readme

Introduction:

In Q4, to implement the EM algorithm, we mainly adopt the method instructed in the lecture. and following the method.

Methods:

E:

1. Initially, let c1 = (0,0,0,0,0,0) and c2 = (1,1,1,1,1,1)
2. Step2: assign the objects to clusters: c1 and c2;
3. Calculate the weight for each object for each cluster by the relative distance and get the partition matrix.

M:

1. Recalculate the centroids according to the partition matrix;
2. And then repeat the same process, assign new objects to new clusters:c1 and c2.

Results:

The overall iteration step is 34 iteration.

	C1	C2	SSE
1_iteration	[2.98792136 7.30724305 16.48227403 10.65664851 0.23655629 1.00679373]	[2.69065848 5.55601619 12.26620984 7.48120434 0.24285351 0.99747068]	367111.5055774729
2_iteration	[3.3178565 8.76258517 20.6221998 13.79747907 0.28891998 1.08775325]	[2.50680171 4.77056093 10.16570693 5.82192441 0.20821519 0.95235302]	364992.69540533435
Total_iteration	[4.62056755, 14.72014621, 38.4113867, 27.06530661, 0.28272855, 1.36682765]	[2.39808449, 4.13452911, 8.33493857, 4.39337388, 0.22207279, 0.9255393]	