

# Hierarchical Clustering

→ 2 types:

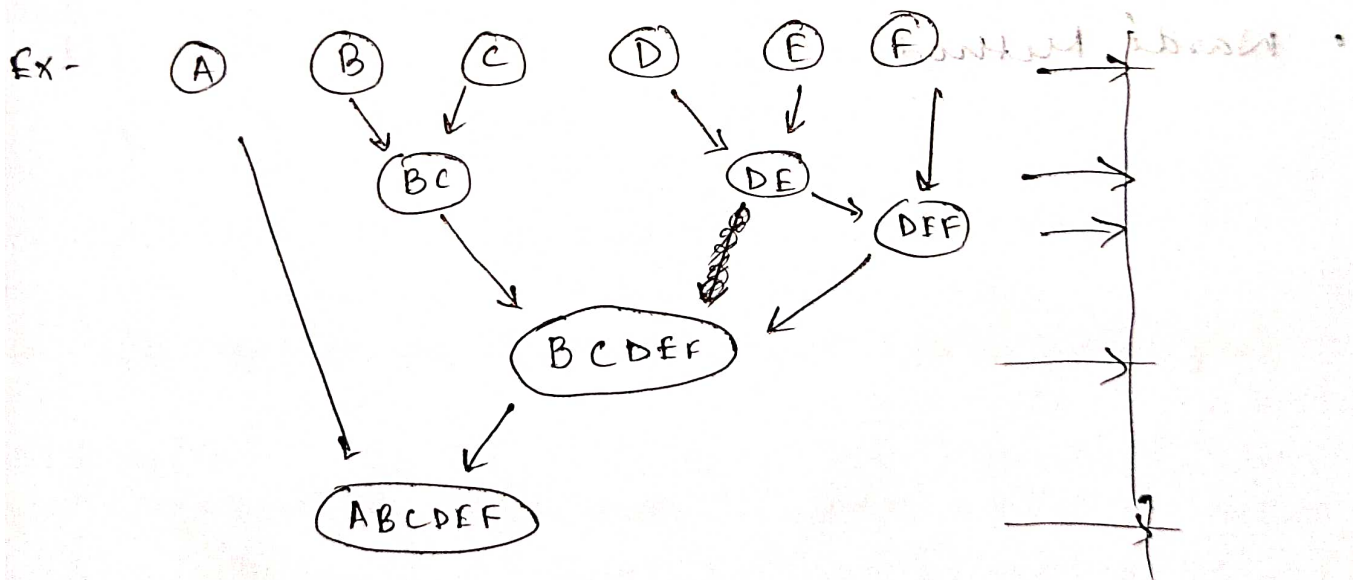
(i) Agglomerative

(ii) Divisive

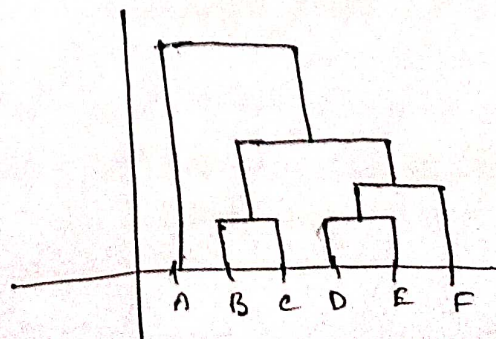
## Agglomerative

- Compute Proximity Matrix
- Let each Data point be a cluster
- Repeat: Merge the two closest clusters & update proximity matrix
- Until only single matrix/cluster remains

Algorithm.



→ Dendrogram is a tree like structure that records sequences of merges & splits



## 2. Distance Hierarchical Clustering

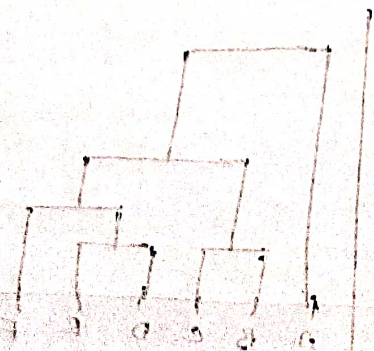
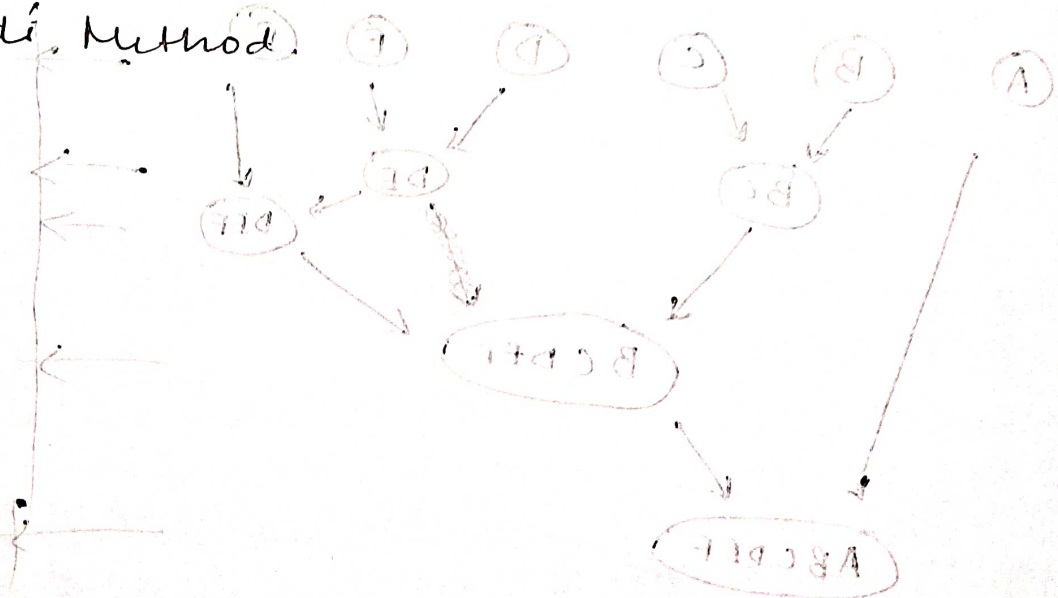
- Opposite of agglomerative
- Not very used.

## Distance b/w clusters

→ Euclidean distance of 1 point & another.

## Similarity b/w clusters

- MIN
- MAX
- Group Average
- Distance b/w centroids
- Ward's Method



Distance between is a force  
the structure that  
records sequence of  
number of nodes