Lab Exercise – 13 – Hierarchical Clustering

NOTE:

* Prepare a PDF document and name the file as “Lab13_RegisterNo.pdf”.
* PDF file should consist Question No, Code, and Result for each Question.
* File Should be headed with your Register number, Slot number, Lab Exercise number.

1. Develop an Agglomerative Hierarchical Clustering algorithm to apply clustering on the following data objects referred by (x, y) pair:

A1(2, 10), A2(2, 5), A3(8, 4), A4(5, 8), A5(7, 5), A6(6, 4), A7(1, 2), A8(4, 9)

- Use Euclidian distance metric to calculate distance matrix.
- Methodology to use to form step wise hierarchy or to update the distance matrix are:
  - Single Linkage or Nearest-Neighbour Clustering
  - Complete Linkage or Farthest-Neighbour Clustering
  - Average Linkage

Apply both methodologies and trace the progress of Agglomerative clustering.

Note: Develop algorithm using core functionalities and **do not use** any predefined packages like **mlxtend**.