* K - mean :-

sr.	X	y
1	1.0	1.0
2	1.5	2.0
3	3.0	4.0
4	5.0	7.0
5	3.5	5.0
6	4.5	5.0
7	3.5	4.5

K = 2
Initial centroid
$K1 = (1, 1)$
$K2 = (5, 7)$

Data Points		Distance				Cluster
x_c	y_c	x_0 1.0	y_0 1.0	x_0 5.0	y_0 7.0	
1.0	1.0	0		7.2		1
1.5	2.0	1.11		6.1		1
3.0	4.0	3.6		3.6		1
5.0	7.0	7.2		0		2
3.5	5.0	4.7		2.5		2
4.5	5.0	5.3		2.0		2
3.5	4.5	4.3		2.9		2

$$ED = \sqrt{(x_0 - x_c)^2 + (y_0 - y_c)^2}$$

$$= \sqrt{(1-1)^2 + (1-1)^2}$$

New centroid
$K1 = (1.83, 2.33)$
$K2 = (4.12, 5.37)$

Data Points		Distance				cluster	New cluster
		1.83	2.33	4.12	5.37		
1.0	1.0	1.56			5.36	1	1
1.5	2.0	0.46			4.26	1	1
3.0	4.0	2.03			1.76	1	2
5.0	7.0	5.64			1.85	2	2
3.5	5.0	3.14			0.72	2	2
4.5	5.0	3.77			0.53	2	2
3.5	4.5	2.73			1.06	2	2

New Centroid

$K1 = (1.25, 1.5)$

$K2 = (3.9, 5.1)$

Data Points		Distance				cluster	new cluster
		1.25	1.5	3.9	5.1		
1.0	1.0	0.55			5.02	1	1
1.5	2.0	0.55			3.92	1	1
3.0	4.0	3.05			1.42	2	2
5.0	7.0	6.65			2.19	2	2
3.5	5.0	4.16			0.41	2	2
4.5	5.0	4.77			0.60	2	2
3.5	4.5	3.75			0.72	2	2

* K - Medoids :-

Sr.	x	y
0	8	7
1	3	7
2	4	9
3	9	6
4	8	5
5	5	8
6	7	3
7	8	4
8	7	5
9	4	5

$K = 2$

$c_1 = (4, 5)$

$c_2 = (8, 5)$

Sr.	x	y	Dissimilarity from c_1	Dissimilarity from c_2
0	8	7	6 $\|(8-4)\| + \|(7-5)\|$	2 $\|(8-8)\| + \|(7-5)\|$
1	3	7	3	7
2	4	9	4	8
3	9	6	6	2
5	5	8	4	6
6	7	3	4	3
7	8	4	5	1
8	7	5	3	1

The cost = (3 + 4 + 4) + (2 + 2 + 3 + 1 + 1)

= 20

$c_1 = (4, 5)$

$c_2 = (8, 4)$

sr.	x	y	Dissimilarity from c_1	Dissimilarity from c_2
0	8	7	6	3
1	3	7	3	8
2	4	9	4	9
3	9	6	6	3
4	8	5	4	1
5	5	8	4	7
6	7	3	5	2
8	7	5	3	2

New cost = $(3 + 4 + 4) + (3 + 3 + 1 + 2 + 2)$

$\qquad = 22$

Swap cost = New cost - Previous cost

$\qquad = 22 - 20$

$\qquad = 2$