CS550: Data Mining and Business Intelligence
Homework #2
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Question 2:

Please refer K-means example to calculate 2-cluster K-means for the following subjects.

Subject	A	B	Centroid	Distance from Centroid 1.25	Distance from Centroid 5.5
1	1.5	1.0	1.25	**0**	4.25
2	1.0	2.0	1.5	**0.25**	4
3	2.0	3.5	2.75	**1.5**	2.75
4	5.0	6.0	5.5	4.25	**0**
5	3.5	4.0	3.75	2.5	**1.75**
6	4.5	5.0	4.75	3.5	**0.75**
7	2.5	4.5	3.5	2.25	**2**

	Cluster 1		Cluster 2	
Step	Individual	Mean Vector (centroid)	Individual	Mean Vector (centroid)
1	1	(1.5, 1.0)	4	(5.0, 6.0)
2	1, 2	(1.25, 1.5)	4	(5.0, 6.0)
3	1, 2, 3	(1.5, 2.17)	4	(5.0, 6.0)
4	1, 2, 3	(1.5, 2.17)	4, 5	(4.5, 5)
5	1, 2, 3	(1.5, 2.17)	4, 5, 6	(4.33, 5)
6	1, 2, 3	(1.5, 2.17)	4, 5, 6, 7	(4.88, 4.88)

Subject	A	B	Distance to mean (centroid) of Cluster 1 (1.5, 2.17)	Distance to mean (centroid) of Cluster 2 (4.88, 4.88)
1	1.5	1.0	**1.17**	5.14
2	1.0	2.0	**0.53**	4.83
3	2.0	3.5	**1.42**	3.19
4	5.0	6.0	5.19	**1.13**
5	3.5	4.0	2.71	**1.63**
6	4.5	5.0	4.12	**0.4**
7	2.5	4.5	2.54	**2.41**

Question 25: Java + kNN + Falling Detection

Accelerometer Data			**Gyroscope Data**			**Fall (+), Not (-)**
x	**y**	**z**	**x**	**y**	**z**	**+/-**
1	**2**	**3**	**2**	**1**	**3**	**-**
2	**1**	**3**	**3**	**1**	**2**	**-**
1	**1**	**2**	**3**	**2**	**2**	**-**
2	**2**	**3**	**3**	**2**	**1**	**-**
6	**5**	**7**	**5**	**6**	**7**	**+**
5	**6**	**6**	**6**	**5**	**7**	**+**
5	**6**	**7**	**5**	**7**	**6**	**+**
7	**6**	**7**	**6**	**5**	**6**	**+**
7	**6**	**5**	**5**	**6**	**7**	**+**