

Nama : Nauval Aqila Hanan M

Nim : A11.2022.14507

Kelompok : A11.4508

Matkul : DATA MINING

CLUSTER K means

No. \_\_\_\_\_  
Date \_\_\_\_\_

Nama Nauval Aqila Hanan M  
Nim A11.2022.14507  
Kelompok A11.4508  
Soal

Tentukan anggota klusternya jika dikelompokkan menjadi 2 kluster  
Dik: data

titik kluster  
 $C_1 = (3, 4)$   
 $C_2 = (6, 4)$

Data titik  
 $m_1 = (1, 4.5)$   $m_5 = (6, 2.3)$   
 $m_2 = (3, 6.5)$   $m_6 = (2.5, 3.8)$   
 $m_3 = (4, 4.5)$   $m_7 = (5, 5.5)$   
 $m_4 = (7.5, 3.2)$

Jarak antar titik ke C1 menggunakan rumus jarak  $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$   
Jarak ke C1 d:

$m_1 = \sqrt{(1-3)^2 + (4.5-4)^2} = \sqrt{4 + 0.25} = 2.06$   
 $m_2 = \sqrt{(3-3)^2 + (6.5-4)^2} = \sqrt{0 + 6.25} = 2.29$   
 $m_3 = \sqrt{(4-3)^2 + (4.5-4)^2} = \sqrt{1 + 0.25} = 1.12$   
 $m_4 = \sqrt{(7.5-3)^2 + (3.2-4)^2} = \sqrt{20.25 + 0.64} = 4.55$   
 $m_5 = \sqrt{(6-3)^2 + (2.3-4)^2} = \sqrt{9 + 2.89} = 3.29$   
 $m_6 = \sqrt{(2.5-3)^2 + (3.8-4)^2} = \sqrt{0.25 + 0.04} = 0.53$   
 $m_7 = \sqrt{(5-3)^2 + (5.5-4)^2} = \sqrt{4 + 2.25} = 2.55$

Jarak ke C2

$m_1 = \sqrt{(1-6)^2 + (4.5-4)^2} = \sqrt{25 + 0.25} = 5.03$   
 $m_2 = \sqrt{(3-6)^2 + (6.5-4)^2} = \sqrt{9 + 6.25} = 3.81$   
 $m_3 = \sqrt{(4-6)^2 + (4.5-4)^2} = \sqrt{4 + 0.25} = 2.06$   
 $m_4 = \sqrt{(7.5-6)^2 + (3.2-4)^2} = \sqrt{2.25 + 0.64} = 1.72$   
 $m_5 = \sqrt{(6-6)^2 + (2.3-4)^2} = \sqrt{0 + 2.89} = 1.70$

No.

Date

$$m_6 = \sqrt{(2.5-6)^2 + (3.8-7)^2} = \sqrt{12.25 + 10.09} = 3.50$$

$$m_7 = \sqrt{(5-6)^2 + (5.5-7)^2} = \sqrt{1 + 2.25} = \sqrt{3.25} = 1.8$$

kelompokan titik ke kluster C<sub>1</sub> atau C<sub>2</sub> dengan menghitung jarak antar titik ke update kluster yang lebih dekat maka masuk ke kluster itu hasil pengelompokan

Kluster 1 (3,4)

$$m_1(1, 4.5)$$

$$m_2(3, 6.5)$$

$$m_3(4, 4.5)$$

$$m_6(2.5, 3.8)$$

~~$$m_7(5, 5.5)$$~~

Kluster 2 (6,4)

$$m_4(7.5, 3.2) \quad m_7(5, 5.5)$$

$$m_5(6, 2.2)$$

hasil akhir

$$\text{Kluster 1 (C}_1\text{)} = m_1, m_2, m_3, m_6, \text{ ~~m_7~~}$$

$$\text{Kluster 2 (C}_2\text{)} = m_4, m_5, m_7$$

## Kode



Link github

<https://github.com/hananuio/tugasdatamining.git>