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Homework - 5

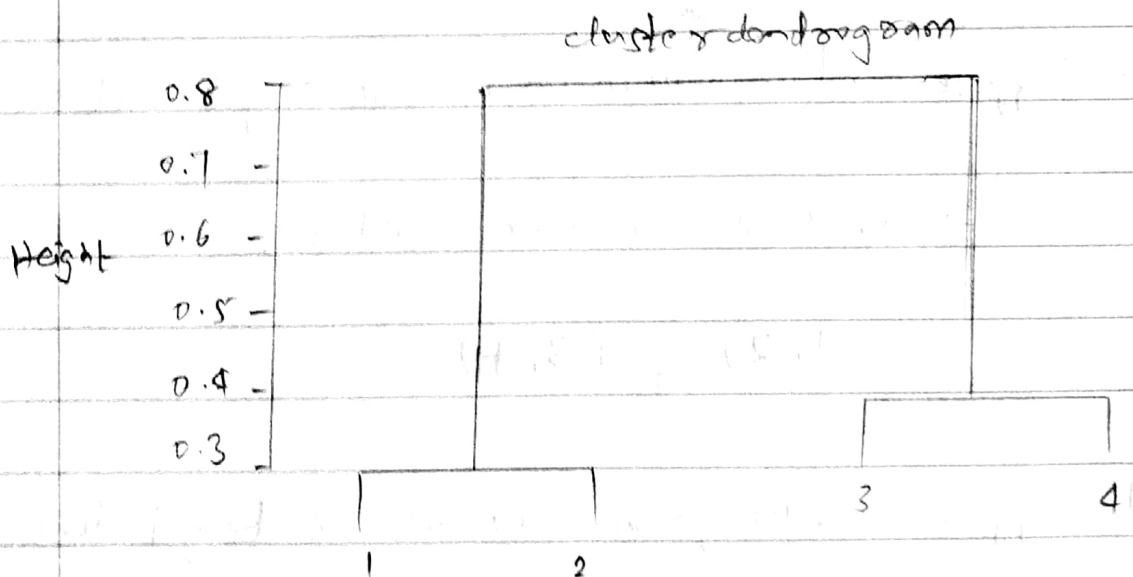
ISLP 10.7.2

Solution:

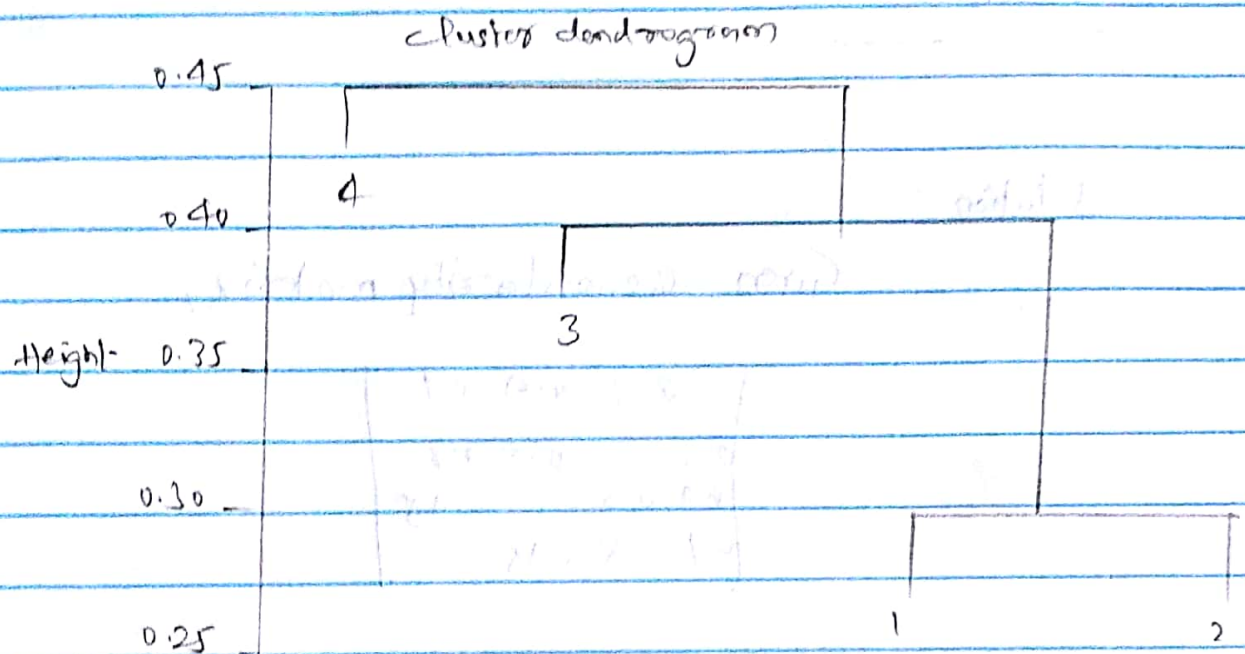
Given dissimilarity matrix,

$$\begin{bmatrix} 0.3 & 0.4 & 0.7 \\ 0.2 & 0.5 & 0.8 \\ 0.4 & 0.5 & 0.45 \\ 0.7 & 0.8 & 0.45 \end{bmatrix}$$

(a) Sketch of dendrogram, using complete linkage:



(b) Using Single linkage:



(c) Suppose dendrogram in (b) is cut to get two clusters,
observations in each cluster,

$(1, 2)$, $(3, 4)$

(d) Suppose dendrogram in (b) is cut to get two clusters,
observations in each cluster,

$(1, 2, 3)$, (4)

②

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(e) Equivalent dendrogram for (a), for which two or more of the leaves are repositioned, but the meaning of the dendrogram remains same

cluster dendrogram

