



DESAIN DATABASE

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Database ??

- ♦ Database
 - *Data = Known facts about the real world*
 - *Base = Warehouse*
- ♦ Database
 - *Koleksi dari data yang saling berhubungan yang diorganisasi sedemikian rupa sehingga dapat dimanfaatkan kembali dengan cepat, tepat dan murah untuk memenuhi berbagai kebutuhan tanpa terjadi pengulangan (redudansi) yang tidak perlu dan di simpan dalam media penyimpan elektronis*
- ♦ Contoh, basis data Universitas berisi informasi :
 - *Entiti, semisal mahasiswa, fakultas, mata kuliah, dan ruang kuliah*
 - *Relasi antar entitas, seperti Jadwal, KHS, Transkrip Nilai dsb.*

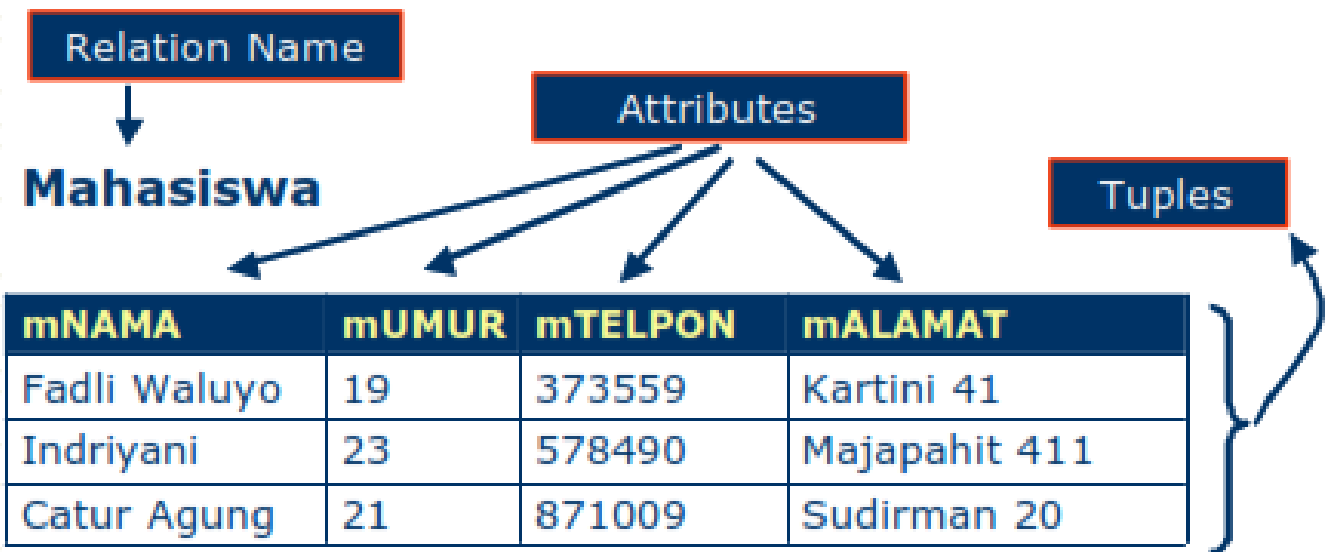


- Sebuah database dirancang dan dibuat dengan tujuan tertentu.
- Dalam sistem database relational, tabel-tabel database saling berhubungan satu sama lainnya.
- Dalam tabel database akan selalu memiliki
 - Attribut Names (Nama-nama atribut)
 - Relation Names (Nama-nama relasi)
 - Tuples (Record-record)



Contoh

- Diberikan tabel mahasiswa beserta data-datanya



Problem Database

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|----------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Is a “good” design .. ??



Problem Database.....lanjutan

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|----------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 125 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Update Anomaly

Update pada satu tuple tidak mengubah pada tuple yang lain

Redudancy

Informasi di ualng- ulang dalam beberapa tuple

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|----------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Redundancy : Pengulangan informasi dalam beberapa tuple yang sebenarnya tidak diperlukan

Update Anomalies : Perubahan informasi dalam satu tuple yang tidak kompak (*Inkonsistensi*)

Problem Database.....lanjutan

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|---------------------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| | | | | | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Delete Anomaly
Jika Emilio Estevez
dihapus akan kehilangan
informasi tentang
Mighty Ducks

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|----------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Delete Anomalies : Kehilangan informasi akibat penghapusan informasi

Problem Database.....lanjutan

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|------------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |
| Star Wars | 1977 | 124 | Color | MGM | James Earl Jones |

Insertion Anomaly

Jika kita sisipkan tuple baru ...
Maka akan terjadi inkonsistensi pada atribut studi

Tabel Film

| title | year | length | filmType | studioName | starName |
|---------------|------|--------|----------|------------|----------------|
| Star Wars | 1977 | 124 | Color | Fox | Carrie Fisher |
| Star Wars | 1977 | 124 | Color | Fox | Mark Hamill |
| Star Wars | 1977 | 124 | Color | Fox | Harison Ford |
| Mighty Ducks | 1991 | 104 | Color | Disney | Emilio Estevez |
| Wayne's World | 1992 | 95 | Color | Paramount | Dana Carvey |
| Wayne's World | 1992 | 95 | Color | Paramount | Mike Meyers |

Insertion Anomalies : Penambahan tuple baru yang tidak konsisten

Questions & answers

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Conclusion

Database
Problem Database