

**NAMA : DANDUNG RAHMATDHAN**

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**KELAS : D**

## **MODUL 1**

### **1. Jelaskan mengapa dibutuhkan data!**

Data diperlukan dalam segala hal, baik berupa pengukuran, pencatatan, pengumpulan informasi, maupun pengambilan keputusan semuanya memerlukan data. Dengan kata lain data sangat dibutuhkan karena informasi yang ada akan memberikan arti yang sangat penting baik untuk saat ini maupun untuk akan datang. Sehingga definisi dari data adalah informasi yang mengandung arti.

### **2. Jelaskan manfaat database dan contohnya!**

Keuntungan Database

Adapun keuntungan database terhadap sistem pemrosesan adalah:

- 1) Kemubajiran data terkurangi.
- 2) Integritas data dapat selalu terjaga.
- 3) Berbagai data dapat selalu dilakukan oleh setiap user.
- 4) Penggunaan data lebih mudah.
- 5) Konsistensi data dapat selalu terjaga.

Manfaat Database

Adapun manfaat database adalah:

- a) Sebagai komponen utama atau penting dalam sistem informasi, karena merupakan dasar dalam menyediakan informasi.
- b) Menentukan kualitas informasi yaitu cepat, akurat, dan relevan, sehingga infomasi yang disajikan tidak basi. Informasi dapat dikatakan bernilai bila manfaatnya lebih efektif dibandingkan dengan biaya mendapatkannya.
- c) Mengatasi kerangkapan data (redundancy data).
- d) Menghindari terjadinya inkonsistensi data.
- e) Mengatasi kesulitan dalam mengakses data.
- f) Menyusun format yang standar dari sebuah data.
- g) Penggunaan oleh banyak pemakai (multiple user). Sebuah database bisa dimanfaatkan sekaligus secara bersama oleh banyak pengguna (multiuser).
- h) Melakukan perlindungan dan pengamanan data. Setiap data hanya bisa diakses atau dimanipulasi oleh pihak yang diberi otoritas dengan memberikan login dan password terhadap masing-masing data.
- i) Agar pemakai mampu menyusun suatu pandangan (view) abstraksi dari data. Hal ini bertujuan menyederhanakan interaksi antara pengguna dengan sistemnya dan database dapat mempresentasikan pandangan yang berbeda kepada para pengguna, programmer dan administratornya.

### **3. Untuk menentukan jenis database yang digunakan, apa yang menjadi acuan dalam pemilihan database tersebut?**

yang menjadi acuan dalam pemilihan database adalah sebagai berikut.

- a) Pendeskripsi kebutuhan informasi dan data
- b) Spesifikasi data
- c) Pemrosesan yang diperlukan oleh data
- d) Pertimbangan keamanan
- e) Kecocokan dengan tipe aplikasi
- f) Bahasa query
- g) Biaya tak langsung terhadap pemrosesan

**4. Jelaskan istilah atau terminology yang digunakan dalam Database (database,table, field, record)**

Database: Sekumpulan data yang saling berhubungan untuk mencapai suatu tujuan.

Tabel: Merupakan hal yang paling mendasar dalam hal penyimpanan data yang terdiri dari field dan record.

Field (kolom) : Merupakan elemen dari tabel yang berisikan informasi tertentu yang spesifik tentang subjudul tabel pada sebuah item data.

Syarat-syarat pembentukan Field Name pada tabel:

- a) Harus Unik atau Spesifik
- b) Boleh disingkat
- c) Pemisah sebagai penganti spasi dalam pembentuk field adalah tanda lambang " - "

Contoh: Kode Barang menjadi KdBarang, KodeBrg, Kd\_Brg, Kd\_Barang.

Record (baris): Sekumpulan data yang saling berkaitan tentang sebuah subjek tertentu, misalnya data seorang siswa akan disimpan dalam record yang terdiri dari beberapa kolom / field.

**5. Bandingkan perbedaan pengolahan data secara manual dengan menggunakan system database.**

pengolahan data secara manual segala bentuk pengolahan juga dilakukan secara manual (disusun, dihitung atau dibuat laporannya secara manual). Cara ini tentu saja membutuhkan ekstra tenaga dan waktu. Dan lebih sering lagi, diperlukan pengumpulan data-data yang sejenis secara berkali-kali dan dilakukan juga pengolahan dan pembuatan laporan secara berkali-kali pula. Sedangkan pengolahan data pada sistem database lebih praktis, dapat meminimalkan duplikasi data, integritas data tinggi, keamanan lebih terjamin, dan sharing data lebih mudah.

**6. Mengapa dibutuhkan DBMS?**

Tujuan utama DBMS adalah untuk menyediakan tinjauan abstrak dari data bagi user. Jadi sistem menyembunyikan informasi mengenai bagaimana data disimpan dan dirawat, tetapi data tetap dapat diambil dengan efisien. Pertimbangan efisien yang digunakan adalah bagaimana merancang struktur data yang kompleks, tetapi tetap dapat digunakan oleh pengguna yang masih awam, tanpa mengetahui kompleksitas struktur data. Basis data menjadi penting karena munculnya beberapa masalah bila tidak menggunakan data yang terpusat, seperti adanya duplikasi data, hubungan antar data tidak jelas, organisasi data dan update menjadi rumit.

**7. Pada percobaan diatas ada beberapa field yang tipe data dan ukurannya berbeda. Jelaskan!**

Pada tabel Mhs, ada 6 field yaitu: NIM, NAMA, TEMPAT\_LAHIR, TANGGAL\_LAHIR, ALAMAT, TELEPON. Masing-masing field diatur sesuai tipe data yang dibutuhkan, pada field NIM diatur tipe data text, berarti pada record dapat diisikan data berupa teks huruf, angka, dan simbol-simbol lain. Ukuran tipe data pada field NIM diatur sepanjang 10, artinya digit maksimum yang dapat dimasukkan ke dalam record adalah 10 digit. Jika data yang dimasukkan lebih dari 10 digit, maka digit ke-11 dan berikutnya tidak akan terbaca. Untuk pengaturan maksimum

defaultnya sendiri adalah sepanjang 255 digit. Kemudian pada field NAMA, sama-sama diatur tipe data text, namun panjang ukurannya berbeda, yaitu 30, artinya kita dapat memasukkan digit maksimum ke dalam record yaitu sepanjang 30 digit, melebihi 30 data ke-31 dan seterusnya tidak akan terbaca. Pada field TANGGAL\_LAHIR diatur tipe date/time yang berarti pada record dapat diisikan data berupa angka dan simbol.

## MODUL 2

1. Buatlah rancangan sebuah database untuk menangani data-data kuliah. Data-data yang akan ditanganinya adalah: data pribadi mengenai mahasiswa, data pribadi mengenai dosen, data mata kuliah dan data ruang kelas. Mahasiswa boleh mengambil lebih dari satu mata kuliah, dan satu mata kuliah boleh diambil oleh lebih dari satu mahasiswa sekaligus (joint account). Buatlah ER Diagram manual untuk kasus tersebut dari tahap 1 sampai tahap 4!

### Jawaban

Langkah-langkah perancangan database perkuliahan:

- a) Menentukan entitas(object object dasar) yang perlu ada di database:

Mahasiswa : menyimpan semua data pribadi semua mahasiswa

Dosen : menyimpan semua data pribadi semua dosen.

Mata Kuliah : menyimpan informasi tentang mata kuliah

Data ruang kelas : menyimpan informasi tentang data ruang kelas.

- b) Menentukan atribut (sifat sifat) masing masing entity sesuai kebutuhan database:

❖ Mahasiswa

- NIM\_Mahasiswa : Nomor id untuk mahasiswa (integer)PK
- Nama\_Mahasiswa : Nama lengkap Mahasiswa (varchar(45))
- Alamat\_Mahasiswa : Alamat lengkap Mahasiswa(varchar(225)) ❖

Dosen

- NIK\_Dosen : Nomer identitas ubtuk Dosen (Integer)PK
- Nama\_Dosen : Nama lengkap Dosen (varchar(45))
- Alamat\_Dosen : Alamat lengkap Dosen (varchar(225)) ❖

Mata\_Kuliah

- Kode\_MK : kode untuk matakuliah (varchar(10))PK
- Nama\_MK : nama matakuliah (varchar(20))PK ❖

Ruang\_Kelas

- Kode\_RK : Kode ruang kelas (varchar(10))PK
- Nama\_RK : Nama ruang kelas (varchar(20))PK

o

c) Menentukan relationship (hubungan)antar entitas

	Mahasiswa	Dosen	Mata_Kuliah	Ruang_Kelas
Mahasiswa	-	m:n	-	m:n
Dosen		-	m:n	-
Mata_Kuliah			-	m:n
Ruang_Kelas				-

#### Hubungan



Mahasiswa diampu dosen.

- o Tabel utama : Mahasiswa, Dosen
- o Tabel kedua : Mahasiswa\_has\_Dosen
- o Relationship : many-to-many (m:n)
- o Atribut penghubung : NIM\_Mahasiswa, NIK\_Dosen



Dosen Mengampu Mata\_Kuliah

- o Tabel utama : dosen, mata\_kuliah
- o Tabel kedua : dosen\_MK
- o Relationship : many-to-many (m:n)
- o Atribut penghubung : NIK\_Dosen, Kode\_MK



Mahasiswa menempati ruang\_kelas

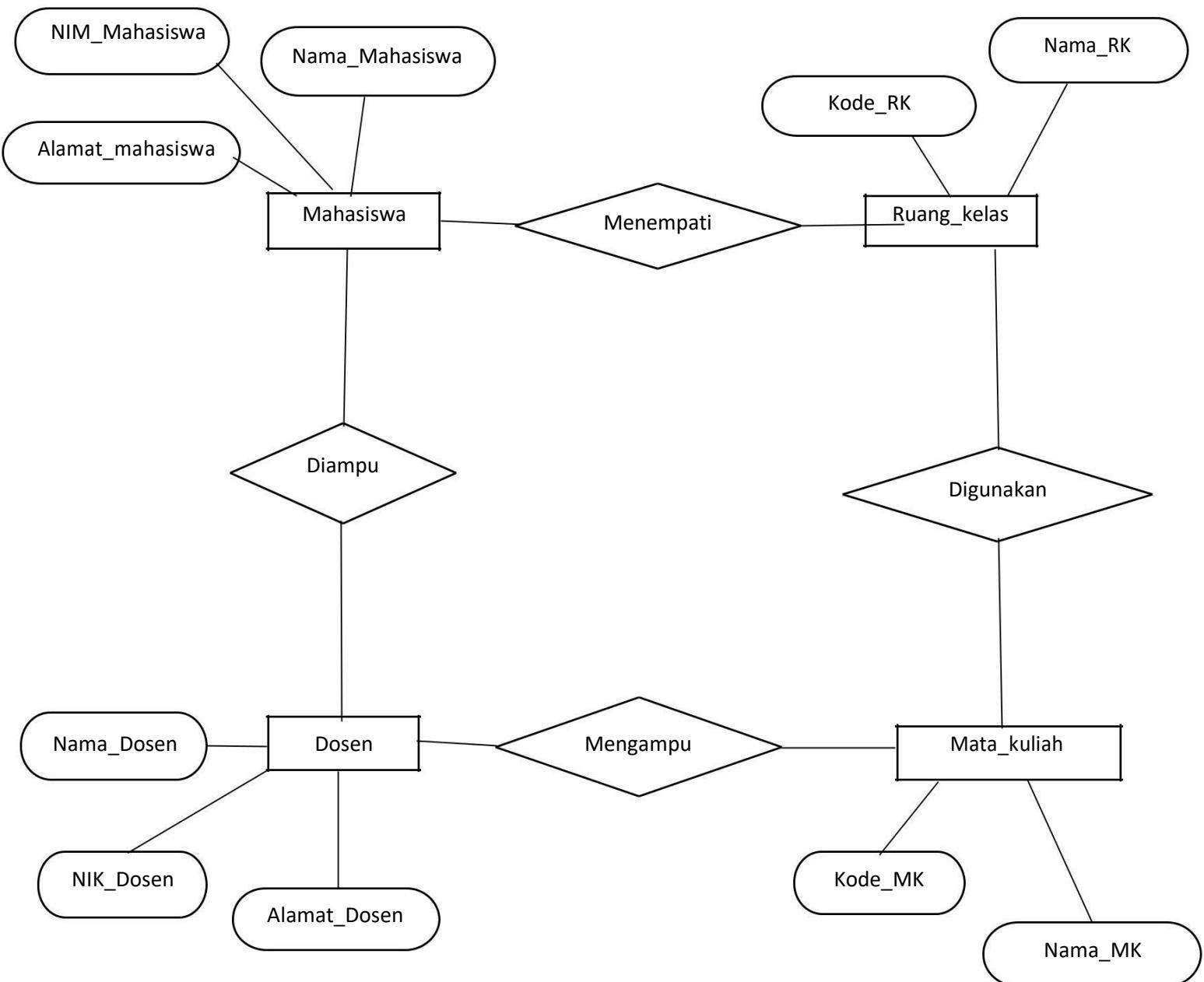
- o Tabel utama : mahasiswa, ruang\_kelas
- o Tabel kedua : mahasiswa\_has\_RK
- o Relationship : many-to-many (m:n)
- o Atribut penghubung : NIM\_Mahasiswa, Kode\_RK



Ruang\_kelas digunakan Mata\_kuliah

- o Tabel utama : ruang\_kelas , mata\_kuliah
- o Tabel kedua : RK\_has\_MK
- o Relationship : many-to-many (m:n)
- o Atribut penghubung : kode\_RK, Kode\_MK

d) Menggambar ERD Diagram



2. Ambil contoh sembarang database (harus berbeda untuk setiap mahasiswa).  
 Buatlah rancangan ER Diagram manual database tersebut dari tahap 1 sampai 4, dengan ketentuan database minimal mengandung 4 buah entitas.

**Jawaban**

Langkah-langkah perancangan database :

- 1) Menentukan entities
  - member: menyimpan semua data pribadi member
  - karyawan: menyimpan semua data pribadi karyawan
  - supplier : menyimpan informasi suplier
  - barang : menyimpan informasi mengenai barang
- 2) Menentukan attributes
  - a. pelanggan
    - id\_pelanggan: nomor id pelanggan (integer) PK
    - nama\_pelanggan : nama lengkap pelanggan (varchar(255))
    - alamat\_pelanggan : alamat lengkap pelanggan (varchar(25))
  - b. pesanan
    - id\_pesan : nomor id karyawan (integer) PK
    - jumlah\_pesan : jumlah pesan yang dibeli(varchar(255))
  - c. pekerja
    - id\_pekerja : kode pekerja (integer) PK
    - nama\_pekerja : nama lengkap pekerja (varchar(255))
  - d. barang
    - kode\_barang : kode barang (varchar(255)) PK
    - nama\_barang : nama lengkap barang (varchar(255))
- 3) Menentukan relationship (hubungan) antar entitas

	pesan	pelanggan	pekerja	barang
Pesanan	-	1:n	m:n	-
Pelanggan		-	-	-
pekerja			-	m:n
barang				-

## **Hubungan**



Pesanan dikirim ke pelanggan:

- Tabel utama: pesanan,pelanggan
- Tabel kedua: pesana\_has\_pelanggan
- Relationship: one-to-many(1:n)
- Attribute penghubung: id\_pesanan,id\_pelanggan



pesanan: ditanagani pekerja:

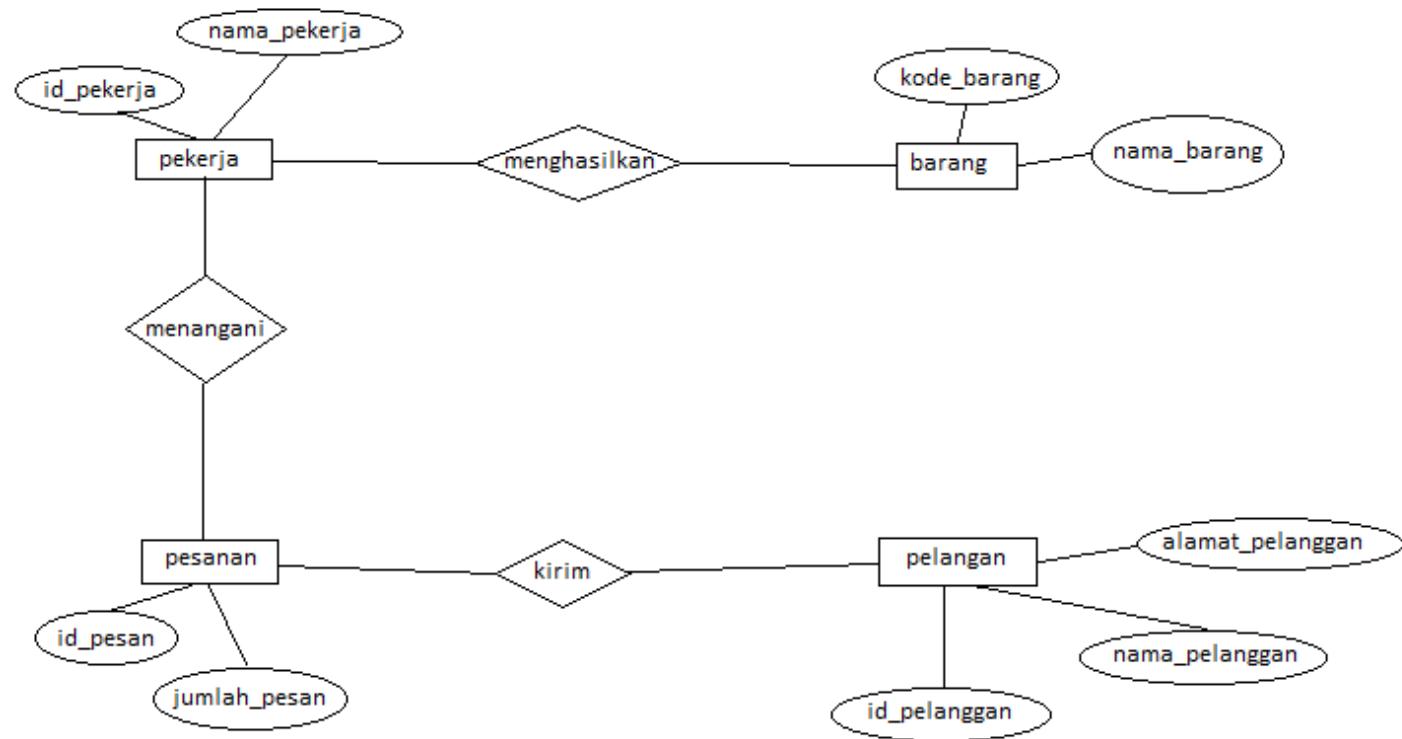
- Tabel utama: pesanan, pekerja
- Tabel kedua: pesanan\_has\_pekerja
- Relationship: Many-to-many(m:n)
- Attribute penghubung: id\_pekerja,id\_pesanan



Pekerja menghasilkan barang:

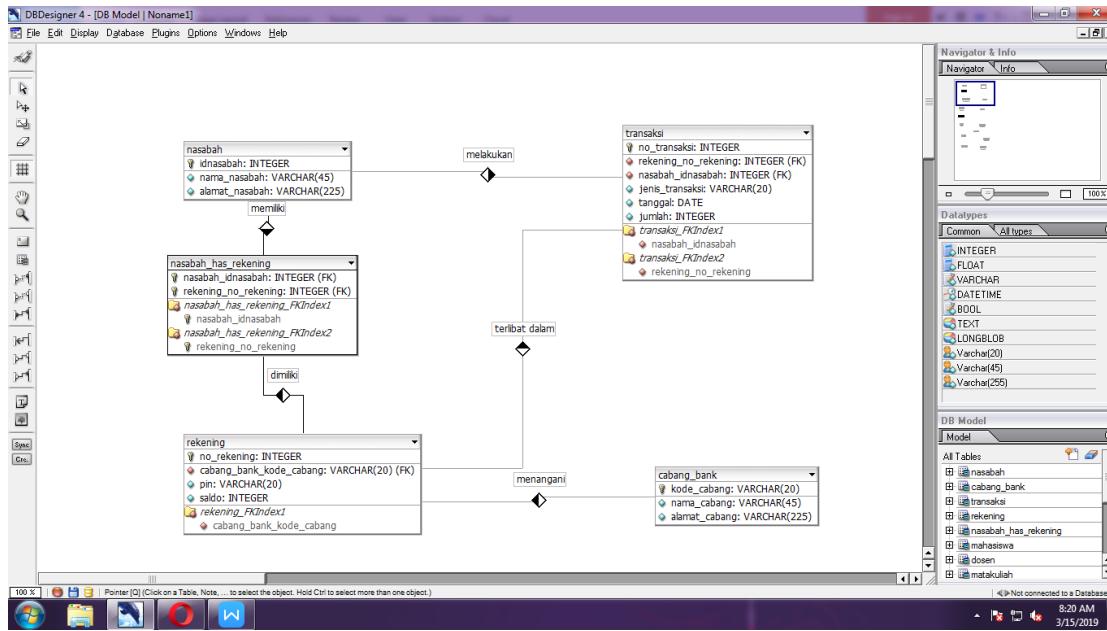
- Tabel utama: pekerja, barang
- Tabel kedua: pekerja\_has\_barang
- Relationship: Many-to-many(m:n)
- Attribute penghubung: id\_pekerja, kode\_barang

4) Meng  
gambar ER-  
Diagram

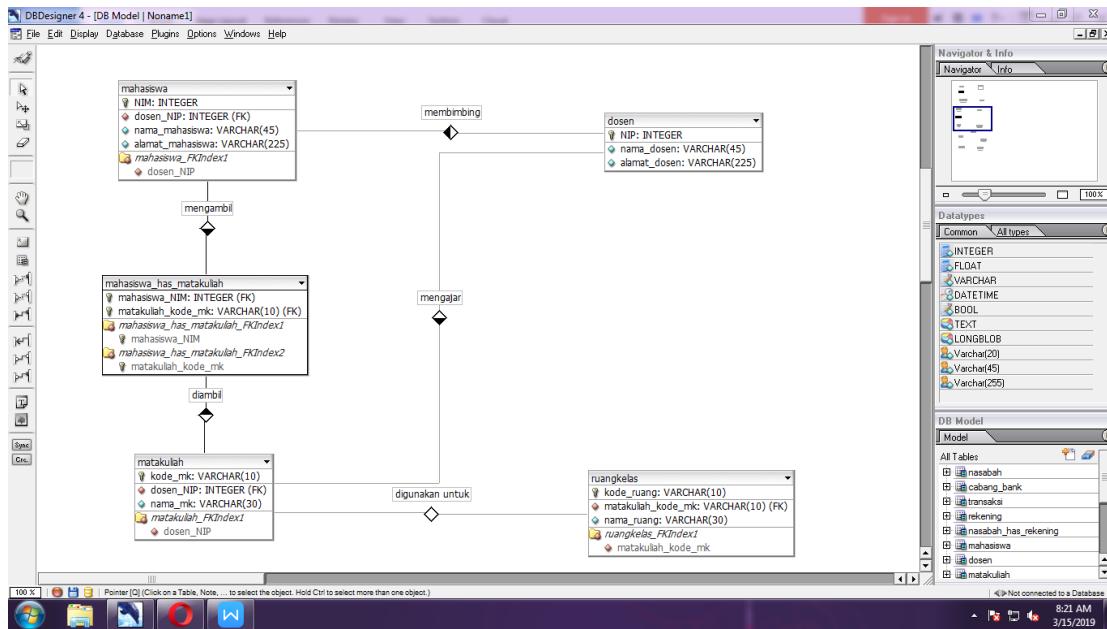


## MODUL 3

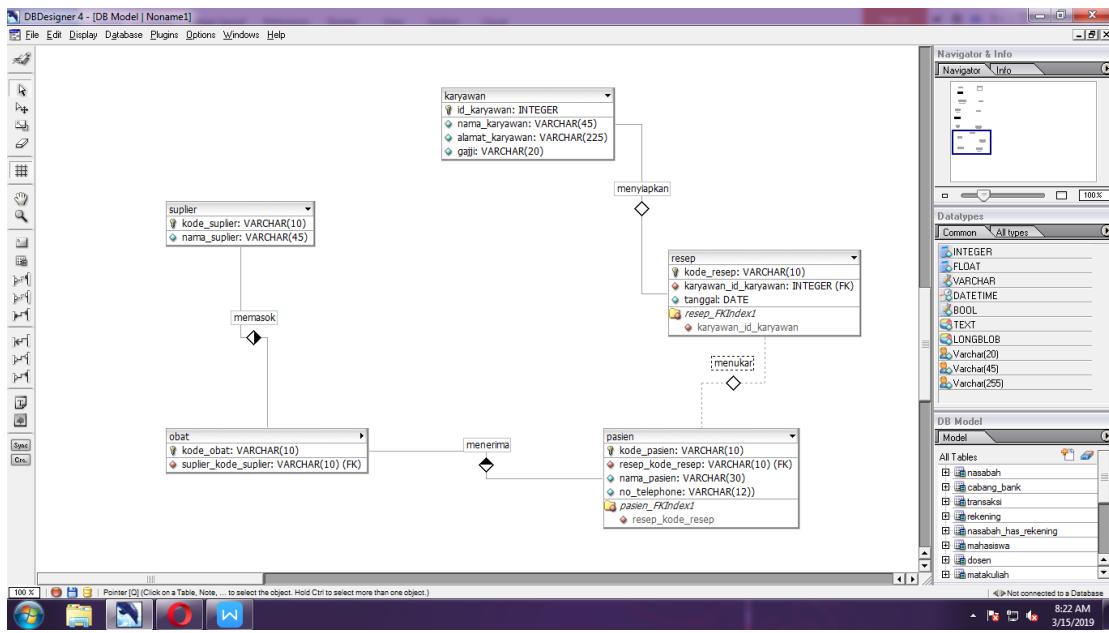
### latihan



### Tugas 1



### Tugas 2



## MODUL 4

### DATABASE UNIVERSITAS

2. Membuat database baru dengan nama Universitas.

```
MariaDB [(none)]> create database universitas;
Query OK, 1 row affected (0.00 sec)
```

3. Menghubungkan ke dalam database yang telah dibuat.

```
MariaDB [(none)]> use universitas;
Database changed
MariaDB [universitas]> \c CREATE TABLE
```

4. Membuat tabel Mahasiswa.

```
MariaDB [universitas]> CREATE TABLE Mahasiswa(
-> NIM_Mahasiswa INTEGER PRIMARY KEY,
-> Nama_Mahasiswa VARCHAR(45)NOT NULL,
-> Alamat_Mahasiswa VARCHAR(255)NOT NULL
-> );
Query OK, 0 rows affected (0.47 sec)
```

4. Membuat tabel Dosen.

```
MariaDB [universitas]> CREATE TABLE Dosen(
-> NIK_Dosen INTEGER PRIMARY KEY,
-> Nama_Dosen VARCHAR(45)NOT NULL,
-> Alamat_Dosen VARCHAR(255)NOT NULL
-> );
Query OK, 0 rows affected (0.45 sec)
```

- c) Membuat tabel Mata\_Kuliah.

```
MariaDB [universitas]> CREATE TABLE Mata_Kuliah(
-> Kode_MK VARCHAR(10) PRIMARY KEY,
-> Nama_MK VARCHAR(20) NOT NULL
-> );
Query OK, 0 rows affected (0.21 sec)
```

- d) Membuat tabel Ruang\_Kelas.

```
MariaDB [universitas]> CREATE TABLE Ruang_Kelas(
-> Kode_RK VARCHAR(10) PRIMARY KEY,
-> Nama_RK VARCHAR(10) NOT NULL
-> );
Query OK, 0 rows affected (0.85 sec)
```

- e) Membuat tabel Mahasiswa\_has\_Dosen.

```
MariaDB [universitas]> CREATE TABLE Mahasiswa_has_Dosen(
-> NIM_MahasiswaFK INTEGER REFERENCES Mahasiswa(NIM_Mahasiswa)
-> ON DELETE CASCADE ON UPDATE CASCADE,
-> NIK_DosenFK INTEGER REFERENCES Dosen(NIK_Dosen)
-> ON DELETE CASCADE ON UPDATE CASCADE,
-> PRIMARY KEY(NIM_MahasiswaFK, NIK_DosenFK)
-> );
Query OK, 0 rows affected (0.29 sec)
```

Membuat tabel Dosen\_has\_MK.

```
MariaDB [universitas]> CREATE TABLE Dosen_has_MK(
    -> NIK_DosenFK INTEGER REFERENCES Dosen(NIK_Dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> Kode_MKFK INTEGER REFERENCES MK(Kode_MK)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(NIK_DosenFK, Kode_MKFK)
    -> );
Query OK, 0 rows affected (0.23 sec)
```

9. Membuat tabel Mahasiswa\_has\_RK.

```
MariaDB [universitas]> CREATE TABLE Mahasiswa_has_RK(
    -> NIM_MahasiswaFK INTEGER REFERENCES Mahasiswa(NIM_Mahasiswa)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> Kode_RKFK INTEGER REFERENCES RK(Kode_RK)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(NIM_MahasiswaFK, Kode_RKFK)
    -> );
Query OK, 0 rows affected (0.19 sec)
```

10. Membuat tabel RK\_has\_MK.

```
MariaDB [universitas]> CREATE TABLE RK_has_MK(
    -> Kode_RKFK INTEGER REFERENCES RK(Kode_RK)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> Kode_MKFK INTEGER REFERENCES MK(Kode_MK)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(Kode_RKFK, Kode_MKFK)
    -> );
Query OK, 0 rows affected (0.19 sec)
```

11. Mengecek hasil Pembuatan Database.

```
MariaDB [universitas]> show tables;
+-----+
| Tables_in_universitas |
+-----+
| dosen
| dosen_has_mk
| mahasiswa
| mahasiswa_has_dosen
| mahasiswa_has_rk
| mata_kuliah
| rk_has_mk
| ruang_kelas
+-----+
8 rows in set (0.00 sec)
```

12. Melihat Struktur tabel Mahasiswa.

```
MariaDB [universitas]> describe Mahasiswa;
+-----+-----+-----+-----+-----+
| Field          | Type       | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| NIM_Mahasiswa | int(11)    | NO   | PRI | NULL    |       |
| Nama_Mahasiswa | varchar(45) | NO   |     | NULL    |       |
| Alamat_Mahasiswa | varchar(255) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

13. Melihat Struktur tabel Dosen.

```
MariaDB [universitas]> describe Dosen;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| NIK_Dosen | int(11) | NO  | PRI | NULL    |
| Nama_Dosen | varchar(45) | NO  |     | NULL    |
| Alamat_Dosen | varchar(255) | NO  |     | NULL    |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

14. Melihat Struktur data Mata\_Kuliah.

```
MariaDB [universitas]> describe Mata_Kuliah;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Kode_MK | varchar(10) | NO  | PRI | NULL    |
| Nama_MK | varchar(20) | NO  |     | NULL    |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

15. Melihat Struktur data Ruang\_Kelas.

```
MariaDB [universitas]> describe Ruang_Kelas;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Kode_RK | varchar(10) | NO  | PRI | NULL    |
| Nama_RK | varchar(10) | NO  |     | NULL    |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

16. Melihat Struktur data Mahasiswa\_has\_Dosen.

```
MariaDB [universitas]> describe Mahasiswa_has_Dosen;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| NIM_MahasiswaFK | int(11) | NO  | PRI | NULL    |
| NIK_DosenFK     | int(11) | NO  | PRI | NULL    |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

17. Melihat Struktur data Dosen\_has\_MK.

```
MariaDB [universitas]> describe Dosen_has_MK;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| NIK_DosenFK | int(11) | NO  | PRI | NULL    |
| Kode_MKFK   | int(11) | NO  | PRI | NULL    |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

18. Melihat Struktur data Mahasiswa\_has\_RK.

```
MariaDB [universitas]> describe Mahasiswa_has_RK;
+-----+-----+-----+-----+-----+
| Field      | Type     | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| NIM_MahasiswaFK | int(11) | NO   | PRI | NULL    |       |
| Kode_RKFK      | int(11) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

19. Melihat Struktur data RK\_has\_MK.

```
MariaDB [universitas]> describe RK_has_MK;
+-----+-----+-----+-----+-----+
| Field      | Type     | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Kode_RKFK  | int(11) | NO   | PRI | NULL    |       |
| Kode_MKFK  | int(11) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
MariaDB [penjualan]> create table barang(
-> kode_barang varchar(20) unique not null,
-> nama_barang varchar(50) not null,
-> jenis_barang varchar(50) not null,
-> stock_barang varchar(20) not null
-> );
Query OK, 0 rows affected (0.23 sec)

[Windows Command Prompt]
Microsoft Windows (c) 2018 Microsoft
C:\Users\Adhy Oy MariaDB [penjualan]> create table pekerja_has_pesanan(
-> id_pekerjafk integer references pekerja(id_pekerja) on delete cascade on update cascade,
-> id_pesananfk integer references pesanan(id_pesanan) on delete cascade on update cascade
-> );
Query OK, 0 rows affected (0.28 sec)

C:\Users\Adhy Oy MariaDB [penjualan]> create table barang_has_pekerja(
-> id_barangfk integer references barang(id_barang) on delete cascade on update cascade,
-> id_pekerjafk integer references pekerja(id_pekerja) on delete cascade on update cascade
-> );
Query OK, 0 rows affected (0.22 sec)

C:\xampp>cd mysql
C:\xampp>cd mysql>show tables;
+-----+
| Tables_in_penjualan |
+-----+
| barang
| barang_has_pekerja
| pekerja
| pekerja_has_pesanan
| pelanggan
| pesanan
+-----+
6 rows in set (0.19 sec)

Type 'help;' or ? at the prompt to get help.

MariaDB [(none)]> describe barang;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_barang | varchar(20) | NO | PRI | NULL | 
| nama_barang | varchar(50) | NO | | NULL | 
| jenis_barang | varchar(50) | NO | | NULL | 
| stock_barang | varchar(20) | NO | | NULL | 
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.13 sec)

MariaDB [penjualan]> describe barang;
-> id_
-> nam
-> ala
-> email_nasabah varchar(50) not null
-> );
Query OK, 0 rows affected (0.46 sec)

MariaDB [penjualan]> create table pesanan(
-> id_pesnan integer primary key,
-> jumlah_pesanan varchar(255)not null,
-> tanggal_pemesanan varchar(50) not null,
-> pembayaran varchar(100) not null
-> );
Query OK, 0 rows affected (0.17 sec)

MariaDB [penjualan]> create table pekerja(
-> id_pekerja integer primary key,
-> alamat_pekerja varchar (255) not null,
-> nama_pekerja varchar(50) not null,
-> umur varchar(10) not null
-> );
Query OK, 0 rows affected (0.48 sec)
```



## MODUL 5

### LATIHAN

#### 1. Tabel nasabah

```
mysql> insert into nasabah(id_nasabah, nama_nasabah, alamat_nasabah) values (1, 'Sutopo', 'Jl.Jendral Sudirman 12')
-> , (2, 'Maryati', 'Jl.MT.Haryono 31'), (3, 'Suparman', 'Jl.Hasanudin 81'), (4, 'Kartika Padmasari', 'Jl.Manggis 15')
-> , (5, 'Budi Eko Prayogo', 'Jl.Kantil 30'), (6, 'Satria Eka Jaya', 'Jl.Slamet Riyadi 45'), (7, 'Indri Hapsari', 'Jl.Sutoyo 5')
-> , (8, 'Sari Murti', 'Jl.Pangandaran 11'), (9, 'Canka Lakananta', 'Jl.Tidar 86'), (10, 'Budi Murtono', 'Jl.Merak 22');
Query OK, 10 rows affected (0.06 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from nasabah;
+----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+----+-----+-----+
| 1 | Sutopo | Jl.Jendral Sudirman 12 |
| 2 | Maryati | Jl.MT.Haryono 31 |
| 3 | Suparman | Jl.Hasanudin 81 |
| 4 | Kartika Padmasari | Jl.Manggis 15 |
| 5 | Budi Eko Prayogo | Jl.Kantil 30 |
| 6 | Satria Eka Jaya | Jl.Slamet Riyadi 45 |
| 7 | Indri Hapsari | Jl.Sutoyo 5 |
| 8 | Sari Murti | Jl.Pangandaran 11 |
| 9 | Canka Lakananta | Jl.Tidar 86 |
| 10 | Budi Murtono | Jl.Merak 22 |
+----+-----+-----+
10 rows in set (0.00 sec)
```

#### 2. Tabel cabang\_bank

```
mysql> insert into cabang_bank(kode_cabang, nama_cabang, alamat_cabang) values ('BRUS', 'Bank Rut Unit Surakarta', 'Jl.Slamet Riyadi 18'), ('BRUM', 'Bank Rut Unit Magelang', 'Jl.P.Tendean 63')
-> , ('BRUB', 'Bank Rut Unit Boyolali', 'Jl.Ahmad Yani 45'), ('BRUK', 'Bank Rut Unit Klaten', 'Jl.Suparman 23'), ('BRUY', 'Bank Rut Unit Yogyakarta', 'Jl.Anggrek 21')
-> , ('BRUW', 'Bank Rut Unit Wonogiri', 'Jl.Untung Suropati 12');
Query OK, 6 rows affected (0.07 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> select * from cabang_bank;
+----+-----+-----+
| kode_cabang | nama_cabang | alamat_cabang |
+----+-----+-----+
| BRUB | Bank Rut Unit Boyolali | Jl.Ahmad Yani 45 |
| BRUK | Bank Rut Unit Klaten | Jl.Suparman 23 |
| BRUM | Bank Rut Unit Magelang | Jl.P.Tendean 63 |
| BRUS | Bank Rut Unit Surakarta | Jl.Slamet Riyadi 18 |
| BRUW | Bank Rut Unit Wonogiri | Jl.Untung Suropati 12 |
| BRUY | Bank Rut Unit Yogyakarta | Jl.Anggrek 21 |
+----+-----+-----+
6 rows in set (0.00 sec)
```

### 3. Tabelrekening

```
mysql> insert into rekening(no_rekening, kode_cabangFK, pin, saldo) values (101, 'BRUS', '1111', 500000), (102, 'BRUS', '2222', 350000),
-> (103, 'BRUS', '3333', 750000), (104, 'BRUM', '4444', 900000), (105, 'BRUM', '5555', 2000000), (106, 'BRUS', '6666', 3000000),
-> (107, 'BRUS', '7777', 1000000), (108, 'BRUB', '0000', 5000000), (109, 'BRUB', '9999', 0), (110, 'BRUY', '1234', 550000),
-> (111, 'BRUK', '4321', 150000), (112, 'BRUK', '0123', 300000), (113, 'BRUY', '8888', 255000);
Query OK, 13 rows affected (0.09 sec)
Records: 13 Duplicates: 0 Warnings: 0

mysql> select * from rekening;
+-----+-----+-----+-----+
| no_rekening | kode_cabangFK | pin | saldo |
+-----+-----+-----+-----+
| 101 | BRUS | 1111 | 500000 |
| 102 | BRUS | 2222 | 350000 |
| 103 | BRUS | 3333 | 750000 |
| 104 | BRUM | 4444 | 900000 |
| 105 | BRUM | 5555 | 2000000 |
| 106 | BRUS | 6666 | 3000000 |
| 107 | BRUS | 7777 | 1000000 |
| 108 | BRUB | 0000 | 5000000 |
| 109 | BRUB | 9999 | 0 |
| 110 | BRUY | 1234 | 550000 |
| 111 | BRUK | 4321 | 150000 |
| 112 | BRUK | 0123 | 300000 |
| 113 | BRUY | 8888 | 255000 |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)
```

### 4. Tabelnasabah\_has\_rekening

```
mysql> insert into nasabah_has_rekening(id_nasabahFK, no_rekeningFK) values (1, 104), (2, 103), (3, 105), (3, 106),
-> (4, 101), (4, 107), (5, 102), (5, 107), (6, 109), (7, 109), (8, 111), (9, 110), (10, 113), (8, 112), (10, 108);
Query OK, 15 rows affected (0.07 sec)
Records: 15 Duplicates: 0 Warnings: 0

mysql> select * from nasabah_has_rekening;
+-----+-----+
| id_nasabahFK | no_rekeningFK |
+-----+-----+
| 1 | 104 |
| 2 | 103 |
| 3 | 105 |
| 3 | 106 |
| 4 | 101 |
| 4 | 107 |
| 5 | 102 |
| 5 | 107 |
| 6 | 109 |
| 7 | 109 |
| 8 | 111 |
| 8 | 112 |
| 9 | 110 |
| 10 | 108 |
| 10 | 113 |
+-----+-----+
15 rows in set (0.00 sec)
```

### 5. Tabeltransaksi

```
mysql> insert into transaksi(no_transaksi, no_rekeningFK, id_nasabahFK, jenis_transaksi, tanggal, jumlah) values
-> (NULL, 105, 3, 'debit', DEFAULT, 50000), (NULL, 103, 2, 'debit', DEFAULT, 40000), (NULL, 101, 4, 'kredit', DEFAULT, 20000),
-> (NULL, 106, 3, 'debit', DEFAULT, 50000), (NULL, 107, 5, 'kredit', DEFAULT, 30000), (NULL, 104, 1, 'kredit', DEFAULT, 200000),
-> (NULL, 110, 9, 'kredit', DEFAULT, 150000), (NULL, 102, 5, 'debit', DEFAULT, 20000), (NULL, 105, 3, 'kredit', DEFAULT, 50000),(NULL, 107, 4, 'debit', DEFAULT, 10000),
-> (NULL, 103, 2, 'debit', DEFAULT, 100000), (NULL, 104, 1, 'debit', DEFAULT, 50000),
-> (NULL, 107, 4, 'kredit', DEFAULT, 20000), (NULL, 105, 3, 'debit', DEFAULT, 40000), (NULL, 104, 1, 'kredit', DEFAULT, 100000),
-> (NULL, 101, 4, 'kredit', DEFAULT, 20000), (NULL, 103, 2, 'debit', DEFAULT, 50000), (NULL, 102, 5, 'debit', DEFAULT, 50000),
-> (NULL, 108, 10, 'debit', DEFAULT, 100000), (NULL, 106, 3, 'kredit', DEFAULT, 50000), (NULL, 103, 2, 'kredit', DEFAULT, 200000),
-> (NULL, 105, 3, 'kredit', DEFAULT, 100000), (NULL, 102, 5, 'debit', DEFAULT, 20000), (NULL, 104, 1, 'debit', DEFAULT, 50000),
-> (NULL, 103, 2, 'debit', DEFAULT, 40000), (NULL, 101, 4, 'debit', DEFAULT, 50000), (NULL, 103, 2, 'kredit', DEFAULT, 100000),
-> (NULL, 102, 5, 'kredit', DEFAULT, 20000), (NULL, 109, 7, 'debit', DEFAULT, 100000), (NULL, 110, 9, 'debit', DEFAULT, 20000);
Query OK, 30 rows affected (0.08 sec)
Records: 30 Duplicates: 0 Warnings: 0
```

```
mysql> select * from transaksi;
+-----+-----+-----+-----+-----+-----+
| no_transaksi | id_nasabahFK | no_rekeningFK | jenis_transaksi | tanggal | jumlah |
+-----+-----+-----+-----+-----+-----+
| 1 | 3 | 105 | debit | 2019-04-02 22:30:39 | 50000 |
| 2 | 2 | 103 | debit | 2019-04-02 22:30:39 | 40000 |
| 3 | 4 | 101 | kredit | 2019-04-02 22:30:39 | 20000 |
| 4 | 3 | 106 | debit | 2019-04-02 22:30:39 | 50000 |
| 5 | 5 | 107 | kredit | 2019-04-02 22:30:39 | 30000 |
| 6 | 1 | 104 | kredit | 2019-04-02 22:30:39 | 200000 |
| 7 | 9 | 110 | kredit | 2019-04-02 22:30:39 | 150000 |
| 8 | 5 | 102 | debit | 2019-04-02 22:30:39 | 20000 |
| 9 | 3 | 105 | kredit | 2019-04-02 22:30:39 | 50000 |
| 10 | 4 | 107 | debit | 2019-04-02 22:30:39 | 100000 |
| 11 | 2 | 103 | debit | 2019-04-02 22:30:39 | 100000 |
| 12 | 1 | 104 | debit | 2019-04-02 22:30:39 | 50000 |
| 13 | 4 | 107 | kredit | 2019-04-02 22:30:39 | 200000 |
| 14 | 3 | 105 | debit | 2019-04-02 22:30:39 | 40000 |
| 15 | 1 | 104 | kredit | 2019-04-02 22:30:39 | 100000 |
| 16 | 4 | 101 | kredit | 2019-04-02 22:30:39 | 20000 |
| 17 | 2 | 103 | debit | 2019-04-02 22:30:39 | 50000 |
| 18 | 5 | 102 | debit | 2019-04-02 22:30:39 | 50000 |
| 19 | 10 | 108 | debit | 2019-04-02 22:30:39 | 100000 |
| 20 | 3 | 106 | kredit | 2019-04-02 22:30:39 | 50000 |
| 21 | 2 | 103 | kredit | 2019-04-02 22:30:39 | 200000 |
| 22 | 3 | 105 | kredit | 2019-04-02 22:30:39 | 100000 |
| 23 | 5 | 102 | debit | 2019-04-02 22:30:39 | 20000 |
| 24 | 1 | 104 | debit | 2019-04-02 22:30:39 | 50000 |
| 25 | 2 | 103 | debit | 2019-04-02 22:30:39 | 40000 |
| 26 | 4 | 101 | debit | 2019-04-02 22:30:39 | 50000 |
| 27 | 2 | 103 | kredit | 2019-04-02 22:30:39 | 100000 |
| 28 | 5 | 102 | kredit | 2019-04-02 22:30:39 | 200000 |
| 29 | 7 | 109 | debit | 2019-04-02 22:30:39 | 100000 |
| 30 | 9 | 110 | debit | 2019-04-02 22:30:39 | 20000 |
+-----+-----+-----+-----+-----+-----+
30 rows in set (0.00 sec)
```

## 6.Update

- a.Nasabah dengan nama "Indri Hapsari" pindah alamat ke "Jalan Slamet Riyadi No.34"

```
mysql> select * from nasabah;
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
| 1 | Sutopo | Jl.Jendral Sudirman 12 |
| 2 | Maryati | Jl.MT.Haryono 31 |
| 3 | Suparman | Jl.Hasanudin 81 |
| 4 | Kartika Padmasari | Jl.Manggis 15 |
| 5 | Budi Eko Prayogo | Jl.Kantil 30 |
| 6 | Satria Eka Jaya | Jl.Slamet Riyadi 45 |
| 7 | Indri Hapsari | Jl.Sutoyo 5 |
| 8 | Sari Murti | Jl.Pangandaran 11 |
| 9 | Canka Lokananta | Jl.Tidar 86 |
| 10 | Budi Murtono | Jl.Merak 22 |
+-----+-----+-----+
10 rows in set (0.00 sec)
```

```

mysql> update nasabah set alamat_nasabah = 'Jalan Slamet Riyadi No.34'
      -> where nama_nasabah = 'Indri Hapsari';
Query OK, 1 row affected (0.11 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from nasabah;
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
| 1 | Sutopo | Jl.Jendral Sudirman 12 |
| 2 | Maryati | Jl.MT.Haryono 31 |
| 3 | Suparman | Jl.Hasanudin 81 |
| 4 | Kartika Padmasari | Jl.Manggis 15 |
| 5 | Budi Eko Prayogo | Jl.Kantil 30 |
| 6 | Satria Lka Jaya | Jl.Slamet Riyadi 45 |
| 7 | Indri Hapsari | Jalan Slamet Riyadi No.34 |
| 8 | Candi Muria | Jl.Pengantap 44 |
| 9 | Canka Lokananta | Jl.Tidar 86 |
| 10 | Budi Murtono | Jl.Merak 22 |
+-----+-----+-----+
10 rows in set (0.00 sec)

```

b.Cabangdengankode“BRUW”pindahkealamat“JalanA.YaniNo.23”

```

mysql> select * from cabang_bank;
+-----+-----+-----+
| kode_cabang | nama_cabang | alamat_cabang |
+-----+-----+-----+
| BRUB | Bank Rut Unit Boyolali | Jl.Ahmad Yani 45 |
| BRUK | Bank Rut Unit Klaten | Jl.Suparman 23 |
| BRUM | Bank Rut Unit Magelang | Jl.P.Tendeau 63 |
| BRUS | Bank Rut Unit Surakarta | Jl.Slamet Riyadi 18 |
| BRUW | Bank Rut Unit Wonogiri | Jl.Untung Suropati 12 |
| BRUY | Bank Rut Unit Yogyakarta | Jl.Anggrek 21 |
+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>
mysql> update cabang_bank set alamat_cabang = 'Jalan A.Yani No.23'
      -> where kode_cabang = 'BRUW';
Query OK, 1 row affected (0.13 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from cabang_bank;
+-----+-----+-----+
| kode_cabang | nama_cabang | alamat_cabang |
+-----+-----+-----+
| BRUB | Bank Rut Unit Boyolali | Jl.Ahmad Yani 45 |
| BRUK | Bank Rut Unit Klaten | Jl.Suparman 23 |
| BRUM | Bank Rut Unit Magelang | Jl.P.Tendeau 63 |
| BRUS | Bank Rut Unit Surakarta | Jl.Slamet Riyadi 18 |
| BRUW | Bank Rut Unit Wonogiri | Jalan A.Yani No.23 |
| BRUY | Bank Rut Unit Yogyakarta | Jl.Anggrek 21 |
+-----+-----+-----+
6 rows in set (0.00 sec)

```

## 7.Delete

### a.Nasabah dengan id "7" menutup rekeningnya

```
mysql> delete from nasabah
      -> where id_nasabah = 7;
Query OK, 1 row affected (0.08 sec)

mysql> select * from nasabah;
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
| 1 | Sutopo | Jl.Jendral Sudirman 12 |
| 2 | Maryati | Jl.MT.Haryono 31 |
| 3 | Suparman | Jl.Hasanudin 81 |
| 4 | Kartika Padmasari | Jl.Manggis 15 |
| 5 | Budi Eko Prayogo | Jl.Kantil 30 |
| 6 | Satria Eka Jaya | Jl.Slamet Riyadi 45 |
| 8 | Sari Murti | Jl.Pangandaran 11 |
| 9 | Canka Lokananta | Jl.Tidar 86 |
| 10 | Budi Murtono | Jl.Merak 22 |
+-----+-----+-----+
9 rows in set (0.00 sec)
```

### b.Cabang dengan nama\_cabang "Bank Rut Unit Magelang" menutup kantornya

```
mysql> delete from cabang_bank
      -> where nama_cabang = 'Bank Rut Unit Magelang';
Query OK, 1 row affected (0.12 sec)

mysql> select * from cabang_bank;
+-----+-----+-----+
| kode_cabang | nama_cabang | alamat_cabang |
+-----+-----+-----+
| BRUB | Bank Rut Unit Boyolali | Jl.Ahmad Yani 45 |
| BRUK | Bank Rut Unit Klaten | Jl.Suparman 23 |
| BRUS | Bank Rut Unit Surakarta | Jl.Slamet Riyadi 18 |
| BRUW | Bank Rut Unit Wonogiri | Jalan A.Yani No.23 |
| BRUY | Bank Rut Unit Yogyakarta | Jl.Anggrek 21 |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

## TUGAS

### 1) Tabel nasabah

```
mysql> insert into nasabah(id_nasabah, nama_nasabah, alamat_nasabah) values
-> (11, 'Aini Nun', 'Jl.Mawar 13')
-> (12, 'Salsa Sasmita', 'Jl.Melati 56'),
-> (13, 'Angeita Putri', 'Jl.Pattimura 6'),
-> (14, 'Tyas Melani', 'Jl.Manggis 15'),
-> (15, 'Cinde Prawito', 'Jl.Anggrek 67'),
-> (16, 'Muhammad Rizky', 'Jl.Slamet Riyadi 5'),
-> (17, 'Ahmad Jibril', 'Jl.Melodi 8'),
-> (18, 'Sari Putri', 'Jl.Mangga 3'),
-> (19, 'Andhia Dhiani', 'Jl.Kelengkeng 7'),
-> (20, 'Ayu Cahyaningtyas', 'Jl.Budi 64');
Query OK, 10 rows affected (0.07 sec)
Records: 10  Duplicates: 0  Warnings: 0
mysql> select * from nasabah;
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
| 1 | Sutopo | Jl.Jendral Sudirman 12 |
| 2 | Maryati | Jl.MT.Haryono 31 |
| 3 | Suparman | Jl.Hasanudin 81 |
| 4 | Kartika Padmasari | Jl.Manggis 15 |
| 5 | Budi Eko Prayogo | Jl.Kantil 30 |
| 6 | Satria Eka Jaya | Jl.Slamet Riyadi 45 |
| 8 | Sari Murti | Jl.Pangandaran 11 |
| 9 | Canka Lokananta | Jl.Tidar 86 |
| 10 | Budi Murnono | Jl.Merak 22 |
| 11 | Aini Nun | Jl.Mawar 13 |
| 12 | Salsa Sasmita | Jl.Melati 56 |
| 13 | Angeita Putri | Jl.Pattimura 6 |
| 14 | Tyas Melani | Jl.Manggis 15 |
| 15 | Cinde Prawito | Jl.Anggrek 67 |
| 16 | Muhammad Rizky | Jl.Slamet Riyadi 5 |
| 17 | Ahmad Jibril | Jl.Melodi 8 |
| 18 | Sari Putri | Jl.Mangga 3 |
| 19 | Andhia Dhiani | Jl.Kelengkeng 7 |
| 20 | Ayu Cahyaningtyas | Jl.Budi 64 |
+-----+-----+-----+
19 rows in set (0.00 sec)
```

### 2) Tabel cabang\_bank

```
mysql>
mysql> insert into cabang_bank(kode_cabang, nama_cabang, alamat_cabang) values
-> ('BRUJ', 'Bank Rut Unit Jakarta', 'Jl.Mawar 7'),
-> ('BRUA', 'Bank Rut Unit Aceh', 'Jl.Kelengkeng 5'),
-> ('BRUPA', 'Bank Rut Unit Papua', 'Jl.Manokwari 9'),
-> ('BRUG', 'Bank Rut Unit Gemolong', 'Jl.Sudirman 67'),
-> ('BRUT', 'Bank Rut Unit Ternate', 'Jl.Manggis 54'),
-> ('BRUP', 'Bank Rut Unit Pasuruan', 'Jl.Budi 14'),
-> ('BRUD', 'Bank Rut Unit Dumai', 'Jl.Pattimura 13'),
-> ('BRUBU', 'Bank Rut Unit Bnklttinggi', 'Jl.Semangka 6'),
-> ('BRUPP', 'Bank Rut Unit Padang Panjang', 'Jl.Minang 17'),
-> ('BRUBI', 'Bank Rut Unit Binjai', 'Jl.Budi 8');
Query OK, 10 rows affected (0.10 sec)
Records: 10  Duplicates: 0  Warnings: 0
mysql> select * from cabang_bank;
+-----+-----+-----+
| kode_cabang | nama_cabang | alamat_cabang |
+-----+-----+-----+
| BRUA | Bank Rut Unit Aceh | Jl.Kelengkeng 5 |
| BRUB | Bank Rut Unit Boyolali | Jl.Ahmad Yani 45 |
| BRUBT | Bank Rut Unit Binjai | Jl.Budi 8 |
| BRUBU | Bank Rut Unit Bnklttinggi | Jl.Semangka 6 |
| BRUD | Bank Rut Unit Dumai | Jl.Pattimura 13 |
| BRUG | Bank Rut Unit Gemolong | Jl.Sudirman 67 |
| BRUJ | Bank Rut Unit Jakarta | Jl.Mawar 7 |
| BRUK | Bank Rut Unit Klaten | Jl.Suparman 23 |
| BRUP | Bank Rut Unit Pasuruan | Jl.Budi 14 |
| BRUPA | Bank Rut Unit Papua | Jl.Manokwari 9 |
| BRUPP | Bank Rut Unit Padang Panjang | Jl.Minang 17 |
| BRUS | Bank Rut Unit Surakarta | Jl.Slamet Riyadi 18 |
| BRUT | Bank Rut Unit Ternate | Jl.Manggis 54 |
| BRUM | Bank Rut Unit Wonogiri | Jalan A.Yani No.23 |
| BRUY | Bank Rut Unit Yogyakarta | Jl.Anggrek 21 |
+-----+-----+-----+
15 rows in set (0.01 sec)
```

### 3) Tabelrekening

```
mysql> insert into rekening(no_rekening, kode_cabangFK, pin, saldo) values
-> (114, 'BRUPA', '4567', 200000),
-> (115, 'BRUPP', '5678', 450000),
-> (116, 'BRUA', '2345', 700000),
-> (117, 'BRUJ', '3456', 50000),
-> (118, 'BRUG', '6789', 200000),
-> (119, 'BRUT', '6543', 600000),
-> (120, 'BRUP', '7654', 1000000),
-> (121, 'BRUD', '8765', 500000),
-> (122, 'BRUBU', '9876', 200000),
-> (123, 'BRUI', '1588', 550000);
Query OK, 10 rows affected (0.18 sec)
Records: 10  Duplicates: 0  Warnings: 0
mysql> select *from rekening;
+-----+-----+-----+-----+
| no_rekening | kode_cabangFK | pin | saldo |
+-----+-----+-----+-----+
| 101 | BRUS | 1111 | 500000 |
| 102 | BRUS | 3222 | 350000 |
| 103 | BRUS | 3333 | 750000 |
| 104 | BRUM | 4444 | 900000 |
| 105 | BRUM | 5555 | 2000000 |
| 106 | BRUS | 6666 | 3000000 |
| 107 | BRUS | 7777 | 1000000 |
| 108 | BRUB | 0000 | 5000000 |
| 109 | BRUB | 9999 | 0 |
| 110 | BRUY | 1234 | 550000 |
| 111 | BRUK | 4321 | 150000 |
| 112 | BRUK | 0123 | 300000 |
| 113 | BRUY | 8888 | 255000 |
| 114 | BRUPA | 4567 | 200000 |
| 115 | BRUPP | 5678 | 450000 |
| 116 | BRUA | 2345 | 700000 |
| 117 | BRUJ | 3456 | 50000 |
| 118 | BRUG | 6789 | 200000 |
| 119 | BRUT | 6543 | 600000 |
| 120 | BRUP | 7654 | 1000000 |
| 121 | BRUD | 8765 | 500000 |
| 122 | BRUBU | 9876 | 200000 |
| 123 | BRUI | 1588 | 550000 |
+-----+-----+-----+-----+
23 rows in set (0.00 sec)
```

### 4) Tabelnasabah\_has\_rekening

```
mysql> insert into nasabah_has_rekening(id_nasabahFK, no_rekeningFK) values
-> (11, 104),
-> (12, 105),
-> (13, 106),
-> (14, 101),
-> (14, 107),
-> (15, 102),
-> (15, 107),
-> (16, 109),
-> (17, 109);
Query OK, 10 rows affected (0.09 sec)
Records: 10  Duplicates: 0  Warnings: 0
mysql> select * from nasabah_has_rekening;
+-----+-----+
| id_nasabahFK | no_rekeningFK |
+-----+-----+
| 1 | 104 |
| 2 | 103 |
| 3 | 105 |
| 4 | 106 |
| 4 | 101 |
| 4 | 107 |
| 5 | 102 |
| 5 | 107 |
| 6 | 109 |
| 7 | 109 |
| 8 | 111 |
| 8 | 112 |
| 9 | 110 |
| 10 | 108 |
| 10 | 113 |
| 11 | 104 |
| 12 | 103 |
| 12 | 105 |
| 13 | 106 |
| 14 | 101 |
| 14 | 107 |
| 15 | 102 |
| 15 | 107 |
| 16 | 109 |
| 17 | 109 |
+-----+-----+
25 rows in set (0.00 sec)
```

## 5) Tabel Transaksi

```
mysql> insert into transaksi(no_transaksi, no_rekeningFK, id_nasabahFK, jenis_transaksi, tanggal, jumlah) values
-> (NULL, 105, 11, 'debit', DEFAULT, 40000),
-> (NULL, 104, 11, 'kredit', DEFAULT, 100000),
-> (NULL, 101, 14, 'kredit', DEFAULT, 20000),
-> (NULL, 103, 12, 'debit', DEFAULT, 50000),
-> (NULL, 102, 15, 'debit', DEFAULT, 50000),
-> (NULL, 108, 20, 'debit', DEFAULT, 100000),
-> (NULL, 106, 13, 'kredit', DEFAULT, 50000),
-> (NULL, 103, 12, 'kredit', DEFAULT, 200000),
-> (NULL, 105, 13, 'kredit', DEFAULT, 100000),
-> (NULL, 102, 15, 'debit', DEFAULT, 20000),
-> (NULL, 104, 11, 'debit', DEFAULT, 50000),
-> (NULL, 103, 12, 'debit', DEFAULT, 40000),
-> (NULL, 101, 14, 'kredit', DEFAULT, 50000),
-> (NULL, 103, 12, 'kredit', DEFAULT, 100000),
-> (NULL, 102, 15, 'kredit', DEFAULT, 200000),
-> (NULL, 104, 11, 'debit', DEFAULT, 50000),
-> (NULL, 103, 12, 'debit', DEFAULT, 40000),
-> (NULL, 101, 14, 'debit', DEFAULT, 50000),
-> (NULL, 109, 17, 'debit', DEFAULT, 100000),
-> (NULL, 110, 19, 'debit', DEFAULT, 20000);
Query OK, 20 rows affected (0.08 sec)
Records: 20 Duplicates: 0 Warnings: 0
```

```
mysql> select * from transaksi;
```

no_transaksi	id_nasabahFK	no_rekeningFK	jenis_transaksi	tanggal	jumlah
1	3	105	debit	2019-04-02 22:30:39	50000
2	2	103	debit	2019-04-02 22:30:39	40000
3	4	101	kredit	2019-04-02 22:30:39	200000
4	3	106	debit	2019-04-02 22:30:39	50000
5	5	107	kredit	2019-04-02 22:30:39	30000
6	1	104	kredit	2019-04-02 22:30:39	200000
7	9	110	kredit	2019-04-02 22:30:39	150000
8	5	102	debit	2019-04-02 22:30:39	20000
9	3	105	kredit	2019-04-02 22:30:39	50000
10	4	107	debit	2019-04-02 22:30:39	100000
11	2	103	debit	2019-04-02 22:30:39	100000
12	1	104	debit	2019-04-02 22:30:39	50000
13	4	107	kredit	2019-04-02 22:30:39	200000
14	3	105	debit	2019-04-02 22:30:39	40000
15	1	104	kredit	2019-04-02 22:30:39	100000
16	4	101	kredit	2019-04-02 22:30:39	20000
17	2	103	debit	2019-04-02 22:30:39	50000
18	5	102	debit	2019-04-02 22:30:39	50000
19	10	108	debit	2019-04-02 22:30:39	100000
20	3	106	kredit	2019-04-02 22:30:39	50000
21	2	103	kredit	2019-04-02 22:30:39	200000
22	3	105	kredit	2019-04-02 22:30:39	100000
23	5	102	debit	2019-04-02 22:30:39	20000
24	1	104	debit	2019-04-02 22:30:39	50000
25	2	103	debit	2019-04-02 22:30:39	40000
26	4	101	debit	2019-04-02 22:30:39	50000
27	2	103	kredit	2019-04-02 22:30:39	100000
28	5	102	kredit	2019-04-02 22:30:39	200000
29	7	109	debit	2019-04-02 22:30:39	100000
30	9	110	debit	2019-04-02 22:30:39	20000
31	11	105	debit	2019-04-02 23:48:16	40000
32	11	104	kredit	2019-04-02 23:48:16	100000
33	14	101	kredit	2019-04-02 23:48:16	20000
34	12	103	debit	2019-04-02 23:48:16	50000
35	15	102	debit	2019-04-02 23:48:16	50000
36	20	108	debit	2019-04-02 23:48:16	100000
37	13	106	kredit	2019-04-02 23:48:16	50000
38	12	103	kredit	2019-04-02 23:48:16	200000
39	13	105	kredit	2019-04-02 23:48:16	100000
40	15	102	debit	2019-04-02 23:48:16	20000
41	11	104	debit	2019-04-02 23:48:16	50000
42	12	103	debit	2019-04-02 23:48:16	40000
43	14	101	kredit	2019-04-02 23:48:16	50000
44	12	103	kredit	2019-04-02 23:48:16	100000
45	15	102	kredit	2019-04-02 23:48:16	200000
46	11	104	debit	2019-04-02 23:48:16	50000
47	12	103	debit	2019-04-02 23:48:16	40000
48	14	101	debit	2019-04-02 23:48:16	50000
49	17	109	debit	2019-04-02 23:48:16	100000
50	19	110	debit	2019-04-02 23:48:16	20000

50 rows in set (0.00 sec)

## MODUL 6

1. Tampilkan nama nasabah dan alamat nasabah diurutkan berdasarkan nama nasabah :

```
MariaDB [perbankan]> SELECT nama_nasabah, alamat_nasabah FROM nasabah ORDER BY nama_nasabah ;
+-----+-----+
| nama_nasabah | alamat_nasabah |
+-----+-----+
| Anggit       | Solo           |
| Budi Eko Prayogo | Jl. Kantil 30   |
| Budi Murtono  | Jl. Merak 22    |
| Canka Lokananta | Jl. Tidar 86    |
| Indri Hapsari  | Jl. Sutoyo 5     |
| Joko Ndo Kondo | Jl. Bareng jadian kagak |
| Jon Koplo     | Jl. Angin Besar 12  |
| Kartika Padmasari | Jl. Manggis 15   |
| Maryati        | Jl. MT. Haryono 31  |
| Maryati        | Jl. MT Haryono 31  |
| Sari Murti     | Jl. Pangandaran 11  |
| Satria Eka Jaya | Jl. Slamet Riyadi 45  |
| Suparman       | Jl. Hasanudin 81    |
| Sutopo         | Jl. Jendral Sudirman |
| Sutopo         | Jl. Jendral Sudirman 12 |
+-----+-----+
15 rows in set <0.00 sec>
```

2. Tampilkan jenis transaksi dan jumlah transaksi dimana jenis transaksi nya adalah kredit :

```
MariaDB [perbankan]> SELECT jenis_transaksi, jumlah FROM transaksi WHERE jenis_transaksi = 'kredit';
+-----+-----+
| jenis_transaksi | jumlah |
+-----+-----+
| kredit          | 20000  |
| kredit          | 30000  |
| kredit          | 200000 |
| kredit          | 150000 |
| kredit          | 50000  |
| kredit          | 200000 |
| kredit          | 100000 |
| kredit          | 20000  |
| kredit          | 50000  |
| kredit          | 200000 |
| kredit          | 100000 |
| kredit          | 100000 |
| kredit          | 200000 |
| kredit          | 50000  |
| kredit          | 250000 |
| kredit          | 130000 |
| kredit          | 357000 |
| kredit          | 50000  |
| kredit          | 50000  |
| kredit          | 520000 |
| kredit          | 50000  |
| kredit          | 50000  |
| kredit          | 50000  |
+-----+-----+
23 rows in set <0.00 sec>
```

3. Tampilkan jenis transaksi dan jumlah transaksi yang melakukan transaksi pada tanggal 21 November 2009 dan diurutkan berdasarkan jumlah transaksi:

```
MariaDB [perbankan]> SELECT jenis_transaksi, jumlah FROM transaksi WHERE tanggal = '2009-11-21';
+-----+-----+
| jenis_transaksi | jumlah |
+-----+-----+
| debit           | 40000 |
+-----+-----+
1 row in set <0.00 sec>
```

4. Tampilkan nama nasabah, jenis transaksi dan jumlah transaksi dimana jumlah transaksi = Rp 20.000 :

```
MariaDB [perbankan]> SELECT nama_nasabah, jenis_transaksi, jumlah FROM nasabah, transaksi WHERE nasabah.id_nasabah = transaksi.id_nasabahPK and jumlah = 20000;
+-----+-----+-----+
| nama_nasabah | jenis_transaksi | jumlah |
+-----+-----+-----+
| Kartika Padmasari | kredit | 20000 |
| Budi Eko Prayogo | debit | 20000 |
| Kartika Padmasari | kredit | 20000 |
| Budi Eko Prayogo | debit | 20000 |
| Canka Lokananta | debit | 20000 |
+-----+-----+-----+
5 rows in set <0.00 sec>

MariaDB [perbankan]>
```

5. Tampilkan nama nasabah dan alamat nasabah dimana nasabah diawali dengan kata ‘Su’ :

```
MariaDB [perbankan]> SELECT nama_nasabah, alamat_nasabah FROM nasabah WHERE nama_nasabah ='Su%';
Empty set <0.00 sec>

MariaDB [perbankan]> SELECT nama_nasabah, alamat_nasabah FROM nasabah WHERE nama_nasabah LIKE 'Su%';
+-----+-----+
| nama_nasabah | alamat_nasabah |
+-----+-----+
| Sutopo | Jl. Jendral Sudirman 12 |
| Suparman | Jl. Hasanudin 81 |
| Sutopo | Jl. Jendral Sudirman |
+-----+-----+
3 rows in set <0.00 sec>
```

Langkah – langkah praktikum :

1.

```

C:\ Command Prompt - mysql -u root -p
Microsoft Windows [Version 6.1.7601]
Copyright <c> 2009 Microsoft Corporation. All rights reserved.

C:\Users\LABSI-08>cd ..

C:\Users>C:/xampp/mysql/bin
'C:/xampp/mysql/bin' is not recognized as an internal or external command,
operable program or batch file.

C:\Users>G:/xampp/mysql/bin
'G:/xampp/mysql/bin' is not recognized as an internal or external command,
operable program or batch file.

C:\Users>cd\

C:\>C:\xampp\mysql\bin
'C:\xampp\mysql\bin' is not recognized as an internal or external command,
operable program or batch file.

C:\>cd C:\xampp\mysql\bin

C:\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 120
Server version: 10.1.37-MariaDB mariadb.org binary distribution

Copyright <c> 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use perbankan
Database changed
MariaDB [perbankan]> SELECT nama_cabang, alamat_cabang FROM cabang
-> ;
ERROR 1146 (42S02): Table 'perbankan.cabang' doesn't exist
MariaDB [perbankan]> SELECT nama_cabang, alamat_cabang FROM cabang_bank ORDER BY
nama_cabang ;
+-----+-----+
| nama_cabang | alamat_cabang |
+-----+-----+
| Bank Rut Unit Boyolali | jl. Ahmad Yani 45 |
| Bank Rut Unit Klaten | jl. Suparman 23 |
| Bank Rut Unit Magelang | jl. P.Tendean 63 |
| Bank Rut Unit Surakarta | jl. Slamet Riyadi 18 |
| Bank Rut Unit Wonogiri | jl. Untung Sutropati 12 |
| Bank Rut Unit Yogyakarta | jl. Anggrek 21 |
+-----+-----+
6 rows in set (0.00 sec)

2.

MariaDB [perbankan]> SELECT no_rekening, pin, saldo FROM rekening ORDER BY saldo
DESC;
+-----+-----+-----+
| no_rekening | pin | saldo |
+-----+-----+-----+
| 104 | 4444 | 9000000 |
| 103 | 3333 | 7500000 |
| 110 | 1234 | 5500000 |
| 101 | 1111 | 5000000 |
| 108 | 0000 | 5000000 |
| 102 | 2222 | 3500000 |
| 112 | 0123 | 3000000 |
| 106 | 6666 | 3000000 |
| 113 | 8888 | 2550000 |
| 105 | 5555 | 2000000 |
| 111 | 4321 | 1500000 |
| 107 | 7777 | 1000000 |
| 109 | 9999 | 0 |
+-----+-----+-----+
13 rows in set (0.00 sec)

```

## MODUL 7

No 1 dan 2

```
MariaDB [perbankan]> select nama_nasabah, alamat_nasabah, jenis_transaksi,jumlah
    -> from nasabah,transaksi
    -> where nasabah.id_nasabah =transaksi.id_nasabahfk and jenis_transaksi='kre
dit' order by nama_nasabah;
+-----+-----+-----+-----+
| nama_nasabah | alamat_nasabah | jenis_transaksi | jumlah |
+-----+-----+-----+-----+
| Budi Eko Prayogo | Jl. Kantil 30 | kredit | 30000 |
| Budi Eko Prayogo | Jl. Kantil 30 | kredit | 200000 |
| Budi Martono | Jl. Merak 22 | kredit | 130000 |
| Canka Lokananta | Jl. Tidar 86 | kredit | 150000 |
| Danindya | Jl. Aki Balak 22 | kredit | 25000 |
| Danindya | Jl. Aki Balak 22 | kredit | 50000 |
| Kartika Padmasari | Jl. Manggis 15 | kredit | 20000 |
| Kartika Padmasari | Jl. Manggis 15 | kredit | 20000 |
| Kartika Padmasari | Jl. Manggis 15 | kredit | 200000 |
| Maryati | Jl. MT Haryono 31 | kredit | 100000 |
| Maryati | Jl. MT Haryono 31 | kredit | 200000 |
| Pandan Wangi | Jl. Imam Bonjol 20 | kredit | 50000 |
| Pandan Wangi | Jl. Imam Bonjol 20 | kredit | 80000 |
| Puput | Jl. AMD 10 | kredit | 150000 |
| Puput | Jl. AMD 10 | kredit | 20000 |
| Puput | Jl. AMD 10 | kredit | 125000 |
| Puput | Jl. AMD 10 | kredit | 125000 |
| Putri | Jl. Diponegoro 19 | kredit | 175000 |
| Putri | Jl. Diponegoro 19 | kredit | 50000 |
| Suparman | Jl. Hasanudin 81 | kredit | 100000 |
| Suparman | Jl. Hasanudin 81 | kredit | 50000 |
| Suparman | Jl. Hasanudin 81 | kredit | 50000 |
| Sutopo | Jl. Jendral Sudirman 12 | kredit | 100000 |
| Sutopo | Jl. Jendral Sudirman 12 | kredit | 200000 |
+-----+-----+-----+-----+
24 rows in set <0.00 sec>

MariaDB [perbankan]>
MariaDB [perbankan]> select no_rekening,nama_nasabah, jenis_transaksi,jumlah
    -> from rekening,nasabah,transaksi
    -> where rekening.no_rekening = transaksi.no_rekeningfk and nasabah.id_nasab
ah = transaksi.id_nasabahfk and tanggal='2009-11-21' order by nama_nasabah;
+-----+-----+-----+-----+
| no_rekening | nama_nasabah | jenis_transaksi | jumlah |
+-----+-----+-----+-----+
| 105 | Suparman | debit | 40000 |
+-----+-----+-----+-----+
1 row in set <0.00 sec>
```

No 3 dan 4

```

MariaDB [perbankan]>
MariaDB [perbankan]>
MariaDB [perbankan]> select no_rekening, nama_nasabah, jenis_transaksi, jumlah
-> from rekening,nasabah,transaksi
-> where rekening.no_rekening = transaksi.no_rekeningfk and nasabah.id_nasabah = transaksi.id_nasabahfk and jumlah='20000';
+-----+-----+-----+-----+
| no_rekening | nama_nasabah | jenis_transaksi | jumlah |
+-----+-----+-----+-----+
| 101 | Kartika Padmasari | kredit | 20000 |
| 102 | Budi Eko Prayogo | debit | 20000 |
| 101 | Kartika Padmasari | kredit | 20000 |
| 102 | Budi Eko Prayogo | debit | 20000 |
| 110 | Canka Lokananta | debit | 20000 |
| 114 | Puput | kredit | 20000 |
+-----+-----+-----+-----+
6 rows in set <0.00 sec>

MariaDB [perbankan]>
MariaDB [perbankan]> select no_rekening,nama_nasabah,alamat_nasabah
-> from rekening,nasabah,nasabah_has_rekening
-> where nasabah.id_nasabah=nasabah_has_rekening.id_nasabahfk and rekening.no_rekening=nasabah_has_rekening.no_rekeningfk and nama_nasabah like 'suz';
+-----+-----+-----+
| no_rekening | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
| 104 | Sutopo | Jl. Jendral Sudirman 12 |
| 105 | Suparman | Jl. Hasanudin 81 |
| 106 | Suparman | Jl. Hasanudin 81 |
+-----+-----+-----+
3 rows in set <0.00 sec>

```

No 5

```

MariaDB [perbankan]> select no_rekening as 'Nomor rekening', nama_nasabah as 'nama nasabah', jumlah as 'jumlah transaksi'
-> from rekening,nasabah,transaksi where
-> rekening.no_rekening = transaksi.no_rekeningfk and nasabah.id_nasabah = transaksi.id_nasabahfk and jenis_transaksi='debit' order by nama_nasabah;
+-----+-----+-----+
| Nomor rekening | nama nasabah | jumlah transaksi |
+-----+-----+-----+
| 116 | Bening | 1000000 |
| 102 | Budi Eko Prayogo | 50000 |
| 102 | Budi Eko Prayogo | 20000 |
| 102 | Budi Eko Prayogo | 20000 |
| 119 | Budi Martono | 1000000 |
| 108 | Budi Martono | 1000000 |
| 110 | Canka Lokananta | 20000 |
| 123 | Danindya | 2000000 |
| 122 | Danindya | 2000000 |
| 107 | Kartika Padmasari | 1000000 |
| 101 | Kartika Padmasari | 50000 |
| 118 | Khatulistyawara | 2000000 |
| 118 | Khatulistyawara | 1000000 |
| 118 | Khatulistyawara | 1500000 |
| 103 | Maryati | 40000 |
| 103 | Maryati | 1000000 |
| 103 | Maryati | 40000 |
| 103 | Maryati | 50000 |
| 117 | Muliana | 50000 |
| 117 | Muliana | 50000 |
| 105 | Suparman | 50000 |
| 106 | Suparman | 50000 |
| 105 | Suparman | 40000 |
| 104 | Sutopo | 50000 |
| 104 | Sutopo | 50000 |
| 109 | Trianandya | 1000000 |
+-----+-----+-----+
26 rows in set <0.00 sec>

MariaDB [perbankan]>

```

## MODUL 8

### DATABASEPERBANKAN

#### Nomor1

```
mysql> use Perbankan;
Database changed
mysql> select transaksi.jenis_transaksi, transaksi.jumlah AS 'Jumlah(Rp)', count(jumlah) AS 'Total Transaksi'
-> from transaksi, nasabah
-> where nasabah.id_nasabah = transaksi.id_nasabahFK and
-> nasabah.nama_nasabah = 'Kartika Padmasari' group by transaksi.jenis_transaksi;
+-----+-----+
| jenis_transaksi | Jumlah(Rp) | Total Transaksi |
+-----+-----+
| debit           | 100000   | 2 |
| kredit          | 20000    | 3 |
+-----+-----+
2 rows in set (0.00 sec)

mysql> select sum(saldo) AS 'Total Saldo Maryati' from rekening, nasabah_has_rekening
-> where nasabah.id_nasabah = nasabah_has_rekening.id_nasabahFK and
-> rekening.no_rekening = nasabah_has_rekening.no_rekeningFK and
-> nasabah.nama_nasabah = 'Maryati';
+-----+
| Total Saldo Maryati |
+-----+
| 750000 |
+-----+
1 row in set (0.03 sec)

mysql> select count(jumlah), cabang_bank.nama_cabang from transaksi, rekening, cabang_bank
-> where rekening.no_rekening = transaksi.no_rekeningFK and
-> rekening.kode_cabangFK = cabang_bank.kode_cabang group by cabang_bank.nama_cabang;
+-----+-----+
```

#### Nomor2

```
mysql> use Perbankan;
Database changed
mysql> select transaksi.jenis_transaksi, transaksi.jumlah AS 'Jumlah(Rp)', count(jumlah) AS 'Total Transaksi'
-> from transaksi, nasabah
-> where nasabah.id_nasabah = transaksi.id_nasabahFK and
-> nasabah.nama_nasabah = 'Kartika Padmasari' group by transaksi.jenis_transaksi;
+-----+-----+
| jenis_transaksi | Jumlah(Rp) | Total Transaksi |
+-----+-----+
| debit           | 100000   | 2 |
| kredit          | 20000    | 3 |
+-----+-----+
2 rows in set (0.00 sec)

mysql> select sum(saldo) AS 'Total Saldo Maryati' from rekening, nasabah, nasabah_has_rekening
-> where nasabah.id_nasabah = nasabah_has_rekening.id_nasabahFK and
-> rekening.no_rekening = nasabah_has_rekening.no_rekeningFK and
-> nasabah.nama_nasabah = 'Maryati';
+-----+
| Total Saldo Maryati |
+-----+
| 750000 |
+-----+
1 row in set (0.03 sec)

mysql> select count(jumlah), cabang_bank.nama_cabang from transaksi, rekening, cabang_bank
-> where rekening.no_rekening = transaksi.no_rekeningFK and
-> rekening.kode_cabangFK = cabang_bank.kode_cabang group by cabang_bank.nama_cabang;
+-----+-----+
```

### Nomor3

```
| kredit | 20000 | 3 |
+-----+
2 rows in set (0.00 sec)

mysql> select sum(saldo) AS 'Total Saldo Maryati' from rekening, nasabah, nasabah_has_rekening
-> where nasabah.id_nasabah = nasabah_has_rekening.id_nasabahFK and
-> rekening.no_rekening = nasabah_has_rekening.no_rekeningFK and
-> nasabah.nama_nasabah = 'Maryati';
+-----+
| Total Saldo Maryati |
+-----+
| 750000 |
+-----+
1 row in set (0.03 sec)

mysql> select count(jumlah), cabang_bank.nama_cabang from transaksi, rekening, cabang_bank
-> where rekening.no_rekening = transaksi.no_rekeningFK and
-> rekening.kode_cabangFK = cabang_bank.kode_cabang group by cabang_bank.nama_cabang;
+-----+
| count(jumlah) | nama_cabang |
+-----+
| 1 | Bank Rut Unit Boyolali |
| 2 | Bank Rut Unit Klaten |
| 4 | Bank Rut Unit Magelang |
| 29 | Bank Rut Unit Surakarta |
| 4 | Bank Rut Unit Wonogiri |
| 10 | Bank Rut Unit Yogyakarta |
+-----+
6 rows in set (0.00 sec)
```

### Nomor4

```
| 2 | Bank Rut Unit Klaten |
| 4 | Bank Rut Unit Magelang |
| 29 | Bank Rut Unit Surakarta |
| 4 | Bank Rut Unit Wonogiri |
| 10 | Bank Rut Unit Yogyakarta |
+-----+
6 rows in set (0.00 sec)

mysql> select nasabah.nama_nasabah, count(saldo) AS 'Jumlah Saldo' from rekening, nasabah, nasabah_has_rekening where saldo between 500000 and 2000000
-> and nasabah.id_nasabah = nasabah_has_rekening.id_nasabahFK and
-> rekening.no_rekening = nasabah_has_rekening.no_rekeningFK;
+-----+
| nama_nasabah | Jumlah Saldo |
+-----+
| Sutopo | 5 |
+-----+
1 row in set (0.00 sec)

mysql> select nasabah.nama_nasabah, sum(saldo) AS 'Jumlah Saldo' from rekening, nasabah, nasabah_has_rekening where saldo between 500000 and 2000000
-> and nasabah.id_nasabah = nasabah_has_rekening.id_nasabahFK and
-> rekening.no_rekening = nasabah_has_rekening.no_rekeningFK;
+-----+
| nama_nasabah | Jumlah Saldo |
+-----+
| Sutopo | 3200000 |
+-----+
1 row in set (0.00 sec)
```

### Nomor5

```
7 rows in set (0.00 sec)

mysql> select nasabah.nama_nasabah, transaksi.tanggal, transaksi.jumlah from nasabah, transaksi
-> where nasabah.id_nasabah = transaksi.id_nasabahFK and
-> transaksi.jumlah > 100000 order by transaksi.jumlah desc;
+-----+
| nama_nasabah | tanggal | jumlah |
+-----+
| Jon Koplo | 2017-05-26 00:00:00 | 9700000 |
| Jon Koplo | 2017-05-26 00:00:00 | 8500000 |
| Anggit | 2017-06-08 00:00:00 | 700000 |
| Anggit | 2017-06-08 00:00:00 | 700000 |
| Anggit | 2017-06-08 00:00:00 | 700000 |
| Anggit | 2017-05-26 00:00:00 | 700000 |
| Maryati | 2017-05-24 00:00:00 | 547000 |
| Sutopo | 2017-05-26 00:00:00 | 520000 |
| Sari Murti | 2017-05-24 00:00:00 | 357000 |
| Budi Eko Prayogo | 2017-06-14 00:00:00 | 263000 |
| Budi Murtono | 2017-05-24 00:00:00 | 250000 |
| Budi Eko Prayogo | 2009-12-05 00:00:00 | 200000 |
| Maryati | 2009-11-28 00:00:00 | 200000 |
| Kartika Padmasari | 2009-11-20 00:00:00 | 200000 |
| Sutopo | 2009-11-15 00:00:00 | 200000 |
| Canka Lokananta | 2009-11-15 00:00:00 | 150000 |
| Indri Hapsari | 2017-05-24 00:00:00 | 130000 |
| Satria Eka Jaya | 2017-05-24 00:00:00 | 125000 |
+-----+
18 rows in set (0.00 sec)

mysql>
```

## MODUL 9

1.

```
C:\Users>cd ..
C:\>cd xampp/mysql/bin
C:\xampp\mysql\bin>mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 55
Server version: 10.1.37-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> create user 'mkhoiruddin'@'localhost' identified by '123';
Query OK, 0 rows affected (0.00 sec)
```

2.

a.

```
MariaDB [(none)]> use mysql;
Database changed
MariaDB [mysql]> grant insert on perbankan.nasabah to mkhoiruddin@localhost;
Query OK, 0 rows affected (0.00 sec)

MariaDB [mysql]> grant update on perbankan.nasabah to mkhoiruddin@localhost;
Query OK, 0 rows affected (0.00 sec)

MariaDB [mysql]> grant delete on perbankan.nasabah to mkhoiruddin@localhost;
Query OK, 0 rows affected (0.00 sec)
```

b.

```
MariaDB [mysql]> grant select on perbankan.cabang_bank to mkhoiruddin@localhost;
Query OK, 0 rows affected (0.00 sec)
```

3.

a.

```
MariaDB [(none)]> use perbankan;
Database changed
MariaDB [perbankan]> select * from nasabah;
ERROR 1142 (42000): SELECT command denied to user 'mkhoiruddin'@'localhost' for table 'nasabah'
```

b.

```
MariaDB [perbankan]> insert into nasabah(id_nasabah,nama_nasabah,alamat_nasabah) values (104,'udin','palur');
Query OK, 1 row affected (0.03 sec)
```

c.

```
MariaDB [perbankan]> insert into cabang_bank(kode_cabang,nama_cabang,alamat_cabang) values ('BRUP','bank rut unit palur','palur');
ERROR 1142 (42000): INSERT command denied to user 'mkhoiruddin'@'localhost' for table 'cabang_bank'
MariaDB [perbankan]>
```

## MODUL 10

### KEGIATAN PRAKTIKUM

1. Menampilkan detail data nasabah yang pernah melakukan transaksi kredit dengan menggunakan syntax subquery.

```
MariaDB [perbankan] > use perbankan;
Database changed
MariaDB [perbankan] > SELECT * FROM nasabah WHERE nasabah.id_nasabah IN (SELECT DISTINCT
-> transaksi.id_nasabahFK FROM transaksi WHERE jenis_transaksi='kredit');
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
|       1 | Sutopo | Jl. Jendral Sudirman 13 |
|       2 | Hayati | Jl. MT Haryono 31 |
|       3 | Sugarmen | Jl. Hasanudin 81 |
|       4 | Kuntika Padmasari | Jl. Mulyarsi 19 |
|       5 | Budi Eko Prayogo | Jl. Mantil 28 |
|       6 | Candra Laksmanta | Jl. Tidar 06 |
|       7 | Budi Hartono | Jl. Merak 22 |
|       8 | Darmayuda | Jl. Bpk. Halim 24 |
|       9 | Duguk | Jl. ABD 18 |
|      10 | Dukki | Jl. Mijen Goro 19 |
|      11 | Pandan Wangi | Jl. Imam Bonjol 20 |
+-----+-----+-----+
11 rows in set (0.29 sec)
```

2. Menampilkan detail data nasabah yang tidak pernah melakukan pajak/transaksi dengan menggunakan syntax subquery.

```
MariaDB [perbankan] > SELECT * FROM nasabah WHERE nasabah.id_nasabah NOT IN
-> (SELECT DISTINCT transaksi.id_nasabahFK FROM transaksi);
+-----+-----+-----+
| id_nasabah | nama_nasabah | alamat_nasabah |
+-----+-----+-----+
|       6 | Satria Eka Jaya | Jl. Slamet Riyadi 45 |
|     10 | Sari Murti | Jl. Pangandaran 11 |
|     18 | Andara | Jl. Pertama 26 |
|     19 | Rangga | Jl. Kedua 89 |
|     20 | Cinta | Jl. Ketiga 24 |
|     21 | Ajeng | Kalimantan |
|     22 | mama | Magetan |
|     23 | Kori | Solo |
|     24 | saya | Sarangan |
|     25 | Sung | Bojonegoro |
|    110 | Fitri | Ngawi |
+-----+-----+-----+
11 rows in set (0.00 sec)
```

3. Menampilkan cabang bank yang memiliki nilai rata-rata saldo paling besar untuk seluruh rekening dalam cabang bank menggunakan syntax subquery.

```
MariaDB [perbankan] > SELECT cabang_bank.kode_cabang, cabang_bank.nama_cabang,
-> AVG(rekening.saldo) AS rata2 FROM cabang_bank, rekening WHERE
-> cabang_bank.kode_cabang=rekening.kode_cabangFK GROUP BY
-> cabang_bank.kode_cabang HAVING rata2 >= ALL (SELECT AVG(saldo)
-> FROM rekening GROUP BY kode_cabangFK);
+-----+-----+-----+
| kode_cabang | nama_cabang | rata2 |
+-----+-----+-----+
| BRUB | Bank Riau Unit Bogor Lali | 2500000.0000 |
+-----+-----+-----+
1 row in set (0.18 sec)
```

4. Menampilkan data transaksi yang melibatkan jumlah uang lebih besar dari rata-rata keseluruhan transaksi yang pernah dilakukan menggunakan syntax subquery

```
MariaDB [modul_101] > SELECT * FROM transaksi WHERE jumlah > (SELECT AVG(jumlah) FROM transaksi);
+----+-----+-----+-----+
| id_transaksi | kd_transaksi | no_rekening | jumlah |
+----+-----+-----+-----+
| 6 | 1 | 104 | 10000 |
| 7 | 2 | 108 | 10000 |
| 8 | 3 | 102 | 10000 |
| 9 | 4 | 103 | 10000 |
| 10 | 5 | 107 | 10000 |
| 11 | 6 | 109 | 10000 |
| 12 | 7 | 101 | 10000 |
| 13 | 8 | 105 | 10000 |
| 14 | 9 | 106 | 10000 |
| 15 | 10 | 100 | 10000 |
| 16 | 11 | 102 | 10000 |
| 17 | 12 | 107 | 10000 |
| 18 | 13 | 103 | 10000 |
| 19 | 14 | 104 | 10000 |
| 20 | 15 | 101 | 10000 |
| 21 | 16 | 106 | 10000 |
| 22 | 17 | 108 | 10000 |
| 23 | 18 | 109 | 10000 |
| 24 | 19 | 105 | 10000 |
| 25 | 20 | 102 | 10000 |
| 26 | 21 | 107 | 10000 |
| 27 | 22 | 100 | 10000 |
| 28 | 23 | 104 | 10000 |
| 29 | 24 | 103 | 10000 |
| 30 | 25 | 106 | 10000 |
| 31 | 26 | 101 | 10000 |
| 32 | 27 | 108 | 10000 |
| 33 | 28 | 105 | 10000 |
| 34 | 29 | 102 | 10000 |
| 35 | 30 | 107 | 10000 |
| 36 | 31 | 100 | 10000 |
| 37 | 32 | 104 | 10000 |
| 38 | 33 | 103 | 10000 |
| 39 | 34 | 106 | 10000 |
| 40 | 35 | 101 | 10000 |
| 41 | 36 | 108 | 10000 |
| 42 | 37 | 105 | 10000 |
| 43 | 38 | 102 | 10000 |
| 44 | 39 | 107 | 10000 |
| 45 | 40 | 100 | 10000 |
| 46 | 41 | 104 | 10000 |
| 47 | 42 | 103 | 10000 |
| 48 | 43 | 106 | 10000 |
| 49 | 44 | 101 | 10000 |
| 50 | 45 | 108 | 10000 |
| 51 | 46 | 105 | 10000 |
| 52 | 47 | 102 | 10000 |
| 53 | 48 | 107 | 10000 |
| 54 | 49 | 100 | 10000 |
| 55 | 50 | 104 | 10000 |
| 56 | 51 | 103 | 10000 |
| 57 | 52 | 106 | 10000 |
| 58 | 53 | 101 | 10000 |
| 59 | 54 | 108 | 10000 |
| 60 | 55 | 105 | 10000 |
| 61 | 56 | 102 | 10000 |
| 62 | 57 | 107 | 10000 |
| 63 | 58 | 100 | 10000 |
| 64 | 59 | 104 | 10000 |
| 65 | 60 | 103 | 10000 |
| 66 | 61 | 106 | 10000 |
| 67 | 62 | 101 | 10000 |
| 68 | 63 | 108 | 10000 |
| 69 | 64 | 105 | 10000 |
| 70 | 65 | 102 | 10000 |
| 71 | 66 | 107 | 10000 |
| 72 | 67 | 100 | 10000 |
| 73 | 68 | 104 | 10000 |
| 74 | 69 | 103 | 10000 |
| 75 | 70 | 106 | 10000 |
| 76 | 71 | 101 | 10000 |
| 77 | 72 | 108 | 10000 |
| 78 | 73 | 105 | 10000 |
| 79 | 74 | 102 | 10000 |
| 80 | 75 | 107 | 10000 |
| 81 | 76 | 100 | 10000 |
| 82 | 77 | 104 | 10000 |
| 83 | 78 | 103 | 10000 |
| 84 | 79 | 106 | 10000 |
| 85 | 80 | 101 | 10000 |
| 86 | 81 | 108 | 10000 |
| 87 | 82 | 105 | 10000 |
| 88 | 83 | 102 | 10000 |
| 89 | 84 | 107 | 10000 |
| 90 | 85 | 100 | 10000 |
| 91 | 86 | 104 | 10000 |
| 92 | 87 | 103 | 10000 |
| 93 | 88 | 106 | 10000 |
| 94 | 89 | 101 | 10000 |
| 95 | 90 | 108 | 10000 |
| 96 | 91 | 105 | 10000 |
| 97 | 92 | 102 | 10000 |
| 98 | 93 | 107 | 10000 |
| 99 | 94 | 100 | 10000 |
| 100 | 95 | 104 | 10000 |
| 101 | 96 | 103 | 10000 |
| 102 | 97 | 106 | 10000 |
| 103 | 98 | 101 | 10000 |
| 104 | 99 | 108 | 10000 |
| 105 | 100 | 105 | 10000 |
| 106 | 101 | 102 | 10000 |
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| 108 | 103 | 104 | 10000 |
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| 111 | 106 | 103 | 10000 |
| 112 | 107 | 106 | 10000 |
| 113 | 108 | 102 | 10000 |
| 114 | 109 | 105 | 10000 |
| 115 | 110 | 101 | 10000 |
| 116 | 111 | 104 | 10000 |
| 117 | 112 | 107 | 10000 |
| 118 | 113 | 108 | 10000 |
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| 136 | 131 | 108 | 10000 |
| 137 | 132 | 105 | 10000 |
| 138 | 133 | 102 | 10000 |
| 139 | 134 | 107 | 10000 |
| 140 | 135 | 100 | 10000 |
| 141 | 136 | 104 | 10000 |
| 142 | 137 | 103 | 10000 |
| 143 | 138 | 106 | 10000 |
| 144 | 139 | 101 | 10000 |
| 145 | 140 | 108 | 10000 |
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| 147 | 142 | 102 | 10000 |
| 148 | 143 | 107 | 10000 |
| 149 | 144 | 100 | 10000 |
| 150 | 145 | 104 | 10000 |
| 151 | 146 | 103 | 10000 |
| 152 | 147 | 106 | 10000 |
| 153 | 148 | 101 | 10000 |
| 154 | 149 | 108 | 10000 |
| 155 | 150 | 105 | 10000 |
| 156 | 151 | 102 | 10000 |
| 157 | 152 | 107 | 10000 |
| 158 | 153 | 100 | 10000 |
| 159 | 154 | 104 | 10000 |
| 160 | 155 | 103 | 10000 |
| 161 | 156 | 106 | 10000 |
| 162 | 157 | 101 | 10000 |
| 163 | 158 | 108 | 10000 |
| 164 | 159 | 105 | 10000 |
| 165 | 160 | 102 | 10000 |
| 166 | 161 | 107 | 10000 |
| 167 | 162 | 100 | 10000 |
| 168 | 163 | 104 | 10000 |
| 169 | 164 | 103 | 10000 |
| 170 | 165 | 106 | 10000 |
| 171 | 166 | 101 | 10000 |
| 172 | 167 | 108 | 10000 |
| 173 | 168 | 105 | 10000 |
| 174 | 169 | 102 | 10000 |
| 175 | 170 | 107 | 10000 |
| 176 | 171 | 100 | 10000 |
| 177 | 172 | 104 | 10000 |
| 178 | 173 | 103 | 10000 |
| 179 | 174 | 106 | 10000 |
| 180 | 175 | 101 | 10000 |
| 181 | 176 | 108 | 10000 |
| 182 | 177 | 105 | 10000 |
| 183 | 178 | 102 | 10000 |
| 184 | 179 | 107 | 10000 |
| 185 | 180 | 100 | 10000 |
| 186 | 181 | 104 | 10000 |
| 187 | 182 | 103 | 10000 |
| 188 | 183 | 106 | 10000 |
| 189 | 184 | 101 | 10000 |
| 190 | 185 | 108 | 10000 |
| 191 | 186 | 105 | 10000 |
| 192 | 187 | 102 | 10000 |
| 193 | 188 | 107 | 10000 |
| 194 | 189 | 100 | 10000 |
| 195 | 190 | 104 | 10000 |
| 196 | 191 | 103 | 10000 |
| 197 | 192 | 106 | 10000 |
| 198 | 193 | 101 | 10000 |
| 199 | 194 | 108 | 10000 |
| 200 | 195 | 105 | 10000 |
| 201 | 196 | 102 | 10000 |
| 202 | 197 | 107 | 10000 |
| 203 | 198 | 100 | 10000 |
| 204 | 199 | 104 | 10000 |
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| 206 | 201 | 106 | 10000 |
| 207 | 202 | 101 | 10000 |
| 208 | 203 | 108 | 10000 |
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| 237 | 232 | 102 | 10000 |
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| 239 | 234 | 100 | 10000 |
| 240 | 235 | 104 | 10000 |
| 241 | 236 | 103 | 10000 |
| 242 | 237 | 106 | 10000 |
| 243 | 238 | 101 | 10000 |
| 244 | 239 | 108 | 10000 |
| 245 | 240 | 105 | 10000 |
| 246 | 241 | 102 | 10000 |
| 247 | 242 | 107 | 10000 |
| 248 | 243 | 100 | 10000 |
| 249 | 244 | 104 | 10000 |
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| 5
```

3. Karena satu matakuliah (A) dihilangkan, seluruh mahasiswa yang mengambil mata kuliah tersebut dipindahkan untuk mengambil mata kuliah lain (B). Lakukan update data menggunakan syntax subquery.

```
MariaDB [modul_101]> update link_mahasiswa_matkul AS lmm1 SET lmm1.kode_matkul
-> = 'TIF010' WHERE lmm1.nim IN (select DISTINCT mahasiswa.nim FROM
-> mahasiswa WHERE lmm1.kode_matkul = 'TIF009');
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0
MariaDB [modul_101]> -
```

## MODUL 11

1. Install connectore mysql sesuai versi python

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

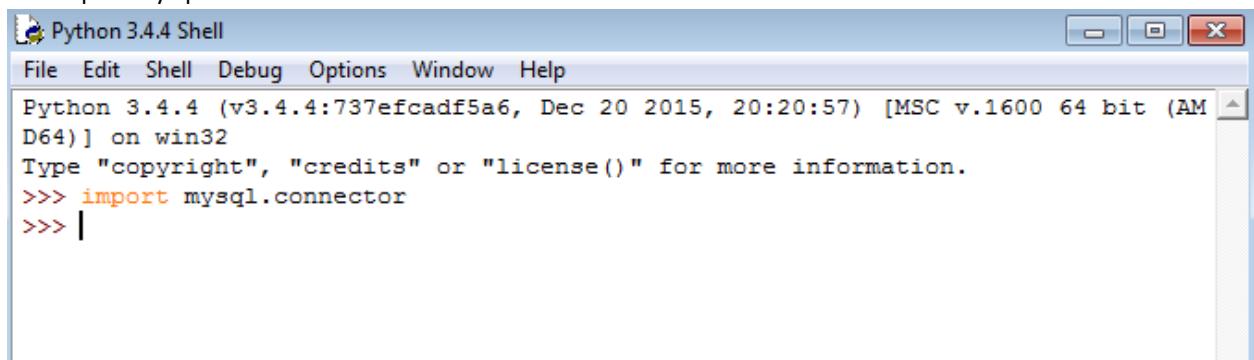
C:\Users\LABSI-08>cd C:
C:\Users\LABSI-08

C:\Users\LABSI-08>cd C:/

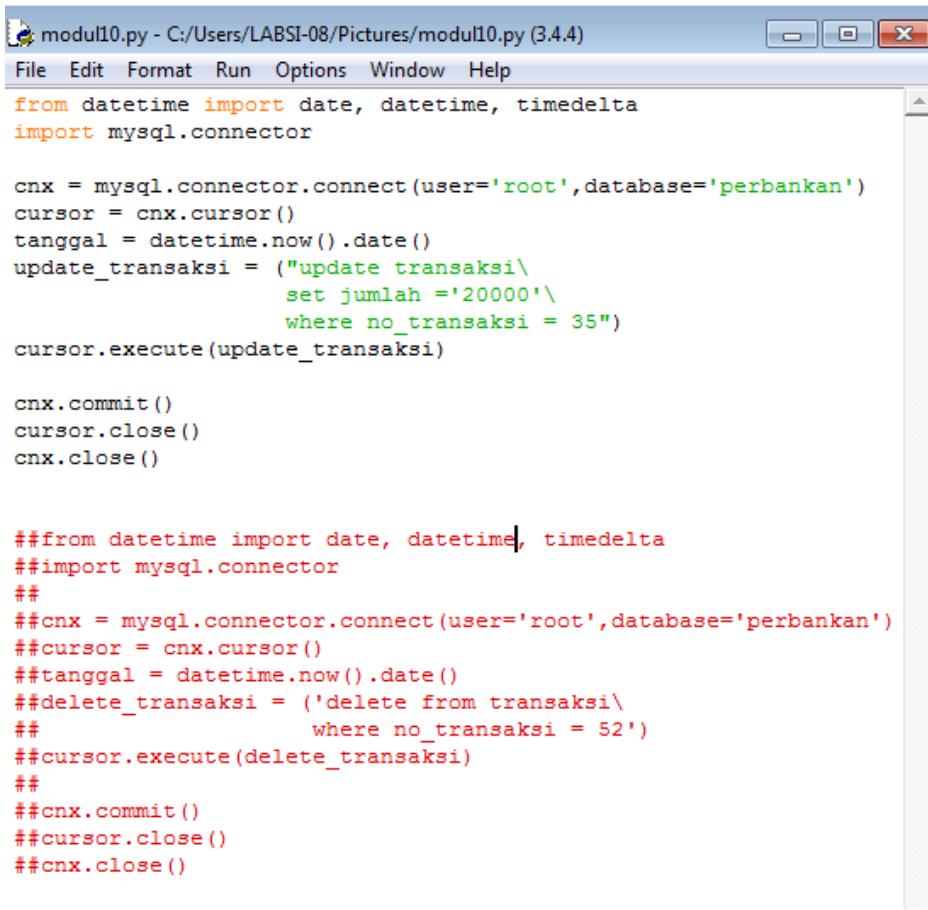
C:\>cd C:\Python34\Scripts

C:\Python34\Scripts>pip install mysql-connector-python
Collecting mysql-connector-python
  Downloading https://files.pythonhosted.org/packages/c5/40/c7ec860ad658870296c1a40afcebce8e148997f6759d44307c7b6faa2b130/mysql_connector_python-8.0.16-py2.py3-none-any.whl (341kB)
    100% ##### 344kB 525kB/s
Collecting protobuf>=3.0.0 (from mysql-connector-python)
  Downloading https://files.pythonhosted.org/packages/8f/5a/077f2811869284d8e15fcc88818922e19cf205a3529f21210f3a1b47dc74/protobuf-3.8.0-py2.py3-none-any.whl (427kB)
    100% ##### 430kB 553kB/s
Requirement already satisfied (use --upgrade to upgrade): setuptools in c:\python34\lib\site-packages (from protobuf>=3.0.0->mysql-connector-python)
Collecting six>=1.9 (from protobuf>=3.0.0->mysql-connector-python)
  Downloading https://files.pythonhosted.org/packages/73/fb/00a976f728d0d1fecfe898238ce23f502a721c0ac0ecfedb80e0d88c64e9/six-1.12.0-py2.py3-none-any.whl
Installing collected packages: six, protobuf, mysql-connector-python
Successfully installed mysql-connector-python-8.0.16 protobuf-3.8.0 six-1.12.0
You are using pip version 7.1.2, however version 19.1.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.
```

2. Cek import mysql.connector



3. Tulis code pada shell python



The screenshot shows a Windows-style application window titled "modul10.py - C:/Users/LABSI-08/Pictures/modul10.py (3.4.4)". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code editor displays Python code with syntax highlighting. The code performs database operations using MySQL connector. It connects to a database named 'perbankan' as user 'root'. It updates a row in the 'transaksi' table where 'no\_transaksi' is 35, setting 'jumlah' to 20000. It also contains commented-out code for deleting a row where 'no\_transaksi' is 52.

```
modul10.py - C:/Users/LABSI-08/Pictures/modul10.py (3.4.4)
File Edit Format Run Options Window Help
from datetime import date, datetime, timedelta
import mysql.connector

cnx = mysql.connector.connect(user='root',database='perbankan')
cursor = cnx.cursor()
tanggal = datetime.now().date()
update_transaksi = ("update transaksi\
                     set jumlah ='20000'\
                     where no_transaksi = 35")
cursor.execute(update_transaksi)

cnx.commit()
cursor.close()
cnx.close()

##from datetime import date, datetime, timedelta
##import mysql.connector
##
##cnx = mysql.connector.connect(user='root',database='perbankan')
##cursor = cnx.cursor()
##tanggal = datetime.now().date()
##delete_transaksi = ('delete from transaksi\
##                     where no_transaksi = 52')
##cursor.execute(delete_transaksi)
##
##cnx.commit()
##cursor.close()
##cnx.close()
```

4. Masuk ke cmd

```
C:\Python34\Scripts>cd C:/xampp/mysql/bin
C:\xampp\mysql\bin>mysql -u root
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.1.37-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use perbankan
Database changed
MariaDB [perbankan]> select * from transaksi;
+-----+-----+-----+-----+
| no_transaksi | id_nasabahFK | no_rekeningFK | jenis_transaksi | tanggal
| jumlah      |               |               |                 |             |
+-----+-----+-----+-----+
|       32   |      50000  |          3   |     debit        | 2009-11-10 00:
|       33   |      50000  |          2   |     debit        | 2009-11-10 00:
|      40000  |      40000  |          4   |    kredit        | 2009-11-12 00:
|       34   |      20000  |          3   |     debit        | 2009-11-13 00:
|       35   |      20000  |          3   |     debit        | 2009-11-13 00:
|      50000  |      50000  |          5   |    kredit        | 2009-11-13 00:
|       36   |      30000  |          5   |    kredit        | 2009-11-15 00:
|       37   |      200000  |          1   |    kredit        | 2009-11-15 00:
|      38000  |      150000  |          9   |    kredit        | 2009-11-15 00:
|       39   |      20000  |          5   |     debit        | 2009-11-16 00:
|       40   |      50000  |          3   |    kredit        | 2009-11-18 00:
|       41   |      100000  |          4   |     debit        | 2009-11-19 00:
|       42   |      100000  |          2   |     debit        | 2009-11-19 00:
|      43000  |      50000  |          1   |     debit        | 2009-11-19 00:
|       44   |      200000  |          4   |    kredit        | 2009-11-20 00:
|       45   |      40000  |          3   |     debit        | 2009-11-21 00:
|       46   |      100000  |          1   |    kredit        | 2009-11-22 00:
|       47   |      20000  |          4   |    kredit        | 2009-11-22 00:
```

# TUGAS

## 1.

### Insert transaksi

The image shows two windows side-by-side. The left window is titled 'modul10.py - G:\titip ati ya prittt\modul10.py (2.7.14)' and contains Python code for updating a database table. The right window is titled 'Python 2.7.14 Shell' and shows the command-line interface where the script is run, displaying the restart message and a prompt for input.

```
##from datetime import date, datetime, timedelta
##import mysql.connector

##cnx = mysql.connector.connect(user='root',database='perbankan')
##cursor = cnx.cursor()
##tanggal = datetime.now().date()
##update_transaksi = ("update transaksi\
##                     set jumlah ='20000'\
##                     where no_transaksi = 35")
##cursor.execute(update_transaksi)
##
##cnx.commit()
##cursor.close()
##cnx.close()

##from datetime import date, datetime, timedelta
##import mysql.connector

con = mysql.connector.connect(user='root',database='perbankan')
cursor = con.cursor()
tanggal = datetime.now().date()
tambah_transaksi = ('INSERT INTO transaksi VALUES (%s, %s, %s, %s, %s, %s)')

data_transaksi = ('','26','150','kredit',tanggal, '70000')
cursor.execute(tambah_transaksi, data_transaksi)

con.commit()
cursor.close()
con.close()
```

```
Python 2.7.14 (v2.7.14:84471935ed, Sep 16 2017, 20:19:30) [MSC v.1500 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
=====
RESTART: G:\titip ati ya prittt\modul10.py =====
>>> |
```

### Update nasabah

The image shows a single Python window titled 'File Edit Format Run Options Window Help'. It contains Python code for updating a database table named 'nasabah'. The code connects to the 'perbankan' database, performs an update query, and then commits the changes.

```
from datetime import date, datetime, timedelta
import mysql.connector

cnx = mysql.connector.connect(user='root',database='perbankan')
cursor = cnx.cursor()
tanggal = datetime.now().date()
update_transaksi = ("update nasabah\
                     set nama_nasabah ='anggi'\
                     where id_nasabah = 2")
cursor.execute(update_transaksi)

cnx.commit()
cursor.close()
cnx.close()

##from datetime import date, datetime, timedelta
##import mysql.connector
##
####cnx = mysql.connector.connect(user='root',database='perbankan')
####cursor = cnx.cursor()
####tanggal = datetime.now().date()
####delete_transaksi = ('delete from transaksi\
####                     where no_transaksi = 52')
####cursor.execute(delete_transaksi)
####
####cnx.commit()
####cursor.close()
####cnx.close()
```

Hasil

+ Options

	<input type="button" value="←"/> <input type="button" value="→"/>	<input type="button" value="▼"/>	<b>id_nasabah</b>	<b>nama_nasabah</b>	<b>alamat_nasabah</b>	
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	1	Sutopo	Jl. Jendral Sudirman 12
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	2	anggi	Jl. MT. Haryono 31
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	3	Suparman	Jl. Hasanudin 81
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	4	Kartika Padmasari	Jl. Manggis 15
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	5	Budi Eko Prayogo	Jl. Kantil 30
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	6	Satria Eka Jaya	Jl. Slamet Riyadi 45
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	7	Indri Hapsari	Jl. Sutoyo 5
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	8	Sari Murti	Jl. Pangandaran 11
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	9	Canka Lokananta	Jl. Tidar 86
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	10	Budi Murtono	Jl. Merak 22
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	11	Joko Ndo Kondo	Jl. Bareng jadian kagak
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	12	Jon Koplo	Jl. Angin Besar 12
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	<input type="button" value="Delete"/>	13	Anggit	Solo

## Update transaksi

```
*modul10.py - G:\titip ati ya pritttt\modul10.py (2.7.14)*
File Edit Format Run Options Window Help
from datetime import date, datetime, timedelta
import mysql.connector

cnx = mysql.connector.connect(user='root',database='perbankan')
cursor = cnx.cursor()
tanggall = datetime.now().date()
update_transaksi = ("update transaksi\
                     set jumlah ='20000'\
                     where no_transaksi = 35")
cursor.execute(update_transaksi)

cnx.commit()
cursor.close()
cnx.close()

##from datetime import date, datetime, timedelta
##import mysql.connector
##
##con = mysql.connector.connect(user='root',database='perbankan')
##cursor = con.cursor()
##tanggal = datetime.now().date()
##tambah_transaksi = ('INSERT INTO transaksi VALUES (%s, %s, %s, %s, %s, %s)
####
####
##data_transaksi = ('','26','150','kredit',tanggall, '70000')
##cursor.execute(tambah_transaksi, data_transaksi)
####
##con.commit()
##cursor.close()
##con.close()
```

Hasil  
sebelum

- Options

← T → no\_transaksi id\_nasabahFK no\_rekeningFK jenis\_transaksi tanggal jumlah

32 3 105 debit 2009-11-10 00:00:00 50000  
 33 2 103 debit 2009-11-10 00:00:00 40000  
 34 4 101 kredit 2009-11-12 00:00:00 20000  
 35 3 106 debit 2009-11-13 00:00:00 50000  
 36 5 107 kredit 2009-11-13 00:00:00 30000  
 37 1 104 kredit 2009-11-15 00:00:00 200000  
 38 9 110 kredit 2009-11-15 00:00:00 150000  
 39 5 102 debit 2009-11-16 00:00:00 20000  
 40 3 105 kredit 2009-11-18 00:00:00 50000  
 41 4 107 debit 2009-11-19 00:00:00 100000  
 42 2 103 debit 2009-11-19 00:00:00 100000  
 43 1 104 debit 2009-11-19 00:00:00 50000  
 44 4 107 kredit 2009-11-20 00:00:00 200000  
 45 3 105 debit 2009-11-21 00:00:00 40000  
 46 1 104 kredit 2009-11-22 00:00:00 100000  
 47 4 101 kredit 2009-11-22 00:00:00 20000

Console Edit Copy Delete Setelah

Browse Structure SQL Search Insert Export Import Privileges Operations Tra

1 > >> Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Options

← T → no\_transaksi id\_nasabahFK no\_rekeningFK jenis\_transaksi tanggal jumlah

32 3 105 debit 2009-11-10 00:00:00 50000  
 33 2 103 debit 2009-11-10 00:00:00 40000  
 34 4 101 kredit 2009-11-12 00:00:00 20000  
 35 3 106 debit 2009-11-13 00:00:00 20000  
 36 5 107 kredit 2009-11-13 00:00:00 30000  
 37 1 104 kredit 2009-11-15 00:00:00 200000  
 38 9 110 kredit 2009-11-15 00:00:00 150000  
 39 5 102 debit 2009-11-16 00:00:00 20000  
 40 3 105 kredit 2009-11-18 00:00:00 50000  
 41 4 107 debit 2009-11-19 00:00:00 100000  
 42 2 103 debit 2009-11-19 00:00:00 100000  
 43 1 104 debit 2009-11-19 00:00:00 50000  
 44 4 107 kredit 2009-11-20 00:00:00 200000  
 45 3 105 debit 2009-11-21 00:00:00 40000

## delete transaksi

The screenshot shows a Windows Notepad window titled "modul10.py - C:/Users/LABSI-08/Pictures/modul10.py (3.4.4)". The code in the window is a Python script for deleting a transaction from a MySQL database. It includes two sections: one for updating a transaction (which is commented out) and one for deleting a transaction where no\_transaksi = 32.

```
modul10.py - C:/Users/LABSI-08/Pictures/modul10.py (3.4.4)
File Edit Format Run Options Window Help
from datetime import date, datetime, timedelta
import mysql.connector

##cnx = mysql.connector.connect(user='root',database='perbankan')
##cursor = cnx.cursor()
##tanggal = datetime.now().date()
##update_transaksi = ("update transaksi\
##                     set jumlah ='20000'\
##                     where no_transaksi = 35")
##cursor.execute(update_transaksi)
##
##cnx.commit()
##cursor.close()
##cnx.close()

from datetime import date, datetime, timedelta
import mysql.connector

cnx = mysql.connector.connect(user='root',database='perbankan')
cursor = cnx.cursor()
tanggal = datetime.now().date()
delete_transaksi = ('delete from transaksi\
                     where no_transaksi = 32')
cursor.execute(delete_transaksi)

cnx.commit()
cursor.close()
cnx.close()
```

Below the Notepad window is a table titled "Hasil" showing the results of the database query. The table has columns: no\_transaksi, id\_nasabahFK, no\_rekeningFK, jenis\_transaksi, and tanggal. The data shows 15 rows of transactions, with the 32nd row being deleted.

	no_transaksi	id_nasabahFK	no_rekeningFK	jenis_transaksi	tanggal
<input type="checkbox"/>	33	2	103	debit	2023-09-11
<input type="checkbox"/>	34	4	101	kredit	2023-09-11
<input type="checkbox"/>	35	3	106	debit	2023-09-11
<input type="checkbox"/>	36	5	107	kredit	2023-09-11
<input type="checkbox"/>	37	1	104	kredit	2023-09-11
<input type="checkbox"/>	38	9	110	kredit	2023-09-11
<input type="checkbox"/>	39	5	102	debit	2023-09-11
<input type="checkbox"/>	40	3	105	kredit	2023-09-11
<input type="checkbox"/>	41	4	107	debit	2023-09-11
<input type="checkbox"/>	42	2	103	debit	2023-09-11
<input type="checkbox"/>	43	1	104	debit	2023-09-11
<input type="checkbox"/>	44	4	107	kredit	2023-09-11
<input type="checkbox"/>	45	3	105	debit	2023-09-11
<input type="checkbox"/>	46	1	104	kredit	2023-09-11
<input type="checkbox"/>	47	4	101	kredit	2023-09-11
<input type="checkbox"/>	48	2	103	debit	2023-09-11
Console					

## 2. Buatlah kode program python untuk mendapat

### a. Data Nasabah

nasabah1.py - G:/titip ati ya pritttt/nasabah1.py (2.7.14)

File Edit Format Run Options Window Help

```
from datetime import date, datetime, timedelta
import mysql.connector

con = mysql.connector.connect(user='root', database='perbankan')
cursor = con.cursor()

query = ("select * FROM nasabah")
cursor.execute(query)
for ( id_nasabah, nama_nasabah, alamat_nasabah) in cursor:
    print("ID nasabah :{} , Nama: {} ,alamat:{}" .format(
        id_nasabah,nama_nasabah,alamat_nasabah))

cursor.close()
con.close()
```

Python 2.7.14 Shell

File Edit Shell Debug Options Window Help

```
Python 2.7.14 (v2.7.14:84471935ed, Sep 16 2017, 20:19:30) [MSC v.1500 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: G:/titip ati ya pritttt/nasabah1.py =====
ID nasabah :1 , Nama: Sutopo ,alamat: Jl.Jendral Sudirman 12
ID nasabah :2 , Nama: Maryati ,alamat:Jl. MT. Haryono 31
ID nasabah :3 , Nama: Suparman ,alamat:Jl. Hasannudin 81
ID nasabah :4 , Nama: Kartika Padmasari ,alamat:Jl. Manggis 15
ID nasabah :5 , Nama: Budi Eko Prayogo ,alamat:Jl. Kantil 30
ID nasabah :6 , Nama: Satria Eka Jaya ,alamat:Jl. Slamet Riyadi 45
ID nasabah :8 , Nama: Sari Murti ,alamat:Jl. Pangandaran 11
ID nasabah :9 , Nama: Canka Lokananta ,alamat:Jl. Tidar 86
ID nasabah :10 , Nama: Budi Martono ,alamat:Jl. Merak 22
>>> |
```

### b. Data nasabah yang melakukan transaksi antara bulan oktober sampai desember

File Edit Format Run Options Window Help

```
from datetime import date, datetime, timedelta
import mysql.connector

cnx = mysql.connector.connect(user='root', database='perbankan')
cursor = cnx.cursor()

query = ("select nasabah.id_nasabah, nasabah.nama_nasabah, transaksi.tanggal FROM nasabah,transaksi ")
cursor.execute(query)
for( id_nasabah, nama_nasabah, tanggal) in cursor:
    print("ID nasabah:{} , nama: {}, tanggal:{}" .format(
        id_nasabah, nama_nasabah, tanggal))
cursor.close()
cnx.close()
```

```
===== RESTART: D:\semester4\praktikum basis data\sbd modul11\nasabah2.py =====
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-10 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-11-10 00:00:00
ID nasabah :4 ,Nama: Kartika Padmasari ,tanggal:2009-11-12 00:00:00
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-13 00:00:00
ID nasabah :5 ,Nama: Budi Eko Prayogo ,tanggal:2009-11-13 00:00:00
ID nasabah :1 ,Nama: Sutopo ,tanggal:2009-11-15 00:00:00
ID nasabah :9 ,Nama: Canka Lokenanta ,tanggal:2009-11-15 00:00:00
ID nasabah :5 ,Nama: Budi Eko Prayogo ,tanggal:2009-11-16 00:00:00
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-18 00:00:00
ID nasabah :4 ,Nama: Kartika Padmasari ,tanggal:2009-11-19 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-11-19 00:00:00
ID nasabah :1 ,Nama: Sutopo ,tanggal:2009-11-19 00:00:00
ID nasabah :4 ,Nama: Kartika Padmasari ,tanggal:2009-11-20 00:00:00
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-21 00:00:00
ID nasabah :1 ,Nama: Sutopo ,tanggal:2009-11-22 00:00:00
ID nasabah :4 ,Nama: Kartika Padmasari ,tanggal:2009-11-22 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-11-22 00:00:00
ID nasabah :5 ,Nama: Budi Eko Prayogo ,tanggal:2009-11-25 00:00:00
ID nasabah :10 ,Nama: Budi Murtono ,tanggal:2009-11-26 00:00:00
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-27 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-11-28 00:00:00
ID nasabah :3 ,Nama: Suparman ,tanggal:2009-11-28 00:00:00
ID nasabah :5 ,Nama: Budi Eko Prayogo ,tanggal:2009-11-30 00:00:00
ID nasabah :1 ,Nama: Sutopo ,tanggal:2009-12-01 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-12-02 00:00:00
ID nasabah :4 ,Nama: Kartika Padmasari ,tanggal:2009-12-04 00:00:00
ID nasabah :2 ,Nama: Maryati ,tanggal:2009-12-05 00:00:00
ID nasabah :5 ,Nama: Budi Eko Prayogo ,tanggal:2009-12-05 00:00:00
ID nasabah :7 ,Nama: Indri Hapsari ,tanggal:2009-12-05 00:00:00
```

## MODUL 12

### 1. Studi kasus

Terdapat perpustakaan membuat sebuah database yang menangani transaksi peminjaman dan pengembalian buku yang dilakukan oleh member meliputi Staff, Dosen, dan Mahasiswa. Setiap member dapat meminjam lebih dari 1 buku dan setiap buku dapat dipinjam oleh banyak member jika buku masih tersedia. Masing-masing member memiliki pengenal yang nantinya akan digunakan untuk bertransaksi.

### 2. ER-Diagram

#### a. Menentukan Entitas :

- i. user
- ii. member
- iii. kategori
- iv. Buku
- v. peminjaman
- vi. pengembalian

#### b. Menentukan Atribut tiap Entitas :

##### i. Pengguna :

- **id** (*integer – Primary Key*)
- **username** (*varchar 50*)
- **password** (*varchar 100*)
- **email** (*varchar 50*)

##### ii. Member :

- **member\_type** (*enum (Lecturer, Student, Staff)*)
- **member\_ID** (*integer - Primary Key*)
- **nama** (*varchar 50*)
- **alamat** (*varchar 100*)
- **tanggal\_lahir** (*Date*)
- **email** (*varchar 100*)
- **phone** (*varchar 20*)

##### iii. Kategori :

- **kode\_kategori** (*varchar 15*)
- **kategori** (*varchar 50*)

##### iv. Buku :

- **buku\_ID** (*integer - Primary Key*)
- **kode\_kategori** (*varchar - Foreign Key*)
- **judul** (*varchar 100*)
- **pengarang** (*varchar 100*)
- **penerbit** (*varchar 100*)
- **ISBN** (*varchar 20*)
- **pages** (*integer 11*)
- **copies** (*integer 11*)

##### v. Peminjaman :

- **id** (*integer - Primary Key*)
- **member\_ID** (*integer - Foreign Key*)
- **ISBN** (*integer - Foreign Key*)
- **start\_date** (*datetime*)
- **return\_date** (*datetime*)

##### vi. Pengembalian :

- **id** (*integer - Primary Key*)

- **date** (datetime)
- **member\_ID** (varchar - Foreign Key)
- **ISBN** (varchar - Foreign Key)
- **status** (Enum 'On time','Late')

c. Menentukan relationship antar Entitas :

	<b>user</b>	<b>member</b>	<b>kategori</b>	<b>buku</b>	<b>peminjaman</b>	<b>pengembalian</b>
<b>user</b>	-	-	-	-	-	-
<b>member</b>		-	-	-	1 : n	1 : n
<b>kategori</b>			-	1 : n	-	-
<b>buku</b>				-	1 : n	1 : n
<b>peminjaman</b>					-	-
<b>pengembalian</b>						-

i. **member** melakukan **peminjaman** :

- Tabel utama : **member**
- Tabel kedua : **peminjaman**
- Cardinalitas : One to Many (1 : n)
- Atribut penghubung : **member\_ID** (FK **member\_ID** di **peminjaman**)

ii. **buku** bagian dari **peminjaman** :

- Tabel utama : **buku**
- Tabel kedua : **peminjaman**
- Cardinalitas : One to Many (1 : n)
- Atribut penghubung : **buku\_ID** (FK **buku\_ID** di **peminjaman**)

iii. **member** melakukan **pengembalian** :

- Tabel utama : **member**
- Tabel kedua : **pengembalian**
- Cardinalitas : One to Many (1 : n)
- Atribut penghubung : **member\_ID** (FK **member\_ID** di **pengembalian**)

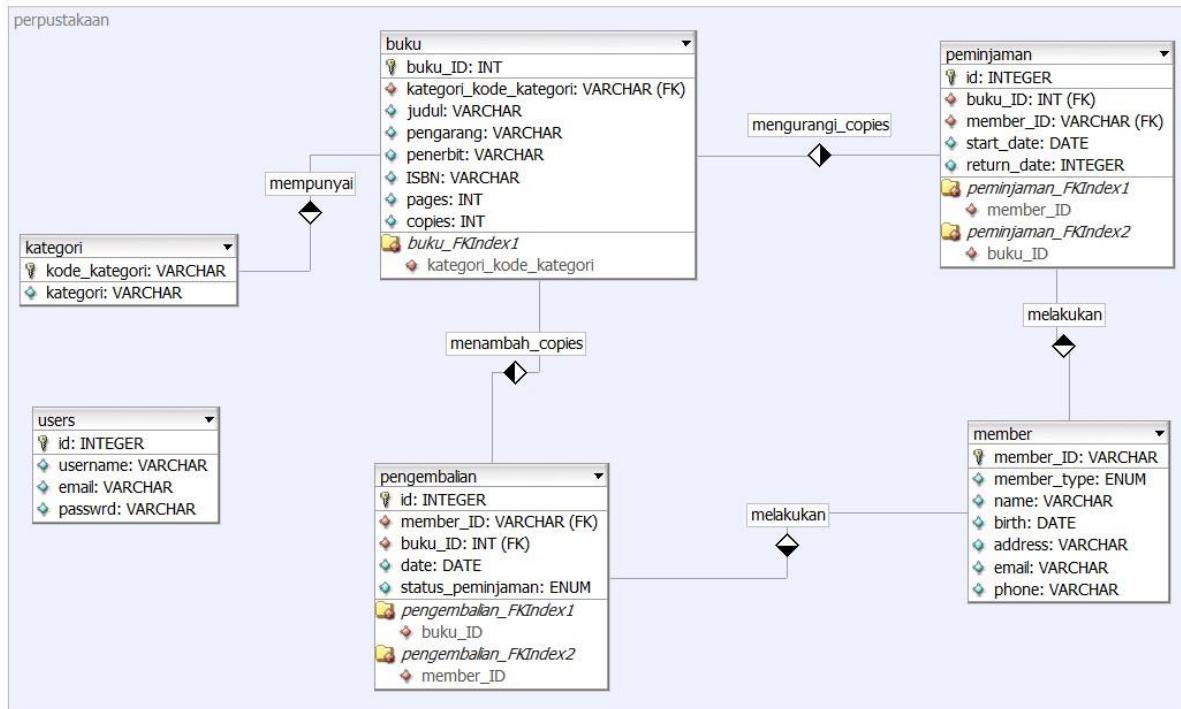
iv. **buku** bagian dari **pengembalian** :

- Tabel utama : **buku**
- Tabel kedua : **pengembalian**
- Cardinalitas : One to Many (1 : n)
- Atribut penghubung : **buku\_ID** (FK **buku\_ID** di **pengembalian**)

v. **kategori** dikelompokkan **buku**:

- Tabel utama : **Kategori**
- Tabel kedua : **buku**
- Cardinalitas : One to Many (1 : n)
- Atribut penghubung : **kategori\_ID** (FK **kategori\_ID** di **buku**)

d. ER-Diagram



cmd

```
Command Prompt - mysql -u root -p
Server version: 10.1.38-MariaDB mariadb.org binary distribution
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use perpustakaan
Database changed
MariaDB [perpustakaan]> show tables;
+-----+
| Tables_in_perpustakaan |
+-----+
| buku
| kategori
| member
| peminjaman
| pengembalian
| user
+-----+
6 rows in set (0.00 sec)

MariaDB [perpustakaan]> select * from member;
+-----+-----+-----+-----+-----+-----+-----+
| member_type | member_ID | name | birth | address | email | phone |
+-----+-----+-----+-----+-----+-----+-----+
| Lecturer    | 010585-SP-Luc | Sundar Pichai | 1985-05-01 | Mumbai, India | sundar@gmail.com | 91 70457 83160 |
| Student     | 020999-W-Stud | Nisa            | 1999-09-09 | Silicon Valley, US | nisa@engineer.ai.com | 389 287-2075 |
| Student     | 090299-GW-Stud | Rahmatdhan    | 1999-02-09 | Solo, Indonesia | gentur020999@gmail.com | 62 82310372369 |
| Student     | 110289-HK-Stud | Harry           | 1989-02-21 | Semarang        | kane@engineer.ai.com | 389 289-1532 |
| Staff       | 122001-LA      | Lia              | 1999-11-06 | Cilacap         | lia12@gmail.com | 09277493753 |
| Student     | 123456-DR      | Dandung         | 1999-12-18 | Sukoharjo       | dandung@gmail.com | 923786616282 |
| Staff       | 150387-KL-Stf  | Kawhi Leonard   | 1987-03-15 | Ontario, Kanada | leonard@raptor.com | 14 98934 938 |
| Lecturer    | 211279-ANG-Lec | Andre            | 1979-12-21 | kelaten         | andrew@gmail.com | 91 17831 13671 |
+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

MariaDB [perpustakaan]> select * from peminjaman;
+-----+-----+-----+-----+
| id | start_date | member_ID | ISBN          | return_date |
+-----+-----+-----+-----+
| 1  | 2019-06-12 13:24:13 | 020999-W-Stud | 978-602-4546-93-1 | 2019-06-19 13:24:13 |
| 3  | 2019-06-16 12:36:55 | 110289-HK-Stud | 978-602-8878-98-3 | 2019-06-23 12:36:55 |
| 4  | 2019-07-05 21:10:55 | 122001-LA      | 978-602-4546-93-1 | 2019-07-12 21:10:55 |
+-----+-----+-----+-----+
```

sebelum insert member

Member Buku Transaksi Account

### Informasi Member

Member Record :

No	Member Type	ID Member	Nama	Tanggal lahir	Alamat	Email	Telephone/Hp
1	Lecturer	010585-SP-L...	Sundar Pichai	1985-05-01	Mumbai, India	sundar@gma...	91 70457 8...
2	Student	020999-W-S...	Nisa	1999-09-09	Silicon Valley...	nisa@engin...	389 287-2075
3	Student	090299-GW...	Rahmatdhan	1999-02-09	Solo, Indone...	gentur0209...	62 8231037...
4	Student	110289-HK...	Harry Kane	1989-02-13	London, Eng...	kane@engin...	389 289-1532
5	Student	123456-DR	Dandung	1999-12-18	Sukoharjo	dandung@g...	923786616...
6	Staff	150387-KL-Stf	Kawhi Leonard	1987-03-15	Ontario, Kan...	leonard@rap...	14 98934 938
7	Lecturer	211279-ANG...	Andre	1979-12-21	kelaten	andrew@gm...	91 17831 1...

Action Member Record :

Member Type :

ID Member :

Nama Lengkap :

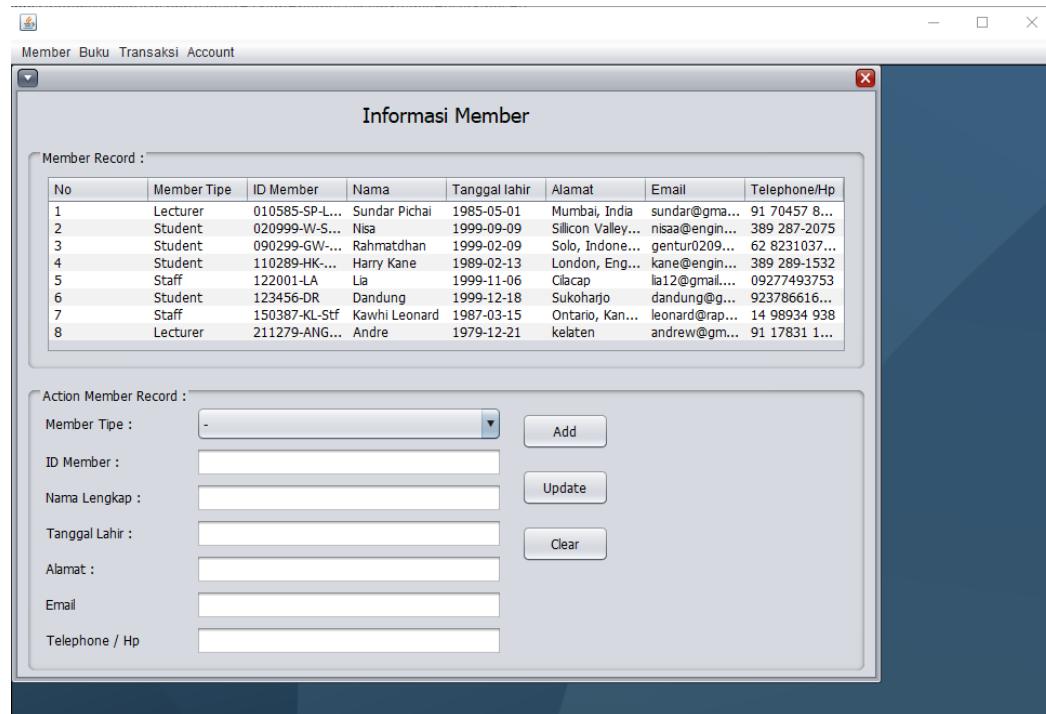
Tanggal Lahir :

Alamat :

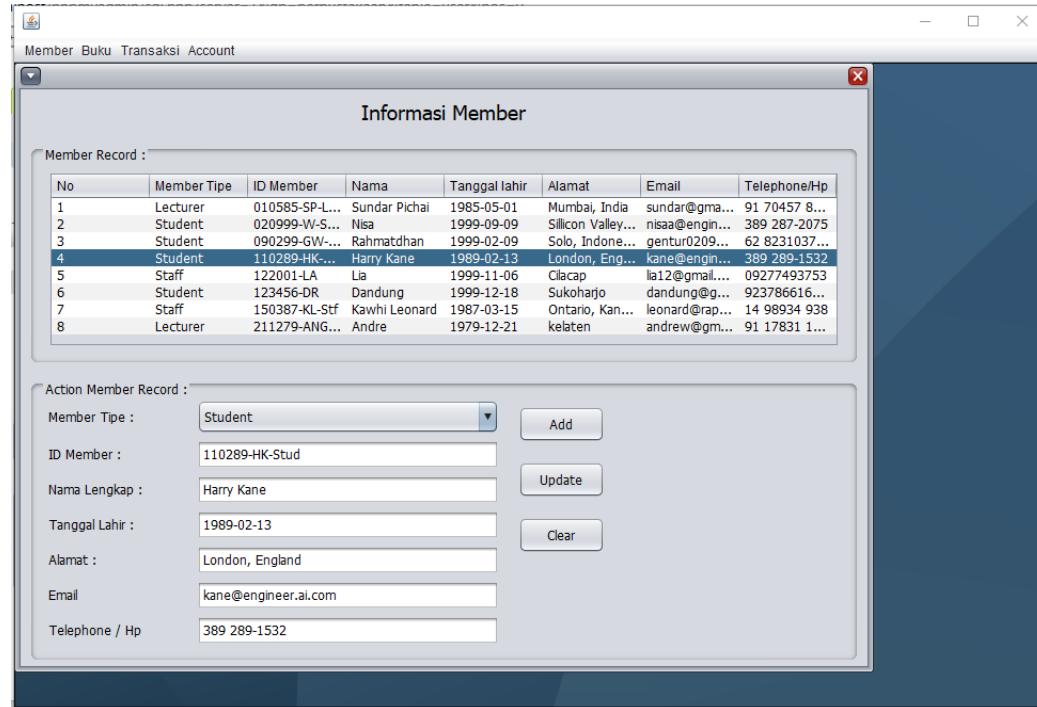
Email :

Telephone / Hp :

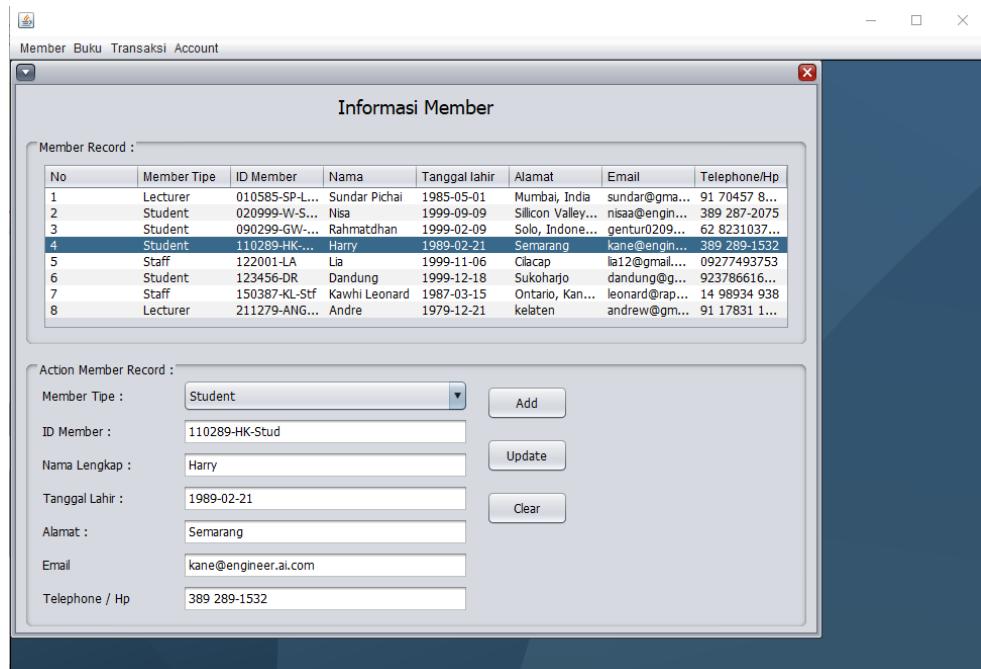
Sesudah insert member



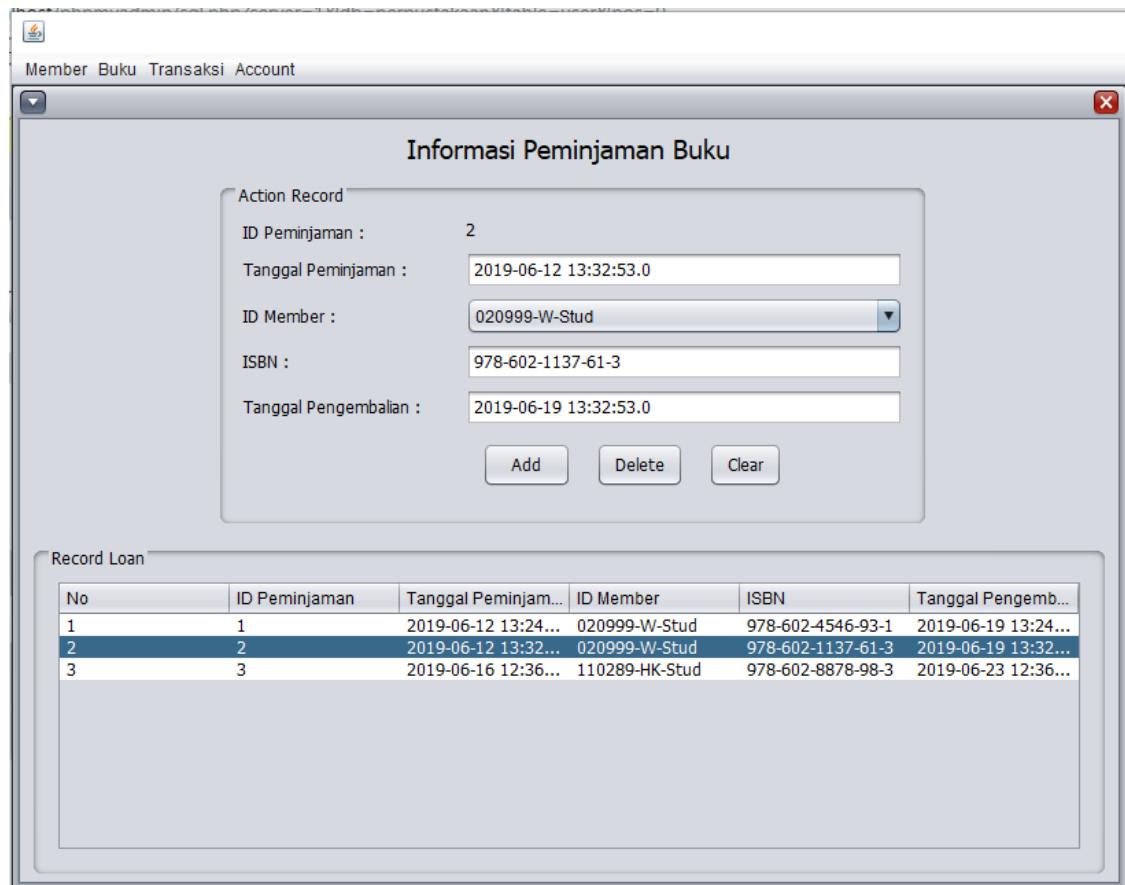
Sebelum update member



Sesudah update member



Sebelum delete peminjaman



Sesudah delete peminjaman

Member Buku Transaksi Account

Informasi Peminjaman Buku

Action Record

ID Peminjaman :	<input type="text"/>
Tanggal Peminjaman :	<input type="text"/>
ID Member :	<input type="text"/>
ISBN :	<input type="text"/>
Tanggal Pengembalian :	<input type="text"/>

Add   Delete   Clear

Record Loan

No	ID Peminjaman	Tanggal Peminjam...	ID Member	ISBN	Tanggal Pengemb...
1	1	2019-06-12 13:24...	020999-W-Stud	978-602-4546-93-1	2019-06-19 13:24...
2	3	2019-06-16 12:36...	110289-HK-Stud	978-602-8878-98-3	2019-06-23 12:36...

Insert peminjaman

Informasi Peminjaman Buku

Action Record

ID Peminjaman :	<input type="text"/>
Tanggal Peminjaman :	<input type="text"/>
ID Member :	<input type="text"/>
ISBN :	<input type="text"/>
Tanggal Pengembalian :	<input type="text"/>

Add   Delete   Clear

Record Loan

No	ID Peminjaman	Tanggal Peminjam...	ID Member	ISBN	Tanggal Pengemb...
1	1	2019-06-12 13:24...	020999-W-Stud	978-602-4546-93-1	2019-06-19 13:24...
2	3	2019-06-16 12:36...	110289-HK-Stud	978-602-8878-98-3	2019-06-23 12:36...
3	4	2019-07-05 21:10...	122001-LA	978-602-4546-93-1	2019-07-12 21:10...