**Nama : Ridho Surya**

**NIM : 1710031802135**

**UAS Basis Data Terdistribusi**

**STMIK AMIK Riau Teknik Informatika 2020-2021**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot |
| 2010031802100 | Habibi | 01/01/2004 | Anatomi | FK1005 | 5 | A | 4 |
| 2010031802100 | Habibi | 01/01/2004 | Genetika | FK1006 | 4 | A- | 3.75 |
| 2010031802100 | Habibi | 01/01/2004 | Kardiovaskuler | FK1007 | 5 | A- | 3.75 |
| 2010031802100 | Habibi | 01/01/2004 | Metabolisme & energi | FK1008 | 3 | B+ | 3.5 |
| 2010031802200 | Quendira | 01/01/2004 | Anatomi | FK1005 | 5 | A- | 3.75 |
| 2010031802200 | Quendira | 01/01/2004 | Kardiovaskuler | FK1007 | 4 | B | 3 |
| 2010031802200 | Quendira | 01/01/2004 | Metabolisme & energi | FK1008 | 3 | A | 4 |
| 2010031802300 | Keennandra | 02/02/2005 | Genetika | FK1006 | 4 | A | 4 |
| 2010031802300 | Keennandra | 02/02/2005 | Metabolisme & energi | FK1008 | 5 | B+ | 3.5 |
| 2010031802400 | Raffasya | 02/05/2005 | Anatomi | FK1005 | 5 | A- | 3.75 |
| 2010031802400 | Raffasya | 02/05/2005 | Kardiovaskuler | FK1007 | 5 | A | 4 |
| 2010031802500 | Danendra | 02/09/2005 | Metabolisme & energi | FK1008 | 3 | B+ | 3.5 |
| 2010031802500 | Danendra | 02/09/2005 | Genetika | FK1006 | 4 | B | 3 |
| 2010031802600 | Mahren | 10/10/2004 | Metabolisme & energi | FK1008 | 3 | B | 3 |
| 2010031802600 | Mahren | 10/10/2004 | Kardiovaskuler | FK1007 | 5 | B+ | 3.5 |

**Fragmentasi Horizontal**

Mata\_kuliah\_khusus = “Anatomi”

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot |
| 2010031802100 | Habibi | 01/01/2004 | Anatomi | FK1005 | 5 | A | 4 |
| 2010031802200 | Quendira | 01/01/2004 | Anatomi | FK1005 | 5 | A- | 3.75 |
| 2010031802400 | Raffasya | 02/05/2005 | Anatomi | FK1005 | 5 | A- | 3.75 |

Mata\_kuliah\_khusus = “Metabolisme & energi”

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot |
| 2010031802100 | Habibi | 01/01/2004 | Metabolisme & energi | FK1008 | 3 | B+ | 3.5 |
| 2010031802200 | Quendira | 01/01/2004 | Metabolisme & energi | FK1008 | 3 | A | 4 |
| 2010031802300 | Keennandra | 02/02/2005 | Metabolisme & energi | FK1008 | 5 | B+ | 3.5 |
| 2010031802600 | Mahren | 10/10/2004 | Metabolisme & energi | FK1008 | 3 | B | 3 |
| 2010031802500 | Danendra | 02/09/2005 | Metabolisme & energi | FK1008 | 3 | B+ | 3.5 |

Mata\_kuliah\_khusus = “Kardiovaskuler”

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot |
| 2010031802100 | Habibi | 01/01/2004 | Kardiovaskuler | FK1007 | 5 | A- | 3.75 |
| 2010031802200 | Quendira | 01/01/2004 | Kardiovaskuler | FK1007 | 4 | B | 3 |
| 2010031802400 | Raffasya | 02/05/2005 | Kardiovaskuler | FK1007 | 5 | A | 4 |
| 2010031802600 | Mahren | 10/10/2004 | Kardiovaskuler | FK1007 | 5 | B+ | 3.5 |

Mata\_kuliah\_khusus = “Genetika”

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot |
| 2010031802100 | Habibi | 01/01/2004 | Genetika | FK1006 | 4 | A- | 3.75 |
| 2010031802300 | Keennandra | 02/02/2005 | Genetika | FK1006 | 4 | A | 4 |
| 2010031802500 | Danendra | 02/09/2005 | Genetika | FK1006 | 4 | B | 3 |

**Fragmentasi Vertical**

Relasi 1 = NIM, Nama\_Mhs, Tgl\_Lahir, Mata\_kuliah\_khusus, SKS, Nilai\_Huruf, Bobot, Tuple\_I

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | Habibi | 01/01/2004 | Anatomi | 5 | A | 4 | 1 |
| 2010031802100 | Habibi | 01/01/2004 | Genetika | 4 | A- | 3.75 | 2 |
| 2010031802100 | Habibi | 01/01/2004 | Kardiovaskuler | 5 | A- | 3.75 | 3 |
| 2010031802100 | Habibi | 01/01/2004 | Metabolisme & energi | 3 | B+ | 3.5 | 4 |
| 2010031802200 | Quendira | 01/01/2004 | Anatomi | 5 | A- | 3.75 | 5 |
| 2010031802200 | Quendira | 01/01/2004 | Kardiovaskuler | 4 | B | 3 | 6 |
| 2010031802200 | Quendira | 01/01/2004 | Metabolisme & energi | 3 | A | 4 | 7 |
| 2010031802300 | Keennandra | 02/02/2005 | Genetika | 4 | A | 4 | 8 |
| 2010031802300 | Keennandra | 02/02/2005 | Metabolisme & energi | 5 | B+ | 3.5 | 9 |
| 2010031802400 | Raffasya | 02/05/2005 | Anatomi | 5 | A- | 3.75 | 10 |
| 2010031802400 | Raffasya | 02/05/2005 | Kardiovaskuler | 5 | A | 4 | 11 |
| 2010031802500 | Danendra | 02/09/2005 | Metabolisme & energi | 3 | B+ | 3.5 | 12 |
| 2010031802500 | Danendra | 02/09/2005 | Genetika | 4 | B | 3 | 13 |
| 2010031802600 | Mahren | 10/10/2004 | Metabolisme & energi | 3 | B | 3 | 14 |
| 2010031802600 | Mahren | 10/10/2004 | Kardiovaskuler | 5 | B+ | 3.5 | 15 |

Relasi 2 = NIM, Kode\_Mata\_Kuliah , SKS, Nilai\_Huruf, Bobot, Tuple\_I

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| NIM | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | FK1005 | 5 | A | 4 | 1 |
| 2010031802100 | FK1006 | 4 | A- | 3.75 | 2 |
| 2010031802100 | FK1007 | 5 | A- | 3.75 | 3 |
| 2010031802100 | FK1008 | 3 | B+ | 3.5 | 4 |
| 2010031802200 | FK1005 | 5 | A- | 3.75 | 5 |
| 2010031802200 | FK1007 | 4 | B | 3 | 6 |
| 2010031802200 | FK1008 | 3 | A | 4 | 7 |
| 2010031802300 | FK1006 | 4 | A | 4 | 8 |
| 2010031802300 | FK1008 | 5 | B+ | 3.5 | 9 |
| 2010031802400 | FK1005 | 5 | A- | 3.75 | 10 |
| 2010031802400 | FK1007 | 5 | A | 4 | 11 |
| 2010031802500 | FK1008 | 3 | B+ | 3.5 | 12 |
| 2010031802500 | FK1006 | 4 | B | 3 | 13 |
| 2010031802600 | FK1008 | 3 | B | 3 | 14 |
| 2010031802600 | FK1007 | 5 | B+ | 3.5 | 15 |

**Fragmentasi Campuran**

Relasi 1a

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | Habibi | 01/01/2004 | Genetika | FK1006 | 4 | A- | 3.75 | 2 |
| 2010031802300 | Keennandra | 02/02/2005 | Genetika | FK1006 | 4 | A | 4 | 8 |
| 2010031802500 | Danendra | 02/09/2005 | Genetika | FK1006 | 4 | B | 3 | 13 |

Relasi 1b

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | Habibi | 01/01/2004 | Metabolisme & energi | 3 | B+ | 3.5 | 4 |
| 2010031802200 | Quendira | 01/01/2004 | Metabolisme & energi | 3 | A | 4 | 7 |
| 2010031802300 | Keennandra | 02/02/2005 | Metabolisme & energi | 5 | B+ | 3.5 | 9 |
| 2010031802600 | Mahren | 10/10/2004 | Metabolisme & energi | 3 | B | 3 | 12 |
| 2010031802500 | Danendra | 02/09/2005 | Metabolisme & energi | 3 | B+ | 3.5 | 14 |

Relasi 1c.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | Habibi | 01/01/2004 | Anatomi | 5 | A | 4 | 1 |
| 2010031802200 | Quendira | 01/01/2004 | Anatomi | 5 | A- | 3.75 | 5 |
| 2010031802400 | Raffasya | 02/05/2005 | Anatomi | 5 | A- | 3.75 | 10 |

Relasi 1d.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NIM | Nama\_Mhs | Tgl\_Lahir | Mata\_kuliah\_khusus | Kode\_Mata\_Kuliah | SKS | Nilai\_Huruf | Bobot | Tuple\_ID |
| 2010031802100 | Habibi | 01/01/2004 | Kardiovaskuler | FK1007 | 5 | A- | 3.75 | 3 |
| 2010031802200 | Quendira | 01/01/2004 | Kardiovaskuler | FK1007 | 4 | B | 3 | 6 |
| 2010031802400 | Raffasya | 02/05/2005 | Kardiovaskuler | FK1007 | 5 | A | 4 | 11 |
| 2010031802600 | Mahren | 10/10/2004 | Kardiovaskuler | FK1007 | 5 | B+ | 3.5 | 15 |

3. Apa itu Basis Data Terdistribusi

Sistem basis data terdistribusi pada dasaranya merupakan salah satu pengembangan dari sebuah sistem basis data. Sistem basis data yang sudah diimplementasikan di dalam suatu perusahaan ataupun organisasi, kemudian dikembangkan menjadi bentuk distribusi data, sehingga sisitem basis data tersebut bisa didistribusikan ke berbagai lokasi.

Terdapat dua tipe basis data terdistribusi

1. Homogen yaitu sistem dimana setiap tempat menjalankan tipe DBMS yang sama

* Semua pihak/lokasi memiliki perangkat lunak yang identic
* Mereka mengenali satu sama lain dan setuju untuk bekerja sama dalam mengolah permintaan pengguna
* Setiap situs menyerahkan bagian dari otonomi dalam hal hak untuk mengubah skema atau perangkat lunak pengguna sebagai sistem tunggal

2. Heterogen yaitu sistem dimana setiap tempat yang berbeda menjalankan DBMS yang

berbeda, baik Relational DBMS (RDBMS) atau non relational DBMS. Dalam sistem database terdistribusi heterogen, setidaknya salah satu database menggunakan skema dan perangkat lunak yang berbeda.

ALLOCATION MAX AVAILABLE NEED

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Proses | A | B | C | D | A | B | C | D | A | B | C | D | A | B | C | D |
| K | 4 | 7 | 4 | 1 | 8 | 11 | 9 | 7 | 7 | 4 | 11 | 10 | 4 | 4 | 5 | 6 |
| A | 3 | 4 | 4 | 4 | 9 | 8 | 12 | 13 | 11 | 11 | 16 | 11 | 6 | 4 | 8 | 9 |
| M | 2 | 2 | 8 | 7 | 12 | 8 | 13 | 13 | 14 | 15 | 20 | 14 | 10 | 6 | 5 | 6 |
| P | 4 | 0 | 1 | 4 | 11 | 8 | 7 | 8 | 16 | 17 | 28 | 21 | 7 | 8 | 6 | 4 |
| U | 5 | 5 | 5 | 1 | 9 | 9 | 10 | 9 | 20 | 17 | 29 | 25 | 4 | 4 | 5 | 8 |
| S | 6 | 1 | 1 | 4 | 12 | 7 | 5 | 13 | 25 | 22 | 34 | 26 | 6 | 6 | 4 | 9 |
| M | 4 | 9 | 2 | 1 | 11 | 13 | 6 | 7 | 31 | 23 | 35 | 30 | 7 | 4 | 4 | 6 |
| E | 0 | 4 | 1 | 1 | 6 | 8 | 12 | 11 | 35 | 32 | 37 | 31 | 6 | 4 | 11 | 10 |
| R | 2 | 3 | 2 | 2 | 10 | 7 | 8 | 11 | 35 | 36 | 38 | 32 | 8 | 4 | 6 | 9 |
| D | 5 | 1 | 2 | 3 | 13 | 6 | 8 | 7 | 37 | 39 | 40 | 34 | 8 | 5 | 6 | 4 |
| E | 2 | 7 | 0 | 2 | 8 | 11 | 8 | 9 | 42 | 40 | 42 | 37 | 6 | 4 | 8 | 7 |
| K | 1 | 3 | 0 | 4 | 7 | 7 | 6 | 13 | 44 | 47 | 42 | 39 | 6 | 4 | 6 | 9 |
| A | 2 | 3 | 5 | 1 | 10 | 10 | 8 | 6 | 45 | 50 | 42 | 43 | 8 | 7 | 3 | 5 |
| ! | 2 | 3 | 5 | 1 | 11 | 11 | 9 | 7 | 47 | 53 | 47 | 44 | 9 | 8 | 4 | 6 |
|  |  |  |  |  |  |  |  |  | 49 | 56 | 52 | 45 |  |  |  |  |

Cara mendapatkan nilai ALLOCATION yaitu NEED – MAX

menentukan apakah setiap prosesnya jalan dengan mengkondisikan.

Need <= Available, jika iya, bisa jalan. Selanjutnya New Available = Available + Allocation = dapat Avalailable Barunya.

Total Recource : 49 56 52 45

Safe Secuance <K, A, M, P, U, S, M, E, R, D, E, K, A>