

Penambahan Data

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Latihan soal (kuis)

- Tentukan anggota klasternya, jika dikelompokkan menjadi 2 klaster?

$$M1 = (1, 4.5),$$

$$M2 = (3, 6.5),$$

$$M3 = (4, 4.5),$$

$$M4 = (7.5, 3.2),$$

$$M5 = (6, 2.3),$$

$$M6 = (2.5, 3.8),$$

$$M7 = (5, 5.5)$$

- Titik Pusat cluster $\rightarrow C_1(3,4), C_2(6,4)$

Jawab

- Iterasi 1

$$a.) D_{11} = \sqrt{(M_{1x} - C_{1x})^2 + (M_{1y} - C_{1y})^2} = \sqrt{(1-3)^2 + (4.5-4)^2} = 2.06 \rightarrow D_{11} = 2.06$$

$$D_{12} = \sqrt{(3-3)^2 + (6.5-4)^2} = 2.5 \rightarrow D_{12} = 2.5$$

$$D_{13} = \sqrt{(4-3)^2 + (4.5-4)^2} = 1.12 \rightarrow D_{13} = 1.12$$

$$D_{14} = \sqrt{(7.5-3)^2 + (3.2-4)^2} = 4.57 \rightarrow D_{14} = 4.57$$

$$D_{15} = \sqrt{(6-3)^2 + (2.3-4)^2} = 3.56 \rightarrow D_{15} = 3.56$$

$$D_{16} = \sqrt{(2.5-3)^2 + (3.8-4)^2} = 0.54 \rightarrow D_{16} = 0.54$$

$$D_{17} = \sqrt{(5-3)^2 + (5.5-4)^2} = 2.5 \rightarrow D_{17} = 2.5$$

$$D_{21} = \sqrt{(M_{1x} - C_{2x})^2 + (M_{1y} - C_{2y})^2} = \sqrt{(1-6)^2 + (4.5-4)^2} = 5.02 \rightarrow D_{21} = 5.02$$

$$D_{22} = \sqrt{(3-6)^2 + (6.5-4)^2} = 3.9 \rightarrow D_{22} = 3.9$$

$$D_{23} = \sqrt{(4-6)^2 + (4.5-4)^2} = 2.06 \rightarrow D_{23} = 2.06$$

$$D_{24} = \sqrt{(7.5-6)^2 + (3.2-4)^2} = 1.7 \rightarrow D_{24} = 1.7$$

$$D_{25} = \sqrt{(6-6)^2 + (2.3-4)^2} = 1.7 \rightarrow D_{25} = 1.7$$

$$D_{26} = \sqrt{(2.5-6)^2 + (3.8-4)^2} = 3.5 \rightarrow D_{26} = 3.5$$

$$D_{27} = \sqrt{(5-6)^2 + (5.5-4)^2} = 1.8 \rightarrow D_{27} = 1.8$$

b.)	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇
Jarak ke C ₁	2.06	2.5	1.12	4.57	3.56	0.54	2.5
Jarak ke C ₂	5.02	3.9	2.06	1.7	1.7	3.5	1.8

anggota klaster C₁ = {M₁, M₂, M₃, M₆}

anggota klaster C₂ = {M₄, M₅, M₇}

c.) Hitung titik Pusat baru

$$C_1 = \left(\frac{1+4+3+2.5}{4}, \frac{4.5+6.5+4.5+3.8}{4} \right) = (2.62, 4.82) \rightarrow C_1 \text{ baru} = (2.62, 4.82)$$

$$C_2 = \left(\frac{7.5+6+5}{3}, \frac{3.2+2.3+5.5}{3} \right) = (6.17, 3.67) \rightarrow C_2 \text{ baru} = (6.17, 3.67)$$

• iterasi 2

$$a.) D_{11} = \sqrt{(M_{1x} - C_{1x})^2 + (M_{1y} - C_{1y})^2} = \sqrt{(1-2.62)^2 + (4.5-4.82)^2} = 1.65 \rightarrow D_{11} = 1.65$$

$$D_{12} = \sqrt{(3-2.62)^2 + (6.5-4.82)^2} = 1.72 \rightarrow D_{12} = 1.72$$

$$D_{13} = \sqrt{(4-2.62)^2 + (4.5-4.82)^2} = 1.42 \rightarrow D_{13} = 1.42$$

$$D_{14} = \sqrt{(7.5-2.62)^2 + (3.2-4.82)^2} = 5.14 \rightarrow D_{14} = 5.14$$

$$D_{15} = \sqrt{(6-2.62)^2 + (2.3-4.82)^2} = 4.22 \rightarrow D_{15} = 4.22$$

$$D_{16} = \sqrt{(2.5-2.62)^2 + (3.8-4.82)^2} = 1.03 \rightarrow D_{16} = 1.03$$

$$D_{17} = \sqrt{(5-2.62)^2 + (5.5-4.82)^2} = 2.47 \rightarrow D_{17} = 2.47$$

$$D_{21} = \sqrt{(M_{1x} - C_{2x})^2 + (M_{1y} - C_{2y})^2} = \sqrt{(1-6.17)^2 + (4.5-3.67)^2} = 5.24 \rightarrow D_{21} = 5.24$$

$$D_{22} = \sqrt{(3-6.17)^2 + (6.5-3.67)^2} = 4.25 \rightarrow D_{22} = 4.25$$

$$D_{23} = \sqrt{(4-6.17)^2 + (4.5-3.67)^2} = 2.32 \rightarrow D_{23} = 2.32$$

$$D_{24} = \sqrt{(7.5-6.17)^2 + (3.2-3.67)^2} = 1.41 \rightarrow D_{24} = 1.41$$

$$D_{25} = \sqrt{(6-6.17)^2 + (2.3-3.67)^2} = 1.38 \rightarrow D_{25} = 1.38$$

$$D_{26} = \sqrt{(2.5-6.17)^2 + (3.8-3.67)^2} = 3.67 \rightarrow D_{26} = 3.67$$

$$D_{27} = \sqrt{(5-6.17)^2 + (5.5-3.67)^2} = 2.17 \rightarrow D_{27} = 2.17$$

b.)

	M_1	M_2	M_3	M_4	M_5	M_6	M_7
Jarak ke C_1	1.65	1.72	1.42	5.14	4.22	1.03	2.47
Jarak ke C_2	5.24	4.25	2.32	1.41	1.38	3.67	2.17

Anggota kluster $C_1 = \{M_1, M_2, M_3, M_6\}$

Anggota kluster $C_2 = \{M_4, M_5, M_7\}$

Jadi, karena anggota kelompok tidak ada yang berubah, maka titik Pusat pun tidak akan berubah. Sehingga hasil akhirnya adalah $\{M_1, M_2, M_3, M_6\}$ anggota kluster C_1 dan $\{M_4, M_5, M_7\}$ anggota kluster C_2 .