

Nama : Nauval Aqila Hanan M

Nim : A11.2022.14507

Kelompok :A11.2508

Matkul : DATA MINING

AHC DATA MIINING

CONTOH DATA SHEET

Siswa	Matematika	Bahasa Indonesia	IPA
A	7	5	8
B	6	9	7
C	8	4	6
D	5	6	9

Matriks Jarak (Manhattan Distance)

Handwritten calculations for Manhattan distances:

- 1.  $d(A, B) = |7-6| + |5-9| + |8-7| = 1+4+1 = 6$
- 2.  $d(A, C) = |7-8| + |5-4| + |8-6| = 1+1+2 = 4$
- 3.  $d(A, D) = |7-5| + |5-6| + |8-9| = 2+1+1 = 4$
- 4.  $d(B, C) = |6-8| + |9-4| + |7-6| = 2+5+1 = 8$
- 5.  $d(B, D) = |6-5| + |9-6| + |7-9| = 1+3+2 = 6$
- 6.  $d(C, D) = |8-5| + |4-6| + |6-9| = 3+2+3 = 8$

	A	B	C	D
A	0	6	4	4
B	6	0	8	6
C	4	8	0	8
D	4	6	8	0

A. Single Linkage

	A	B	C	D
A	0	6	4	4
B	6	0	8	6
C	4	8	0	8
D	4	6	8	0

1.

Single linkage AHC  
Iterasi: 1  
1. cari jarak terkecil  $A-C=9$  sehingga AC digabung  
hitung titik AC ke titik lain  $d(AC, B) = \min(d(A, B), (C, B)) = \min(6, 8) = 6$   
 $d(AC, D) = \min(d(A, D), (C, D)) = \min(9, 8) = 8$

	AC	B	D
AC	0	6	4
B	6	0	6
D	4	6	0

2.

2. Jarak keci  $AC=D=4$   
Jarak antar titik  $d(AC, B) = \min(d(A, B), (A, B), (D, B)) = \min(6, 8, 6) = 6$

	ACD	B
ACD	0	6
B	6	0

3.

3. kelompok ACD digabung dengan B dan jarak terdekat adalah 6

## B. Complete Linkage

	A	B	C	D
A	0	6	4	4
B	6	0	8	6
C	4	8	0	8
D	4	6	8	0

1.

Date \_\_\_\_\_  
B. Complete linkage AHC  
1. Iterasi Satu  
Jarak terdekat  $A-C=4 \rightarrow AC$   
Jarak antar titik  $d(AC, B) = \max(d(A, B), (C, B)) = \max(6, 8) = 8$   
 $d(AC, D) = \max(d(A, D), (C, D)) = \max(4, 8) = 8$

	AC	B	D
AC	0	8	8
B	8	0	6

D	8	6	0
---	---	---	---

2.

2. Iterasi dua  
 ↳ jarak terdekat  $B-D = 6 \Rightarrow BD$   
 Jarak antar titik  $d(BD, AC) = \max(p(AB, BC, DA, DC)) = (6, 4, 8) = \max(8)$

	AC	BD
AC	0	8
BD	8	0

3.

3. kelompok AC dan BD digabung dan jarak terkecil adalah 8

### C. Complete Linkage

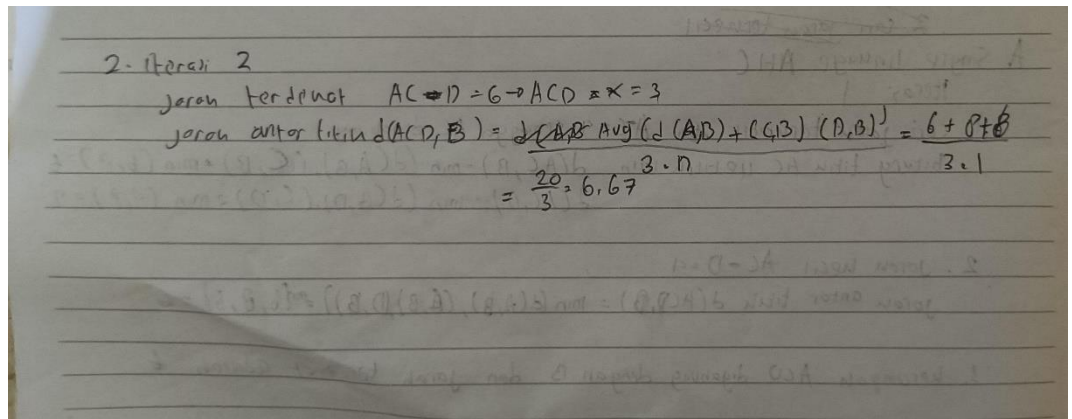
	A	B	C	D
A	0	6	4	4
B	6	0	8	6
C	4	8	0	8
D	4	6	8	0

1.

C. Average Linkage AHC  
 $x = \text{jumlah titik yang terdekat}$   
 $n = d(x, n)$   
 $n = \text{jumlah titik yang diartikan jarak}$   
 1. Iterasi 1  
 ↳ Jarak terdekat  $A-C = 4 \Rightarrow AC = x=2$   
 Jarak antar titik  $d(AC, B) = \frac{d(A, B) + d(C, B)}{2 \cdot n} = \frac{6 + 8}{2 \cdot 1} = 7$   
 $d(AC, D) = \frac{d(A, D) + d(C, D)}{2 \cdot p} = \frac{4 + 8}{2 \cdot 1} = 6$

	AC	B	D
AC	0	7	6
B	7	0	6
D	6	6	0

2.



	ACD	B
ACD	0	6.67
B	6.67	0

#### D. PTYON

