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CSE 4309 – 001 Machine Learning
Assignment 6

Task – 2

No, the clustering cannot be the result of the k-means algorithm**.** This is because the blue dots on the adjacent sides of the red dots are the closest to the red's mean compared to the blue's mean which in the first case is the red dot itself. So, the adjacent blue dots will be changed to red dots, and this will continue until a stable cluster is reached.

Task – 3

a. No, it will not give same results when applied to same dataset with the same K because the EM algorithm uses a mixture of gaussians which will give a different value every time, therefore giving slightly different results every time.

b. Yes, the agglomerative clustering will always give the same result with the same dataset because the minimum distance with the same data sets without any ties will always give the same clusters.

Task – 4

a. 2, 4, 7, 11, 16, 22, 29, 37
(2, 4), 7, 11, 16, 22, 29, 37
(2, 4, 7), 11, 16, 22, 29, 37
(2, 4, 7, 11), 16, 22, 29, 37
(2, 4, 7, 11, 16), 22, 29, 37
(2, 4, 7, 11, 16, 22), 29, 37
(2, 4, 7, 11, 16, 22, 29), 37
(2, 4, 7, 11, 16, 22, 29, 37)

b. 2, 4, 7, 11, 16, 22, 29, 37
(2, 37), 4, 7, 11, 16, 22, 29
(2, 29, 37), 4, 7, 11, 16, 22
(2, 22, 29, 37), 4, 7, 11, 16
(2, 16, 22, 29, 37), 4, 7, 11
(2, 11, 16, 22, 29, 37), 4, 7
(2, 7, 11, 16, 22, 29, 37), 4
(2, 4, 7, 11, 16, 22, 29, 37)