No. : Date :

Nama : Aenur Hakim Maulia

Kelompok : Penambangan Data - AH.4508

NIM : A11.2022.14639

Soal :

•) Tentukan anggota kuasternya, jika dikelompokkan menjadi 2 kuaster?

M_1 : (1, 4.5), M_5 : (6, 2.3),

M_2 : (3.6.5), M_6 : (2.5, 3.8),

M_3 : (4, 4.5), M_7 : (5, 5.5)

M_4 : (7.5; 3.2),

Titik pusat cluster : $C_1(3,4)$, $C_2(6,4)$

• Jawaban :

Rumus Jarak Euclidean : $d = \sqrt{((x_2 - x_1)^2 + (y_2 - y_1)^2)}$

* Perhitungan jarak ke $C_1(3,4)$:

1. M_1 : $\sqrt{((1-3)^2 + (4.5-4)^2)} = \sqrt{(4 + 0.25)} = \sqrt{4.25} = 2.06$
2. M_2 : $\sqrt{((3-3)^2 + (6.5-4)^2)} = \sqrt{(0 + 6.25)} = \sqrt{6.25} = 2.50$
3. M_3 : $\sqrt{((4-3)^2 + (4.5-4)^2)} = \sqrt{(1 + 0.25)} = \sqrt{1.25} = 1.12$
4. M_4 : $\sqrt{((7.5-3)^2 + (3.2-4)^2)} = \sqrt{(20.25 + 0.64)} = \sqrt{20.89} = 4.57$
5. M_5 : $\sqrt{((6-3)^2 + (2.3-4)^2)} = \sqrt{(9 + 2.89)} = \sqrt{11.89} = 3.45$
6. M_6 : $\sqrt{((2.5-3)^2 + (3.8-4)^2)} = \sqrt{(0.25 + 0.04)} = \sqrt{0.29} = 0.54$
7. M_7 : $\sqrt{((5-3)^2 + (5.5-4)^2)} = \sqrt{(4 + 2.25)} = \sqrt{6.25} = 2.50$

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* Perhitungan jarak ke C2 (6,4) :

1. $M_1 = \sqrt{((1-6)^2 + (4.5-4)^2)} = \sqrt{(25 + 0.25)} = \sqrt{25.25} = 5.02$
2. $M_2 = \sqrt{((3-6)^2 + (6.5-4)^2)} = \sqrt{(9 + 6.25)} = \sqrt{15.25} = 3.91$
3. $M_3 = \sqrt{((4-6)^2 + (4.5-4)^2)} = \sqrt{(4 + 0.25)} = \sqrt{4.25} = 2.06$
4. $M_4 = \sqrt{((7.5-6)^2 + (3.2-4)^2)} = \sqrt{(2.25 + 0.64)} = \sqrt{2.89} = 1.70$
5. $M_5 = \sqrt{((6-6)^2 + (2.3-4)^2)} = \sqrt{(0 + 2.89)} = \sqrt{2.89} = 1.70$
6. $M_6 = \sqrt{((2.5-6)^2 + (3.8-4)^2)} = \sqrt{(12.25 + 0.04)} = \sqrt{12.29} = 3.51$
7. $M_7 = \sqrt{((5-6)^2 + (5.5-4)^2)} = \sqrt{(1 + 2.25)} = \sqrt{3.25} = 1.80$

* Pengelompokan : Kluster 1 (C1) = M_1, M_2, M_3, M_6, M_7

Kluster 2 (C2) : M_4, M_5

* Jadi susunan klasternya adalah sebagai berikut

- Kluster 1 : $\{M_1 = (1, 4.5), M_2 = (3, 6.5), M_3 = (4, 4.5), M_6 = (2.5, 3.8), M_7 = (5, 5.5)\}$
- Kluster 2 : $\{M_4 = (7.5, 3.2), M_5 = (6, 2.3)\}$