LAB-13 : K-medoids clustering

Example

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

-> Here, $K = 2$ and we assume

$C1 = (4, 5)$ and $C2 = (8, 5)$

Sr.	X	Y	Dissimilarity from C1 (4, 5)	Dissimilarity from C2 (8, 5)
0	8	7	$\|8-4\| + \|7-5\| = 6$	$\|8-8\| + \|7-5\| = 2$
1	3	7	3	7
2	4	9	4	8
3	9	6	6	2
4	5	8	4	6
5	7	3	5	3
6	8	4	5	1
7	7	5	3	1

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

= 20

C1 → 1, 2, 5 C2 → 0, 3, 6, 7, 8

→ let c1 = (4, 5) and c2 = (8, 4)

Sr	x	y	Dissimilarity from C1	Dissimilarity from C2
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

= 22

c1 → 1, 2, 5

c2 → 0, 3, 4, 6, 8

Swap cost = new cost - prev cost

= 22 - 20

= 2

∴ 2 > 0, so our previous medioid was better then this.