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1	1/			Page No.: 28
	K-M	ean (	luste	Ring Date:
	Sn.	X	Y	Hene, K=2
	Real Control of the C			and we assume
	CID-VI CI	1_	1_	cluster 1 center is a
	2	1.5	2	and cluster 2 center
	13_	3	4	15 (5, 7)
	4	5	7	
	S	3.5	5	Initial Centroid
Commence of the Commence of th	6	4,5	5	$K_1 = (1,1)$
	7	3.5	4.5	$K_2 = (5, 7)$

								and the second
	Data	L points		Distar	ve to (	enter 1	Cluster	M. a.1
			Min		5	7.0		
						levall / s		Alexander of
	1		0	30	7.5	15.415	es Alia	
	105	2	1.11		6.1	0		
	3.11	4 4 .	3.6	5.01. 3A/V	3.			
8" 1 Mm 2	5	4	7.2		0		2	and the second s
) and	3.5	S	4.7	- N	2.	S	2	Statement Statem
	4.5	5	5.3		12.0	06	2	
3 4 6	3.5	4.5	4.3		. 12	,9/	2	
							IVS TO THE RESERVE TO	

 $ED = \sqrt{(\chi_0 - \chi_c)^2 - (\chi_0 - \chi_c)^2}$ 

for cluster ED(1,1) = 
$$\sqrt{(1-1)^2 - (1-1)^2} = 0$$
  
1: ED(1.5,2) =  $\sqrt{(1.5-1)^2 - (2-1)^2} = 1.11$ 

for cluster ED(1,1) =  $\sqrt{(1-5)^2 - (1-7)^2} = 7.2$ 2: ED(1.5,2)=  $\sqrt{(1.5-5)^2 - (2-7)^2} = 6.10$ 

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New centroid

$$K_1 = \left(\begin{array}{ccc} 1+1.5+3 & & & \\ & 3 & & \\ \end{array}\right) = \left(\begin{array}{ccc} 1.53 & & \\ & 3 & \\ \end{array}\right)$$

Data Points			Distance T	Centra	clusten	New
		565		4112 5.37	Allia all	Cluster
-	Santa Angel Maria		1393116			
			1.54	5.36		
	1.5	2	0.44	4.26		
	_3	4	2.0€	1.36		2
	5	1	5.66	1.8	2	2
	3.5	5	3.17	0-72	2	2
	4.5	5	13.79	110.53	2	2
	3.5	4.5	2.362	1.06	2	2

for cluster 1,

ED(1,1) = 
$$\sqrt{(1-1.53)^2 - (1-2.3)^2} = 1.54$$
  
ED(1.5,2) =  $\sqrt{(1.5-1.53)^2 - (2-2.3)^2} = 0.44$ 

for cluster 2

ED 
$$(1, 1) = \sqrt{(1-4.12)^2 - (1-5.34)^2} = 5.36$$
  
ED  $(3, 4) = \sqrt{(3-4.12)^2 - (4-5.34)^2} = 1.76$ 



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Date: ...

$\Rightarrow$	New	Centroid
	4000	

$$K_{1} = \left(\begin{array}{c} 1+1.5 \\ 2 \end{array}\right) = \left(\begin{array}{c} 1.25, 1.5 \end{array}\right)$$

$$K_{z} = (3+5+3.5+4.5+3.5, 4+7+5+5+4.5) = (3.9, 5.1)$$

27	1.3	11/19	marinta.			A STATE OF THE STA	
1	Date	point	Distance	to Center	Cluster	New	
			1.25 1.5	3.9 5.1		Christian	
	1	)	0,55	5.02			
	1.5	2	0.55	3.92	1	N. I	
	3	4	3.05	1.42	2	2	
	5	7	6.65	2.19	2	P 2	
5	3.5	5	14016	0.41	2	2.12	
	4.5	5	4.47	0.60	2	2	
je.	3-5	4.5	31.75	(6,70	20	2	
18							

## for cluster 1

ED (1,1) = 
$$\sqrt{(1-1.25)^2 - (1-1.5)^2} = 0.55$$
  
ED (1.5,2) =  $\sqrt{(1.5-1.25)^2 - (2-1.5)^2} = 0.55$ 

$$ED(3,4) = \sqrt{(3-3.9)^2 - (4-5.1)^2} = 1.42$$

$$ED(6.3) = \sqrt{(5-3.9)^2 - (4-5.1)^2} = 1.42$$

$$ED(5,7) = \sqrt{(5-3.9)^2 - (7-5.1)^2} = 2.19$$

Here no change in cluster so we terminate the Algorithm.

Page No.: 31 K-Medoids clustering Here, K=2 591 let c1 = (4,5) (2 = (8, 5))5 7 5 Dissimilarity from 6 Dissimilarity from Cz |(8-8)|+|(7-5)|=21(8-4)|+1(7-5)|= 6 1(3-8)1+(7-5)1=7 1(3-4)1+((7-5))=3 [(4-8)]+[(9-9)] = 81(4-4)1+1(9-5)1=4 1(9-8)1+1(6-5)1=2 1(9-4)1+1(6-9)1=6 5 1(5-8)1+1(8-5)1=6 1(5-4)1+1(8-5)1=4 9 1(=1-8) |+1(3-5) = 3 1(7-4)1+1(3-5)1=5 3 1(8-8)/+1(4-5)/=1 1(8-4)1+1(4-5)1=5 1(7-8) +1(5-5) = 1 |(7-4)|+|(5-5)|=3The cost = (3+4+4)+(2+2+3+1+1)= 20

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			9

cluster	(7	Managaran matalaga ja	2	j	and the second second
cluster					7.8

is standomly select non-medoid point & recalculate cost

$$C1 = (4,5)$$

$$(2 = (8, 4)$$

AND DESCRIPTION	- Company	The second second	-	The state of the s	The state of the s
	Sm.	X	Υ	Dissimilarity from C1	Dissimilarity forom 6
-					
	0	8	7	18-41+17-91=6	18-81+17-41=3
	1	3	٦	13-41+17-5) = 3	13-81+17-41=8
-	2	4	9	4	9
- Contract	3	g	6	6	3
	4	8	15	150 KI W 400 KENDER	
	5	S	8	4	3
,	6	(3)	3	5 11 5	2
ų.	8	7	5	3 44	2
1	93/11	1 1			

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

cluster  $(1 \rightarrow 11, 2, 5)$ 

Cluster (2 -> 1 0, 3, 4, 6, 8

Swap (ost = New Cost - Porevious Cost

= 22 - 20 = 2

(1919; MAINE) I (PANAL) & HOSE WALL :, So, 270 that is possitive, now our previous medoid is best.