

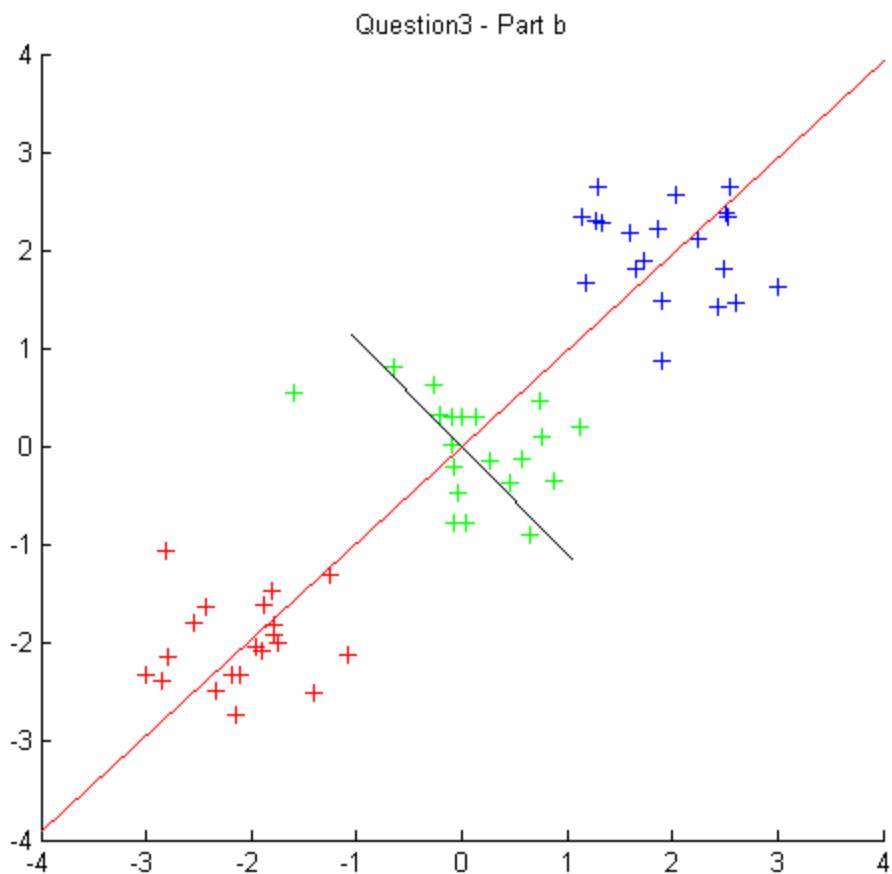
Assignment 6

Harsimran Singh

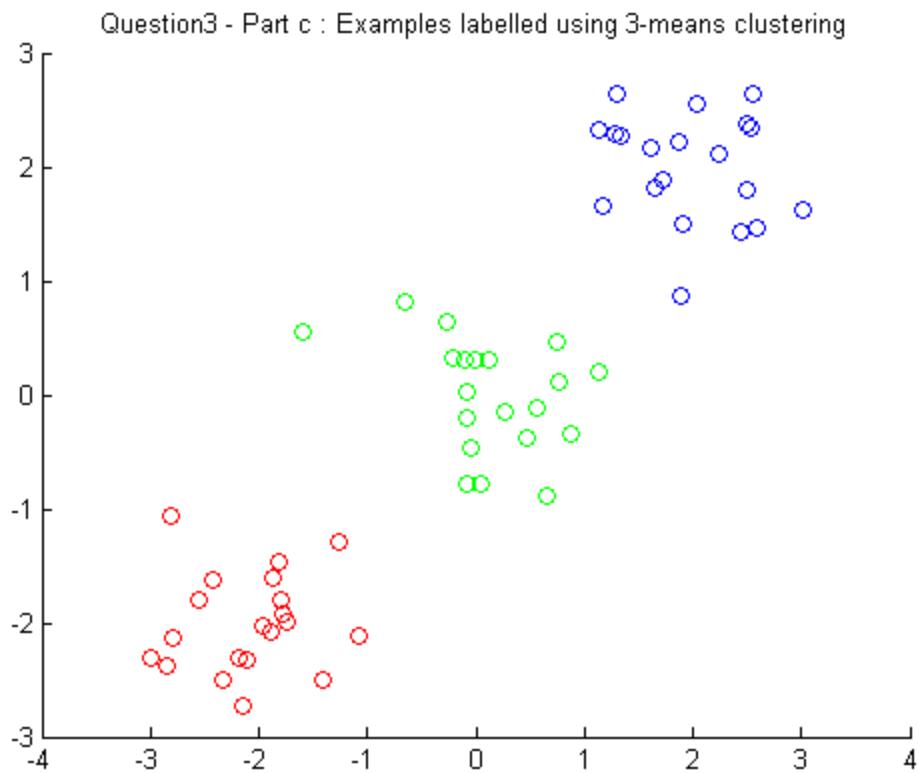
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Answer 3

b.

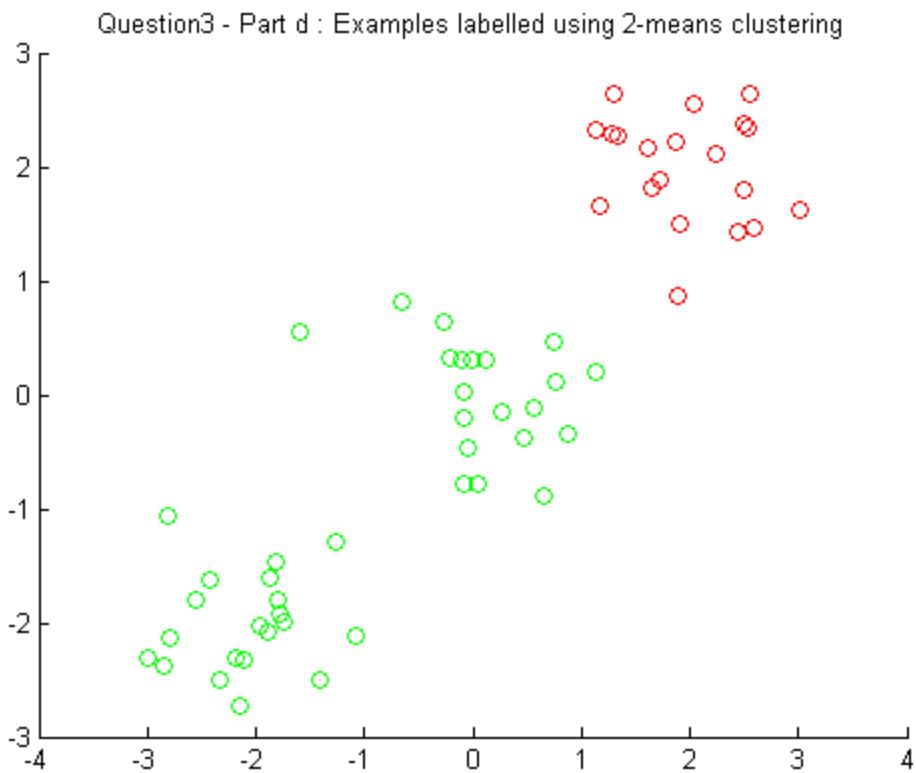


c.



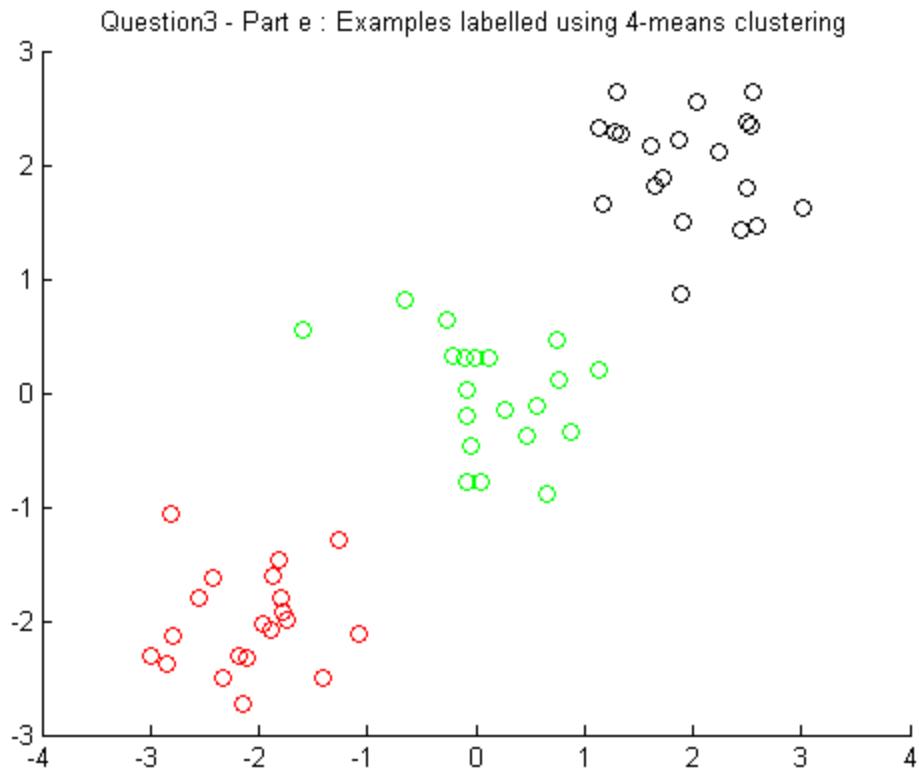
The clusters that I obtained from K-mean clustering are exactly same as the original clusters.

d.



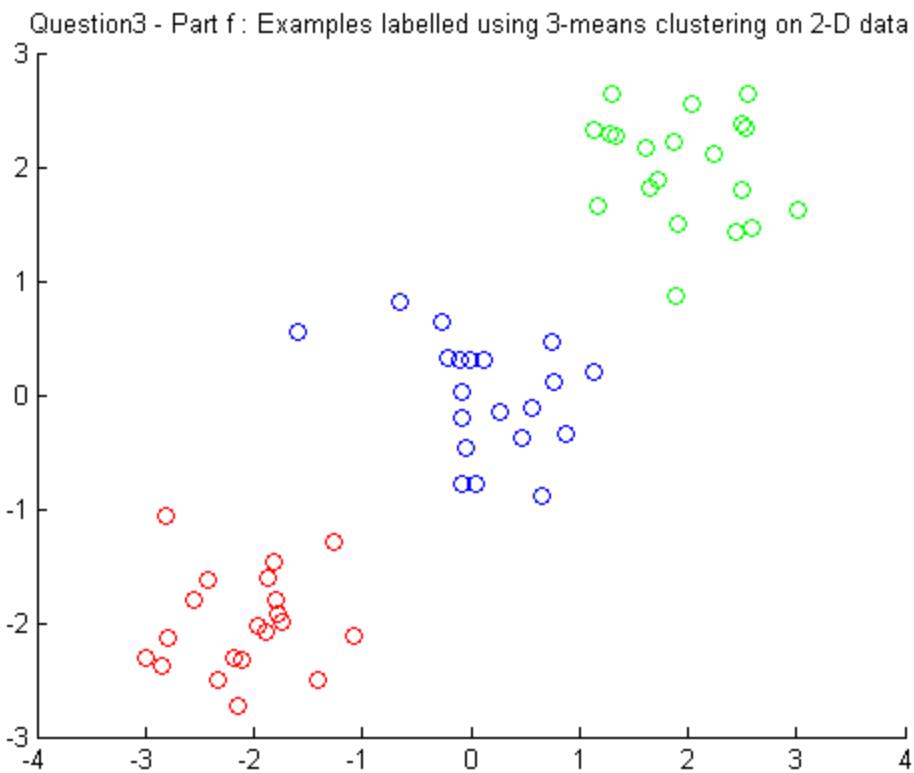
2-mean clustering combined to similar classes to make two clusters.

e.



The result of 4-mean clustering is same as the result of 3-mean clustering.

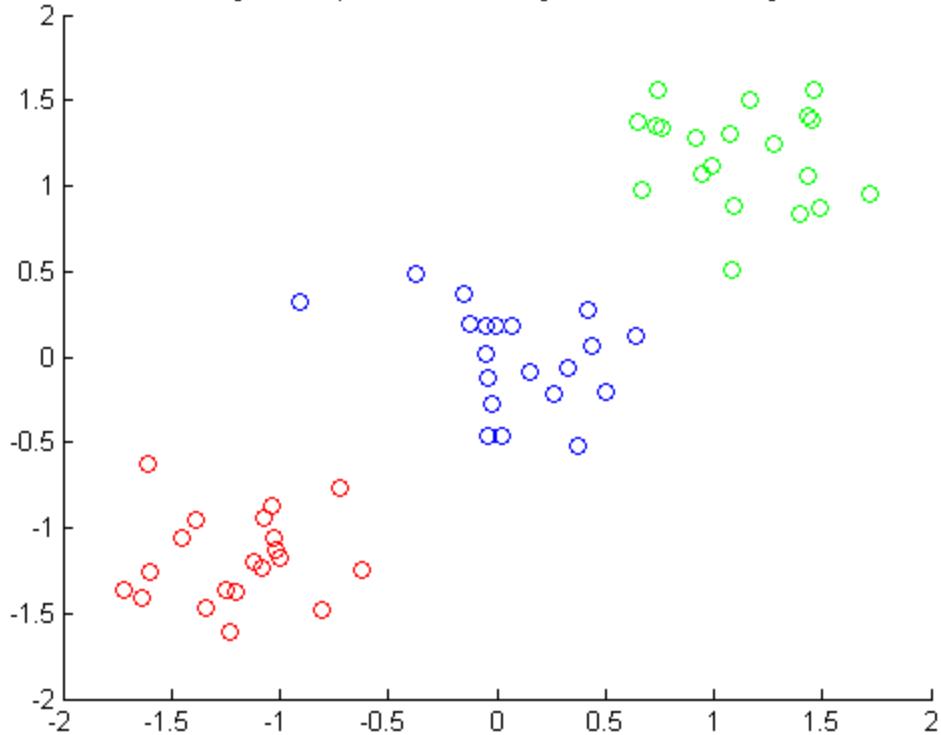
f.



Because we have plotted our data point in 2-D space, and the number of dimensions of example is also 2, Hence 3-mean clustering can successfully classify these examples.

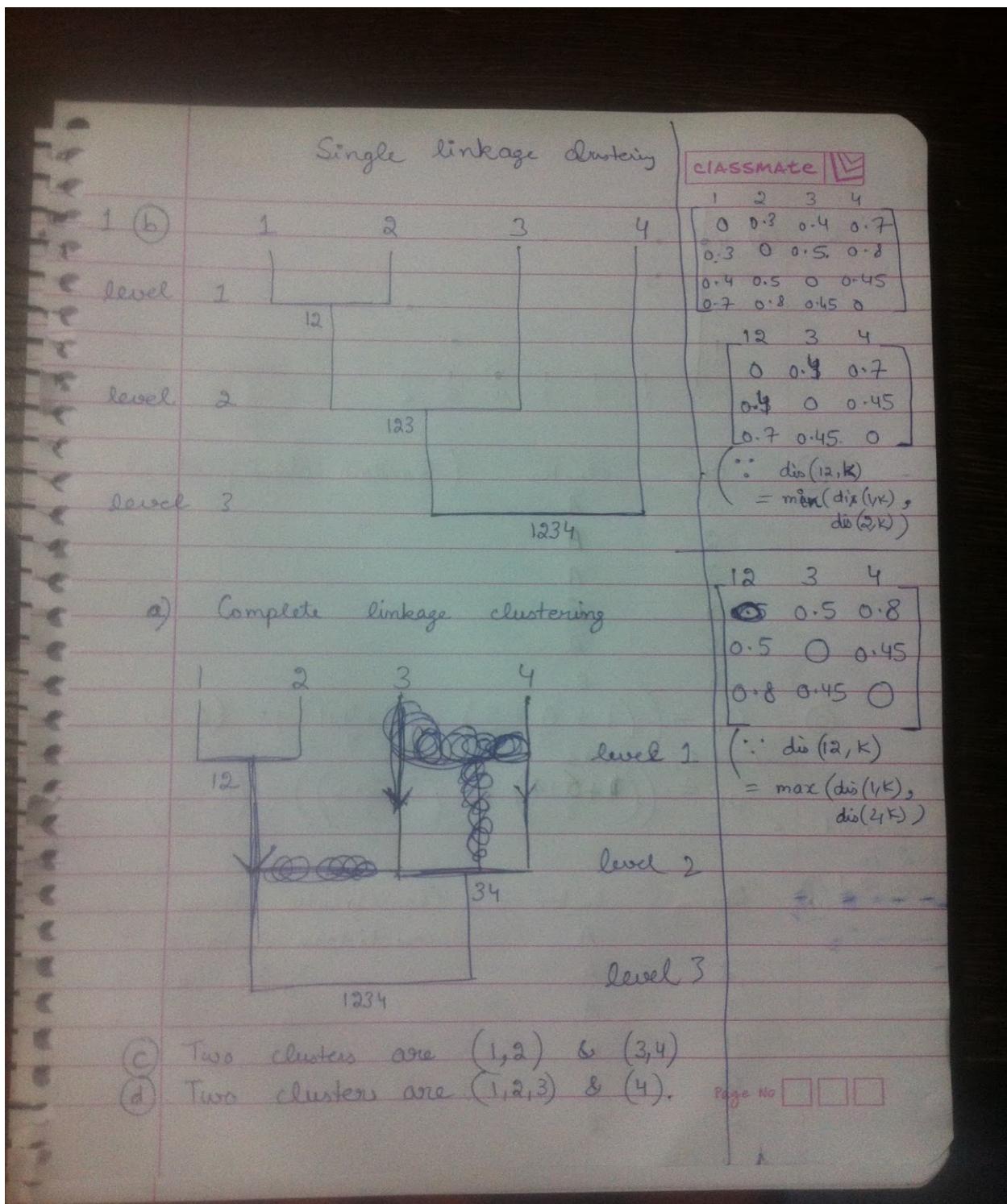
g.

Question3 - Part g : Examples labelled using 3-means clustering on scaled data

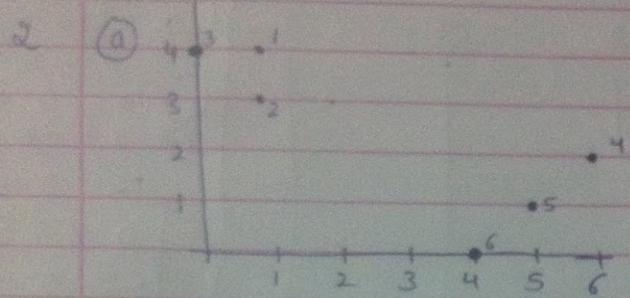


These results are still same as that of 3-mean clustering on the examples which are not scaled.

Answer 1



Answer 2



(b) Obj cluster (Random classification)

1	A
2	B
3	A
4	B
5	A
6	B

(c) $C_{11} = \left(\frac{1+0+5}{3}, \frac{4+4+1}{3} \right) = (2, 3)$

centroid 1 in round 1

$C_{21} = \left(\frac{1+6+4}{3}, \frac{3+2+0}{3} \right) = \left(\frac{11}{3}, \frac{5}{3} \right)$

centroid

2 in

round 2

(d) Obj cluster (Classification using euclidean distance)

1	A
2	A
3	A
4	B
5	B
6	B

C_{11} :- Class A

C_{21} :- Class B

(c) Round 2

$$C_{21} = \left(\left(\frac{1+1+0}{3} \right), \left(\frac{4+3+4}{3} \right) \right) = \left(\frac{2}{3}, \frac{11}{3} \right)$$

$$C_{22} = \left(\left(\frac{6+5+4}{3} \right), \left(\frac{2+1+0}{3} \right) \right) = (5, 1)$$

(d)

Round ②

Obs Class

1 A

2 A

3 A

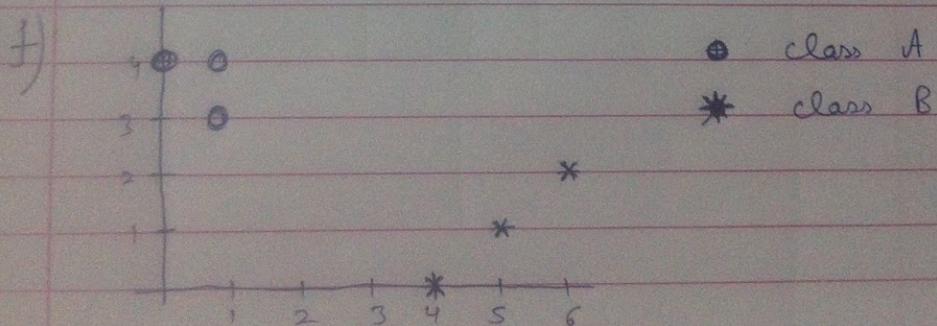
4 B

5 B

6 B

(Classification using
euclidean distance)

Above classification is same as that in round 1.
Hence, Stop.



Answer 4