

Agglomerative Hierarchical clustering

1) Single (minimum) linkage

Distance between clusters C_i, C_j is the minimum distance between any object in C_i and any object in C_j

$$\text{sim}(C_i, C_j) = \min_{x \in C_i, y \in C_j} \text{sim}(x, y)$$

The data given

P_1 120, 52, 32
 P_2 192, 95, 28
 P_3 150, 45, 30
 P_4 170, 65, 29
 P_5 125, 78, 35
 P_6 185, 90, 32
 P_7 120, 65, 28
 P_8 155, 48, 31
 P_9 160, 55, 30
 P_{10} 182, 80, 30
 P_{11} 175, 69, 28
 P_{12} 180, 20, 27
 P_{13} 160, 50, 31
 P_{14} 125, 72, 30

1. After calculating the Euclidean matrix of size 14×14

The minimum distance b/w

P_3, P_4 / minimum distance is $\boxed{1.00}$

After recalculating the distance

2. P_{10}, P_{12} / distance = $\boxed{3.60551}$

After recalculating the distance

3. P_{11}, P_{14} / distance = $\boxed{3.60551}$
After recalculating the distance

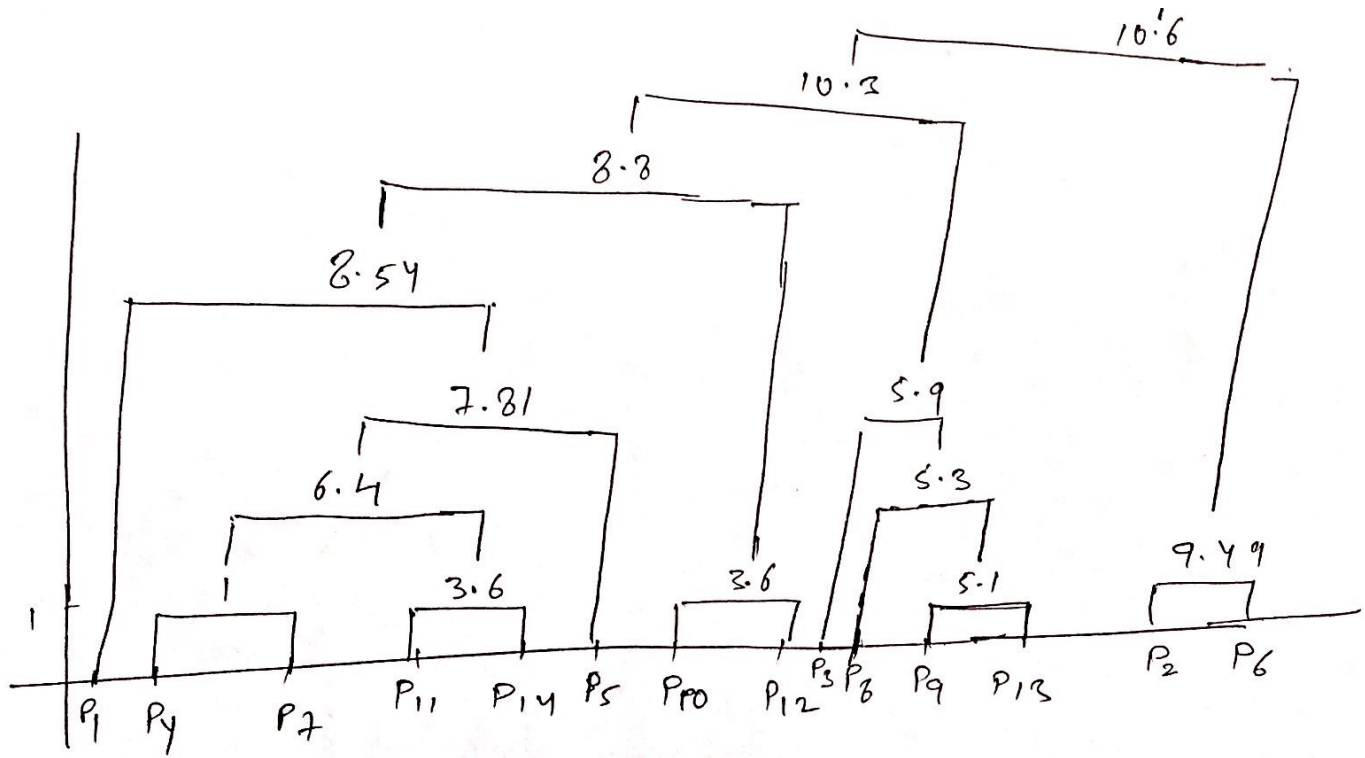
4. P_9, P_{13} / distance = $\boxed{5.09902}$

After recalculating the distance

5. P_2, P_6 / distance = $\boxed{9.48683}$

After recalculating the distance

(see the Dendrogram on the next page)



b) Complete Gantt

I have used a python program to help with the process of building the Gantt charts.

The file is included with the zip]

(not all loops are implemented, I have used it as a help tool!

