Pra Final Makassar, 2 Juni 2023

# DATA MINING



Nama : Arif Rahman

Nim : 13020200034

Kelas : A1

Dosen Pengampu : Herdianti Darwis, S.Si., M.Eng.

# PROGRAM STUDI TEKNIK INFORMATIKA FAKULTAS ILMU KOMPUTER UNIVERSITAS MUSLIM INDONESIA MAKASSAR

**2023**





1. Berikut adalah 10 tweet yang dikumpulkan:

|  |  |  |
| --- | --- | --- |
| **Tweet ke-** | **Komentar** | **Kelas** |
| 1 | Keluar Indonesia sajalah, Dajjal! | Cyberbullying |
| 2 | Lebih cocok pindah ke Mars. | Cyberbullying |
| 3 | Presiden boneka! | Cyberbullying |
| 4 | Sampah masyarakat! | Cyberbullying |
| 5 | Mars menantimu, parasit! | Cyberbullying |
| 6 | Kami mendukung Pak Jokowi tiga periode. | Non-cyberbullying |
| 7 | Indonesia bangkit bersama Pak Jokowi. | Non-cyberbullying |
| 8 | Semoga senantiasa dalam Lindungan Allah. | Non-cyberbullying |
| 9 | Presiden terbaik Indonesia | Non-cyberbullying |
| 10 | Sehat selalu Pak Presiden | Non-cyberbullying |
| 11 | Indonesia maju! | Non-cyberbullying |
| 12 | Pak Jokowi Terbaik, sehat selalu pak! | Non-cyberbullying |
| 13 | Bersama kita bisa! | Non-cyberbullying |
| 14 | luarbiasa Dajjal | Cyberbullying |
| 15 | Jokowi Presiden Boneka | Cyberbullying |
| 16 | Di Indonesia hanya menjadi sampah, dasar parasit! | Cyberbullying |

Hitung performa klasifikasi testing data (record 11-16) dengan menggunakan algoritma KNN (k=3)!

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | tf | | | | | | | | | | | | | | | | |
| term | | | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | df |
| Keluar | | | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| Indonesia | | | 1 |  |  |  |  |  | 1 |  | 1 |  | 1 |  |  |  |  | 1 | 5 |
| Dajjal | | | 1 |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  | 2 |
| Pindah | | |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| Mars | | |  | 1 |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  | 2 |
| Presiden | | |  |  | 1 |  |  |  |  |  | 1 | 1 |  |  |  |  | 1 |  | 4 |
| Boneka | | |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  | 1 |  | 2 |
| Sampah | | |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  | 1 | 2 |
| Masyarakat | | |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| Parasit | | |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 2 |
| Periode | | |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  | 1 |
| Jokowi | | |  |  |  |  |  | 1 | 1 |  |  |  |  | 1 |  |  | 1 |  | 4 |
| Bangkit | | |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  | 1 |
| Semoga | | |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  | 1 |
| Lindungan | | |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  | 1 |
| Terbaik | | |  |  |  |  |  |  |  |  | 1 |  |  | 1 |  |  |  |  | 2 |
| Sehat | | |  |  |  |  |  |  |  |  |  | 1 |  | 1 |  |  |  |  | 2 |
| Selalu | | |  |  |  |  |  |  |  |  |  | 1 |  | 1 |  |  |  |  | 2 |
| Maju | | |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  | 1 |
| Bersama | | |  |  |  |  |  |  | 1 |  |  |  |  |  | 1 |  |  |  | 2 |
| Bisa | | |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  | 1 |
| Luarbiasa | | |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  | 1 |
| idf | wdt=tf.idf | | | | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| log(n/ df) | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 | T16 |
| 1,342 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 0,643 | 0,64  3453 | 0 | 0 | 0 | 0 | 0 | 0,64  3453 | 0 | 0,64  3453 | 0 | 0,64  3453 | 0 | 0 | 0 | 0 | 0,64  3453 |
| 45268 |
| 1,041 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 |
| 39269 |
| 1,342 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,041 | 0 | 1,04  1393 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39269 |
| 0,740 | 0 | 0 | 0,74  0363 | 0 | 0 | 0 | 0 | 0 | 0,74  0363 | 0,74  0363 | 0 | 0 | 0 | 0 | 0,74  0363 | 0 |
| 36269 |
| 1,041 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 |
| 39269 |
| 1,041 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 |
| 39269 |
| 1,342 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,041 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 |
| 39269 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 0,740 | 0 | 0 | 0 | 0 | 0 | 0,74  0363 | 0,74  0363 | 0 | 0 | 0 | 0 | 0,74  0363 | 0 | 0 | 0,74  0363 | 0 |
| 36269 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,041 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 |
| 39269 |
| 1,041 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 |
| 39269 |
| 1,041 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 |
| 39269 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 | 0 | 0 |
| 42268 |
| 1,041 | 0 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 | 0 | 0 | 1,04  1393 | 0 | 0 | 0 |
| 39269 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 | 0 |
| 42268 |
| 1,342 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,34  2423 | 0 | 0 |
| 42268 |

T11 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 |

T12 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,414031 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 1,084499 | 2,168997 |

T13 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 |

T14 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

T15 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1,632636 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0,548137 | 0,548137 |

T16 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WTS\*Wti | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,414031 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,414031 | 0 | 0 | 1,084499 | 1,084499 | 0 | 0,414031 | 0 | 0,414031 | 0 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panjang Vektor | | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0,414031 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 2,21613 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,488667 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panjang Vektor | | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T12 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0,548137 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 3,801633 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,949778 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panjang Vektor | | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T13 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 1,084499 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 2,886597 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,698999 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panjang Vektor | | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T14 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 2,886597 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,698999 |

Panjang Vektor

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T15 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0,740363 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,041393 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0,740363 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 2,522118 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,588118 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panjang Vektor | | | | | | | | | | |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T16 |
| 1,80209865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 | 0,643453 |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1,084499 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0,548137 | 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 |
| 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 0 | 1,041393 |
| 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 | 0 | 1,041393 |
| 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802099 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,30062873 | 2,886597 | 1,632636 | 2,886597 | 2,168997 | 2,350236 | 3,848766 | 3,604197 | 2,046667 | 2,717134 | 2,726238 |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,651132 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0,41403135 | 0 | 0 | 0 | 0 | 0 | 0,414031 | 0 | 0,414031 | 0 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,488667 |

Hasil perhitungan T11 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0,15308663 | 0 | 0 | 0 | 0 | 0 | 0,141767 | 0 | 0,194407 | 0 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0,41403135 | 0 | 0 | 0 | 0 | 0,548137 | 0,548137 | 0 | 1,084499 | 2,168997 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,949778 |

Hasil perhitungan T12 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0,11688258 | 0 | 0 | 0 | 0 | 0,183378 | 0,143299 | 0 | 0,388795 | 0,674867 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 0 | 1,084499 | 0 | 0 | 0 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,698999 |

Hasil perhitungan T13 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0,325368 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1,08449872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,698999 |

Hasil perhitungan T14 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0,35134809 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 1,632636 | 0 | 0 | 0,548137 | 0,548137 | 0 | 0,548137 | 0,548137 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,588118 |

Hasil perhitungan T15 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0 | 0 | 0,804566 | 0 | 0 | 0,225139 | 0,175932 | 0 | 0,241259 | 0,209388 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0,41403135 | 0 | 0 | 1,084499 | 1,084499 | 0 | 0,414031 | 0 | 0,414031 | 0 |  |
| 1,81676326 | 1,698999 | 1,277746 | 1,698999 | 1,472752 | 1,533048 | 1,961827 | 1,898472 | 1,430618 | 1,648373 | 1,651132 |

Hasil perhitungan T16 dengan T1-T10 :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| 0,13802349 | 0 | 0 | 0,386593 | 0,445982 | 0 | 0,127818 | 0 | 0,175278 | 0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T9 | | 0,194407 | | K = 3 dari T11 : | | | | |
| T1 | | 0,153087 | |  | | T9 | T1 | T7 |
| T7 | | 0,141767 | | non | cyb | non |
| T2 | | 0 | |
| T3 | | 0 | |
| T4 | | 0 | |
| T5 | | 0 | |
| T6 | | 0 | |
| T8 | | 0 | |
| T10 | | 0 | |

K = 3 dari T12 :

|  |  |
| --- | --- |
| T10 | 0,674867 |
| T9 | 0,388795 |
| T6 | 0,183378 |
| T7 | 0,143299 |
| T1 | 0,116883 |
| T2 | 0 |
| T3 | 0 |
| T4 | 0 |
| T5 | 0 |
| T8 | 0 |

|  |  |  |
| --- | --- | --- |
| T10 | T9 | T6 |
| non | non | non |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| T7 | 0,325368 | K = 3 dari T13 : | | | |
| T1 | 0 |  | T7 | T1 | T2 |
| T2 | 0 | NON | CYB | CYB |
| T3 | 0 |  | | | |
| T4 | 0 |
| T5 | 0 |
| T6 | 0 |
| T8 | 0 |
| T9 | 0 |
| T10 | 0 |

K = 3 dari T14 :

|  |  |
| --- | --- |
| T1 | 0,351348 |
| T2 | 0 |
| T3 | 0 |
| T4 | 0 |
| T5 | 0 |
| T6 | 0 |
| T7 | 0 |
| T8 | 0 |
| T9 | 0 |
| T10 | 0 |

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| cyb | cyb | cyb |

K = 3 dari T15 :

|  |  |
| --- | --- |
| T3 | 0,804566 |
| T9 | 0,241259 |
| T6 | 0,225139 |
| T10 | 0,209388 |
| T7 | 0,175932 |
| T1 | 0 |
| T2 | 0 |
| T4 | 0 |
| T5 | 0 |
| T8 | 0 |

|  |  |  |
| --- | --- | --- |
| T3 | T9 | T6 |
| cyb | non | non |

K = 3 dari T16 :

|  |  |
| --- | --- |
| T5 | 0,445982 |
| T4 | 0,386593 |
| T9 | 0,175278 |
| T1 | 0,138023 |
| T7 | 0,127818 |
| T2 | 0 |
| T3 | 0 |
| T6 | 0 |
| T8 | 0 |
| T10 | 0 |

|  |  |  |
| --- | --- | --- |
| T5 | T4 | T6 |
| cyb | cyb | non |

1. Hitung performa klasifikasi testing data (record 11-16) dengan menggunakan algoritma Naïve Bayes!

|  |  |  |
| --- | --- | --- |
| **Tweet ke** | **Komentar** | **Kelas** |
| 1 | Keluar Indonesia sajalah, Dajjal! | Cyberbullying |
| 2 | Lebih cocok pindah ke Mars. | Cyberbullying |
| 3 | Presiden boneka! | Cyberbullying |
| 4 | Sampah masyarakat! | Cyberbullying |
| 5 | Mars menantimu, parasit! | Cyberbullying |
| 6 | Kami mendukung Pak Jokowi tiga periode. | Non-cyberbullying |
| 7 | Indonesia bangkit bersama Pak Jokowi. | Non-cyberbullying |
| 8 | Semoga senantiasa dalam Lindungan Allah. | Non-cyberbullying |
| 9 | Presiden terbaik Indonesia | Non-cyberbullying |
| 10 | Sehat selalu Pak Presiden | Non-cyberbullying |
| 11 | Indonesia maju! | Non-cyberbullying |
| 12 | Pak Jokowi Terbaik, sehat selalu pak! | Non-cyberbullying |
| 13 | Bersama kita bisa! | Non-cyberbullying |
| 14 | luarbiasa Dajjal | Cyberbullying |
| 15 | Jokowi Presiden Boneka | Cyberbullying |
| 16 | Di Indonesia hanya menjadi sampah, dasar parasit! | Cyberbullying |





1. Diberikan data transaksi 14 orang pengunjung Toko “Organic” sebagai berikut:

|  |  |
| --- | --- |
| Pengunjung ke- | Item yang dibeli |
| 1 | Broccoli, green peppers, corn |
| 2 | Asparagus, squash, corn |
| 3 | Corn, tomatoes, beans, squash |
| 4 | Green peppers, corn, tomatoes, beans |
| 5 | Beans, asparagus, broccoli |
| 6 | Squash, asparagus, beans, tomatoes |
| 7 | Tomatoes, corn |
| 8 | Broccoli, tomatoes, green peppers |
| 9 | Squash, asparagus, beans |
| 10 | Beans, corn |
| 11 | Green peppers, broccoli, beans, squash |
| 12 | Asparagus, beans, squash |
| 13 | Squash, corn, asparagus, beans |
| 14 | Corn, green peppers, tomatoes, beans, broccoli |

Buatlah aturan asosiasi dari data tersebut dengan menggunakan metode Apriori!

Scan ke-1

|  |  |
| --- | --- |
| Candidate 1 itemset (C1) | |
| ItemSet | Support |
| Brocoli | 5 (36%) |
| Green peppers | 5 (36%) |
| Corn | 8 (57%) |
| Asparagus | 6 (43%) |
| Squash | 7 (50%) |
| tomatoes | 6 (43%) |
| Beans | 10 (71%) |

|  |  |
| --- | --- |
| Large 1-itemset (L1) | |
| Itemset | Support |
| {Corn} | 8 (57%) |
| {Squash} | 7 (50%) |
| {Beans} | 10 (71%) |

|  |
| --- |
| Candidate 2 itemset (C2) |
| Itemset |
| {Corn, Squash} |
| {Corn, Beans} |
| {Squash, Beans} |

Scan ke-2

|  |  |
| --- | --- |
| Candidate 2 itemset (C2) | |
| Itemset | Support |
| {Corn, Squash} | 3 (21%) |
| {Corn, Beans} | 5 (36%) |
| {Squash, Beans} | 6 (43%) |

|  |  |
| --- | --- |
| Large 2-itemset (L2) | |
| Itemset | Support |
| {Corn, Beans} | 5 (36%) |
| {Squash, Beans} | 6 (43%) |

|  |  |
| --- | --- |
| Candidate 3 itemset (C3) | |
| Itemset |  |
| {Corn, Squash, Beans} |
| Candidate 3 itemset (C3) | |
| Itemset | Support |
| {Corn, Squash, Beans} | 2 (14%) |
|  | |
| L1 | L2 |
| {Corn} = 57% | {Corn, Beans} = 36% |
| {Squash} = 50% | {Squash, Beans} = 43% |
| {Beans} = 71% |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Aturan (X => Y) | support (X U Y) | Support (X) | Confidence |
| 1 | Corn => Beans | 36% | 57% | 63% |
| 2 | Beans => Corn | 36% | 57% | 50% |
| 3 | Squash => Beans | 43% | 50% | 86% |
| 4 | Beans => Squash | 43% | 71% | 60% |

1. Diberikan data 10 orang pekerja sebagai berikut:

|  |  |  |
| --- | --- | --- |
| **Nam a** | **Lama bekerja/hari (jam)** | **Penghasilan/bulan (jt)** |
| A | 2 | 4 |
| B | 5 | 1 |
| C | 4 | 8 |
| D | 6 | 2 |
| E | 5 | 6 |
| F | 8 | 3 |
| G | 6 | 7 |
| H | 9 | 2 |
| I | 2 | 7 |
| J | 6 | 4 |

Tentukan anggota klaster jika data dikelompokkan menjadi 2, dimana *center point* sebagai berikut:

**Klaster satu** (lama bekerja 4 jam/hari dengan penghasilan 6jt/bulan)

**Klaster dua** (lama bekerja 7 jam/hari dengan penghasilan 2jt/bulan)

* + Iterasi 1 : Klaster 1 =
    - √(2 − 4)² + (4 − 6)² = √(8) = 2,828
    - √(5 − 4)² + (1 − 6)² = √(26) = 5,099
    - √(4 − 4)² + (8 − 6)² = √(4) = 2

* + - √(6 − 4)² + (2 − 6)² = √(20) = 4,472
    - √(5 − 4)² + (6 − 6)² = √(1) = 1

* + - √(8 − 4)² + (3 − 6)² = √(25) = 5
    - √(6 − 4)² + (7 − 6)² = √(5) = 2,236

* + - √(9 − 4)² + (2 − 6)² = √(31) = 6,4031
    - √(2 − 4)² + (7 − 6)² = √(5) = 2,236

* + - √(6 − 4)² + (4 − 6)² = √(8) = 2,828

Klaster 2 =

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * √(2 − 7)² | + | (4 − 2)² | = √(29) | = 5,385 |
| * √(5 − 7)² | + | (1 − 2)² | = √(5) | = 2,236 |
| * √(4 − 7)² | + | (8 − 2)² | = √(45) | = 6,708 |
| * √(6 − 7)² | + | (2 − 2)² | = √(1) | = 1 |
| * √(5 − 7)² | + | (6 − 2)² | = √(20) | = 4,472 |
| * √(8 − 7)² | + | (3 − 2)² | = √(2) | = 1,414 |
| * √(6 − 7)² | + | (7 − 2)² | = √(26) | = 5,099 |
| * √(9 − 7)² | + | (2 − 2)² | = √(4) | = 2 |
| * √(2 − 7)² | + | (7 − 2)² | = √(50) | = 7,071 |
| * √(6 − 7)² | + | (4 − 2)² | = √(5) | = 2,236 |

Anggota Klaster 1 (C1) : {A, C, E, G, I} Anggota Klaster 2 (C2) : {B, D, F, H, J}

New Center Point :

New C1 = (2 + 4 + 5 + 6 + 2) / 5 = 3,8

(4 + 8 + 2 + 6 + 7) / 5 = 6,4

New C2 = (5 + 6 + 8 + 9 + 6) / 5 = 6,8

(1 + 2 + 3 + 2 + 4) / 5 = 2,4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * Iterasi 2 : Klaster 1 = |  | | | |
| * √(2 − 3,8)² | + | (4 − 6,4)² | = √(9) | = 3 |
| * √(5 − 3,8)² | + | (1 − 6,4)² | = √(30,6) | = 5, 531 |
| * √(4 − 3,8)² | + | (8 − 6,4)² | = √(2,6) | = 1,612 |
| * √(6 − 3,8)² | + | (2 − 6,4)² | = √(24,2) | = 4,919 |
| * √(5 − 3,8)² | + | (6 − 6,4)² | = √(1,6) | = 1,264 |
| * √(8 − 3,8)² | + | (3 − 6,4)² | = √(29,2) | = 5,403 |
| * √(6 − 3,8)² | + | (7 − 6,4)² | = √(5,2) | = 2,2803 |
| * √(9 − 3,8)² | + | (2 − 6,4)² | = √(46,4) | = 6,811 |
| * √(2 − 3,8)² | + | (7 − 6,4)² | = √(3,6) | = 1,897 |
| * √(6 − 3,8)² | + | (4 − 6,4)² | = √(10,6) | = 3,255 |

Klaster 2 =

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * √(2 − 6,8)² | + | (4 − 2,4)² | = √(25,6) | = 5,096 |
| * √(5 − 6,8)² | + | (1 − 2,4)² | = √(5,2) | = 2,2803 |
| * √(4 − 6,8)² | + | (8 − 2,4)² | = √(39,2) | = 6,2609 |
| * √(6 − 6,8)² | + | (2 − 2,4)² | = √(0,8) | = 0.894 |
| * √(5 − 6,8)² | + | (6 − 2,4)² | = √(16,2) | = 4,024 |
| * √(8 − 6,8)² | + | (3 − 2,4)² | = √(1,8) | = 1,341 |
| * √(6 − 6,8)² | + | (7 − 2,4)² | = √(21,8) | = 4,669 |
| * √(9 − 6,8)² | + | (2 − 2,4)² | = √(5) | = 2,235 |
| * √(2 − 6,8)² | + | (7 − 2,4)² | = √(44,2) | = 6,648 |
| * √(6 − 6,8)² | + | (4 − 2,4)² | = √(3,2) | = 1,788 |

Anngota baru klaster 1 (C1) = {A, C, E, G, I} Anggota baru klaster 2 (C2) = {B, D, F, H, J}

Kesmpulan : Karena pada iterasi 1 san 2 anggota klasternya tidak berubah, maka sudah dipastikann anggota C1 (A, C, E, G, J) dan anggota C2 ( B, D, F, H, I).

1. Dalam suatu penelitian tentang tekanan darah tinggi (mmHg) terhadap 35 pasien di sebuah RumahSakit Budi Mulya, diperoleh data sebagai berikut:

|  |  |  |
| --- | --- | --- |
| **Pasien** | **Umur (x)** | **Tekanan Darah (Y)** |
| 1 | 80 | 171 |
| 2 | 72 | 163 |
| 3 | 57 | 149 |
| 4 | 37 | 136 |
| 5 | 18 | 117 |
| 6 | 52 | 133 |
| 7 | 66 | 144 |
| 8 | 31 | 120 |
| 9 | 58 | 139 |
| 10 | 35 | 123 |
| 11 | 26 | 115 |
| 12 | 44 | 132 |
| 13 | 73 | 176 |
| 14 | 65 | 169 |
| 15 | 71 | 173 |
| 16 | 39 | 125 |
| 17 | 43 | 127 |
| 18 | 50 | 148 |
| 19 | 60 | 155 |
| 20 | 68 | 152 |

|  |  |  |
| --- | --- | --- |
| **Pasien** | **Umur (x)** | **Tekanan Darah (Y)** |
| 21 | 42 | 140 |
| 22 | 38 | 115 |
| 23 | 49 | 145 |
| 24 | 55 | 150 |
| 25 | 47 | 128 |
| 26 | 63 | 149 |
| 27 | 16 | 118 |
| 28 | 72 | 160 |
| 29 | 42 | 125 |
| 30 | 56 | 147 |
| 31 | 48 | 151 |
| 32 | 72 | 175 |
| 33 | 51 | 149 |
| 34 | 27 | 115 |
| 35 | 30 | 116 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pasien | Umur (x) | Tekanan Darah (Y) | (X)² | (Y)² | XY |
| 1 | 80 | 171 | 6400 | 29241 | 13680 |
| 2 | 72 | 163 | 5184 | 26569 | 11736 |
| 3 | 57 | 149 | 3249 | 22201 | 8493 |
| 4 | 37 | 136 | 1369 | 18496 | 5032 |
| 5 | 18 | 117 | 324 | 13689 | 2106 |
| 6 | 52 | 133 | 2704 | 17689 | 6916 |
| 7 | 66 | 144 | 4356 | 20736 | 9504 |
| 8 | 31 | 120 | 961 | 14400 | 3720 |
| 9 | 58 | 139 | 3364 | 19321 | 8062 |
| 10 | 35 | 123 | 1225 | 15129 | 4305 |
| 11 | 26 | 115 | 676 | 13225 | 2990 |
| 12 | 44 | 132 | 1936 | 17424 | 5808 |
| 13 | 73 | 176 | 5329 | 30976 | 12848 |
| 14 | 65 | 169 | 4225 | 28561 | 10985 |
| 15 | 71 | 173 | 5041 | 29929 | 12283 |
| 16 | 39 | 125 | 1521 | 15625 | 4875 |
| 17 | 43 | 127 | 1849 | 16129 | 5461 |
| 18 | 50 | 148 | 2500 | 21904 | 7400 |
| 19 | 60 | 155 | 3600 | 24025 | 9300 |
| 20 | 68 | 152 | 4624 | 23104 | 10336 |
| 21 | 42 | 140 | 1764 | 19600 | 5880 |
| 22 | 38 | 115 | 1444 | 13225 | 4370 |
| 23 | 49 | 145 | 2401 | 21025 | 7105 |
| 24 | 55 | 150 | 3025 | 22500 | 8250 |
| 25 | 47 | 128 | 2209 | 16384 | 6016 |
| 26 | 63 | 149 | 3969 | 22201 | 9387 |
| 27 | 16 | 118 | 256 | 13924 | 1888 |
| 28 | 72 | 160 | 5184 | 25600 | 11520 |
| 29 | 42 | 125 | 1764 | 15625 | 5250 |
| 30 | 56 | 147 | 3136 | 21609 | 8232 |
| 31 | 48 | 151 | 2304 | 22801 | 7248 |
| 32 | 72 | 175 | 5184 | 30625 | 12600 |
| 33 | 51 | 149 | 2601 | 22201 | 7599 |
| 34 | 27 | 115 | 729 | 13225 | 3105 |
| 35 | 30 | 116 | 900 | 13456 | 3480 |
| ∑ | 1753 | 4950 | 97307 | 712374 | 257770 |

1. Hitung korelasi antara umur dan tekanan darah! r = (35) (257770) − (1753) (4950)

√[(35) (97307) − (1753)²] [(35) (4950) − (97307)²

r = (9021950) − (8677350)

√[(332736)] [(430590)]

r = (344600)

√[(14.328.312.840)]

r = (344600)

(378513,928)

r = 0,910402429

1. Seberapa besar umur mempengaruhi tekanan darah? R² = r² x 100%

= (0,91)² x 100%

= 0,828 x 100%

= 83%

|  |
| --- |
| a. Hipotesis |
| H˳: r = 0 tidak terdapat pengaruh antara umur (X) dengan tekanan  darah (Y) |
| H₁ : r ≠ 0 terdapat pengaruh antara umur (X) dengan tekanan darah  (Y) |
| b. Resiko kesalahan atau taraf signifikansi (α) = 5% |
| c. Uji Hipotesis |

Nilai t hitung dengan : T hitung = 𝑟√𝑛 − 2

√1 − 𝑟²

= (0,91)√ 33

√ 1− (0,828)

= (0,91)(5,744)

√ 1− (0,685)

= (5,277)

√ (0,315)

= (5,277)

0,561

= 9,317

t tabel (0.05, 33) = 1,692

9,317 > 1,692, maka H˳ ditolak dengan demikian H₁ diterima

Kesimpulan : terdeapat pengaruh antara umur (X) dengan tekanan darah (Y)

1. Bagaimana persamaan regresinya?

Y = b + aX

b = (35) ((257770) − (1753) (4950)

(35) − (1753)²

= 9021950 − 8677350

3405745 − 3073009

= 344600

332763

= 1,035

a = (4950) − (1,035)(1753)

35

a = (4950) − (1815,504)

35

a = 3134,49

35

a = 89,557

jika X = 40, maka

Y = 89,557 + 1,035X

= 89,557 + 1,035 (40)

= 89,557 + 41,426

= 130,98

Dengan demikian tekanan darah yang akan diperoleh oleh seseorang jika umurnya adalah 40 tahun adalah sebesar 130,98

1. Jika 6 orang pasien yang diketahui masing-masing berumur 22 tahun, 30 tahun, 40 tahun, 50 tahun, 60 tahun, 74 tahun saat ini akan diperiksa, prediksi lah berapa tekanan darah mereka (Jika NIM anda adalah 13020200034!)