

## Problem 4 (10pts)

To answer a numerical value, enter only the numerical value in the answer box and units are not required. If a problem statement says "up to N decimal places", answer by rounding off the N+1 decimal places.

1.

Clusters A and B contain the following two-dimensional data.

A: (0,0), (0,1)

B: (1,1), (1,2), (2,2)

Find the distance between clusters A and B using the Ward method and answer up to the second decimal place.

3.77

2.

In `ai_mid4.csv`, the types of wine (class column) and its characteristics (alcohol, malic\_acid, ash column) are recorded. Perform hierarchical clustering using the alcohol, malic\_acid, and ash columns. Use the Ward method as the inter-cluster distance and the Euclidean distance as the distance function. You can use the `ai_mid4_sample.ipynb` file if needed.

Set the number of clusters is 3, create a cross-tabulation table with the class column, and answer the numbers of type A wine in clusters 1, 2, 3, respectively.

cluster 1

6

cluster 2

46

cluster 3

7

ipynb file:

ファイルを選択 選択されていません



html file:

ファイルを選択 選択されていません

