleton cluster



- Computationally heavy.
- Suitable for smaller data set.
- Gives same clusters every time.
- No need to provide number of clusters at the beginning
- Difficulty handling different sized clusters and irregular shapes.