

Narih Prasetyaningtyas (AH-2022.19954)

No.

Date:

Tentukan anggota klasernya, jika difelompokkan menjadi 2 kuster

$$M_1 = (1, 4.5)$$

$$M_S = (6, 2.3)$$

$$M_2 = (3, 6.5)$$

$$M_6 = (2.5, 3.8)$$

$$M_3 = (4, 4.5)$$

$$M_7 = (5, 5.5)$$

$$M_4 = (7.5, 3.2)$$

Titik Rerat Cluster $\Rightarrow C_1 (3, 4)$, $C_2 (6, 4)$

\Rightarrow Menghitung jarak dari titik data ke C_1 dan C_2

1) $M_1 = (1, 4.5)$

Jarak $C_1 (3, 4)$:

$$d = \sqrt{(3-1)^2 + (4-4.5)^2}$$

$$= \sqrt{(2)^2 + (-0.5)^2}$$

$$= \sqrt{4 + 0.25}$$

$$= \sqrt{4.25} = 2.06$$

Jarak $C_2 (6, 4)$:

$$d = \sqrt{(6-1)^2 + (4-4.5)^2}$$

$$= \sqrt{(5)^2 + (-0.5)^2}$$

$$= \sqrt{25 + 0.25}$$

$$= \sqrt{25.25} = 5.02$$

Kesimpulan

M_1 lebih dekat ke C_1

2) $M_2 (3, 6.5)$

Jarak ke $C_1 (3, 4)$

$$d = \sqrt{(3-3)^2 + (4-6.5)^2}$$

$$= \sqrt{(0)^2 + (-2.5)^2}$$

$$= \sqrt{6.25} = 2.5$$

Jarak ke $C_2 (6, 4)$

$$d = \sqrt{(6-1)^2 + (4-6.5)^2}$$

$$= \sqrt{(5)^2 + (-2.5)^2}$$

$$= \sqrt{25 + 6.25}$$

$$= \sqrt{25.25} \Rightarrow$$

$$= 5.02$$

Kesimpulan $\Rightarrow M_2$ lebih dekat ke C_1



3) M₃ (4, 4.5)Jarak ke C₁ (3, 4) :

$$\begin{aligned} d &= \sqrt{(3-4)^2 + (4-4.5)^2} \\ &= \sqrt{(-1)^2 + (0.5)^2} \\ &= \sqrt{1 + 0.25} \\ &= \sqrt{1.25} \\ &= 1.12 \end{aligned}$$

Jarak ke C₂ (6, 4)

$$\begin{aligned} d &= \sqrt{(6-4)^2 + (4-3.2)^2} \\ &= \sqrt{(2)^2 + (-0.5)^2} \\ &= \sqrt{4 + 0.25} \\ &= \sqrt{4.25} \\ &= 2.06 \end{aligned}$$

Kesimpulan M₃ lebih dekat ke C₁.4) M₄ (7.5, 3.2)

$$\begin{aligned} d &= \sqrt{(3-7.5)^2 + (4-3.2)^2} \\ &= \sqrt{(-4.5)^2 + (-0.8)^2} \\ &= \sqrt{20.25 + 0.64} \\ &= \sqrt{20.89} \\ &= 4.59 \end{aligned}$$

Jarak ke C₁ (3, 4)Jarak ke C₂ (6, 4)

$$\begin{aligned} d &= \sqrt{(6-7.5)^2 + (4-3.2)^2} \\ &= \sqrt{(-1.5)^2 + (-0.8)^2} \\ &= \sqrt{2.25 + 0.64} \\ &= \sqrt{2.89} \\ &= 1.7 \end{aligned}$$

Kesimpulan M₄ lebih dekat ke C₂.5) M₅. (6, 2.3)Jarak ke C₁ (3, 4)

$$\begin{aligned} d &= \sqrt{(3-6)^2 + (4-2.3)^2} \\ &= \sqrt{(-3)^2 + (1.7)^2} \\ &= \sqrt{9 + 2.89} \\ &= \sqrt{11.89} \\ &= 3.45 \end{aligned}$$

Jarak ke C₂ (6, 4)

$$\begin{aligned} d &= \sqrt{(6-6)^2 + (4-2.3)^2} \\ &= \sqrt{(0)^2 + (1.7)^2} \\ &= \sqrt{2.89} \\ &= 1.7 \end{aligned}$$

Kesimpulan M₅ lebih dekat ke C₂

6) $M_6 (2.5, 3, 8)$ Jarak $C_1 (3, 4)$

$$\begin{aligned} d &= \sqrt{(3-2.5)^2 + (4-3.8)^2} \\ &= \sqrt{(0.5)^2 + (0.2)^2} \\ &= \sqrt{0.25 + 0.04} \\ &= \sqrt{0.29} \\ &= 0.59 \end{aligned}$$

Jarak $C_2 (6, 4)$

$$\begin{aligned} d &= \sqrt{(6-2.5)^2 + (4-3.8)^2} \\ &= \sqrt{(3.5)^2 + (-0.2)^2} \\ &= \sqrt{12.25 + 0.04} \\ &= \sqrt{12.29} \\ &= 3.51 \end{aligned}$$

Kesimpulan : M_6 lebih dekat ke C_1 7) $M_7 (5, 5.5)$ Jarak ke $C_1 (3, 4)$

$$\begin{aligned} d &= \sqrt{(3-5)^2 + (4-5.5)^2} \\ &= \sqrt{(-2)^2 + (-1.5)^2} \\ &= \sqrt{4 + 2.25} \\ &= \sqrt{6.25} \\ &= 2.5 \end{aligned}$$

Jarak $C_2 (6, 4)$

$$\begin{aligned} d &= \sqrt{(6-5)^2 + (4-5.5)^2} \\ &= \sqrt{(1)^2 + (-1.5)^2} \\ &= \sqrt{1 + 2.25} \\ &= \sqrt{3.25} \\ &= 1.8 \end{aligned}$$

Kesimpulan : M_7 lebih dekat C_2

Hasil Akhir

Klaster 1 : $M_1, M_2, M_3, M_6 - (C_1 (3, 4))$ Klaster 2 : $M_4, M_5, M_7 - (C_2 (6, 4))$