

$$\begin{array}{lll}
 1) A_1(2,10) & B_1(5,8) & C_1(1,2) \\
 A_2(2,5) & B_2(7,5) & C_2(4,9) \\
 A_3(8,4) & B_3(6,4) &
 \end{array}$$

~~the~~ given taken initial
 centroids as A_1, B_1, C_1

	A_1	A_2	A_3	B_1	B_2	B_3	C_1	C_2
Centroid ₁	0	$\sqrt{0+25}$ 5	$\sqrt{36+36}$ $=6\sqrt{2}$	$\sqrt{13}$	$\sqrt{50}$	$\sqrt{52}$	$\sqrt{5}$	$\sqrt{5}$
Centroid ₂	$\sqrt{9+4}$	$3\sqrt{2}$	$\sqrt{9+49}$ $\sqrt{58}$	0	$\sqrt{13}$	$\sqrt{17}$	$\sqrt{16+36}$ 5	$\sqrt{2}$
Centroid ₃	$\sqrt{65}$	$\sqrt{10}$	$\sqrt{53}$	$\sqrt{16+36}$ 5	$\sqrt{45}$	$\sqrt{29}$	0	$\sqrt{58}$

cluster 1 $\rightarrow (2,10) A_1$

cluster 2 $\rightarrow (8,4) A_3, (5,8) B_1, B_2(7,5), B_3(6,4),$
 $C_2(4,9)$

cluster 3 $\rightarrow (2,5) A_2, (1,2) C_1$

THE EXPERT IN ANYTHING
 WAS ONCE A BEGINNER.

-Lao Tzu (Sanskrit)

2nd

centroid 1 = (2, 10)

centroid 2 = (6, 6) $\frac{8+5+7+6+4}{5}, \frac{4+8+5+4+9}{5}$

	A ₁	A ₂	A ₃	B ₁	B ₂	B ₃	C ₁	C ₂
(2, 10)	0	$\sqrt{25}$	$\sqrt{52}$	$\sqrt{13}$	$\sqrt{50}$	$\sqrt{52}$	$\sqrt{68}$	$\sqrt{5}$
(6, 6)	-	$\sqrt{17}$	$2\sqrt{2}$	$\sqrt{5}$	$\sqrt{2}$	2	$\sqrt{41}$	$\sqrt{13}$
($\frac{3}{2}, \frac{7}{2}$)	-	$\sqrt{15}$	$\sqrt{42.5}$	$\sqrt{32.5}$	$\sqrt{32.5}$	$\sqrt{20}$	$\sqrt{5/2}$	$\sqrt{36}$

centroid 1 = ($\frac{6}{2}, \frac{19}{2}$)

centroid 2 = ($\frac{13}{2}, \frac{21}{4}$)

centroid 3 = ($\frac{3}{2}, \frac{7}{2}$)

3rd

	A ₁	A ₂	A ₃	B ₁	B ₂	B ₃	C ₁	C ₂
(3, $\frac{19}{2}$)	$\sqrt{1.25}$	$\sqrt{21}$	$\sqrt{55.2}$	$\sqrt{6.25}$	$\sqrt{36}$	$\sqrt{31}$	$\sqrt{60.2}$	$\sqrt{1.25}$
($\frac{13}{2}, \frac{21}{4}$)	$\sqrt{42}$	$\sqrt{20.3}$	$\sqrt{3.8}$	$\sqrt{9.8}$	$\sqrt{0.31}$	$\sqrt{1.81}$	$\sqrt{16}$	$\sqrt{20.3}$
($\frac{3}{2}, \frac{7}{2}$)	$\sqrt{42}$	$\sqrt{2.5}$	$\sqrt{42.5}$	$\sqrt{42}$	$\sqrt{32}$	$\sqrt{20}$	$\sqrt{2.5}$	$\sqrt{36.5}$

centroid 1 = ($\frac{2+5+9}{3}, \frac{10+8+9}{3}$) = (3.67, 9)

centroid 2 = ($\frac{8+7+6}{3}, \frac{4+5+4}{3}$) = (7, 4.33)

centroid 3 = (4.5, 3.5)

In next iteration there is no change in cluster. Code is attached in LMS

So cluster 1: A_1, B_1, C_2
 $(3.67, 9)$

cluster 2: A_3, B_2, B_3
 $(7, 4.33)$

cluster 3: A_2, C_1
 $(2.18, 3.5)$