

DATABASE SYSTEM

DATA MANIPULATION LANGUAGE(DML)



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INFORMATION STUDY PROGRAM

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Exercise

1. Run the XAMPP Control Panel
2. Running Apache and MySQL servers
3. Login as root to MySQL in the Command Prompt

Command Prompt - mysql -u root

```
Microsoft Windows [Version 10.0.18363.720]
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C:\Users\ASUS>cd..

C:\Users>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 8
Server version: 10.4.11-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.
```

4. Enter the banking database

```
MariaDB [(none)]> use perbankan;
Database changed
```

5. Enter the data into the database

➤ Nasabah

```
MariaDB [perbankan]> 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 Lokananta', 'Jl. Tidar 86' ),
-> (10, 'Budi Murtono', 'Jl. Merak 22');
Query OK, 10 rows affected (0.108 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

➤ Cabang_bank

```
MariaDB [perbankan]> 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 (0.169 sec)
Records: 6 Duplicates: 0 Warnings: 0
```

➤ Rekening

```
MariaDB [perbankan]> 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', '8888', 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 (0.117 sec)
Records: 13 Duplicates: 0 Warnings: 0
```

➤ Nasabah_has_rekening

```
MariaDB [perbankan]> 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 (0.054 sec)
Records: 15 Duplicates: 0 Warnings: 0
```

➤ Transaksi

```
MariaDB [perbankan]> INSERT INTO transaksi(no_transaksi, id_nasabahFK, no_rekeningFK, jenis_transaksi, tanggal, jumlah) VALUES
-> (1, 105, 3, 'debit', '2009-11-10', 50000),
-> (2, 103, 2, 'debit', '2009-11-10', 40000),
-> (3, 101, 4, 'kredit', '2009-11-12', 20000),
-> (4, 106, 3, 'debit', '2009-11-13', 50000),
-> (5, 107, 5, 'kredit', '2009-11-13', 30000),
-> (6, 104, 1, 'kredit', '2009-11-15', 200000),
-> (7, 110, 9, 'kredit', '2009-11-15', 150000),
-> (8, 102, 5, 'debit', '2009-11-16', 20000),
-> (9, 105, 3, 'kredit', '2009-11-18', 50000),
-> (10, 107, 4, 'debit', '2009-11-19', 100000),
-> (11, 103, 2, 'debit', '2009-11-19', 100000),
-> (12, 104, 1, 'debit', '2009-11-19', 50000),
-> (13, 107, 4, 'kredit', '2009-11-20', 200000),
-> (14, 105, 3, 'debit', '2009-11-21', 40000),
-> (15, 104, 1, 'kredit', '2009-11-22', 100000),
-> (16, 101, 4, 'kredit', '2009-11-22', 20000),
-> (17, 103, 2, 'debit', '2009-11-22', 50000),
-> (18, 102, 5, 'debit', '2009-11-25', 50000),
-> (19, 100, 10, 'debit', '2009-11-26', 100000),
-> (20, 106, 3, 'kredit', '2009-11-27', 50000),
-> (21, 103, 2, 'kredit', '2009-11-28', 200000),
-> (22, 105, 3, 'kredit', '2009-11-28', 100000),
-> (23, 102, 5, 'debit', '2009-11-30', 20000),
-> (24, 104, 1, 'debit', '2009-12-1', 50000),
-> (25, 103, 2, 'debit', '2009-12-2', 40000),
-> (26, 101, 4, 'debit', '2009-12-4', 50000),
-> (27, 103, 2, 'kredit', '2009-12-5', 100000),
-> (28, 102, 5, 'kredit', '2009-12-5', 200000),
-> (29, 100, 7, 'debit', '2009-12-5', 100000),
-> (30, 110, 9, 'debit', '2009-12-6', 20000);
Query OK, 30 rows affected (0.458 sec)
Records: 30 Duplicates: 0 Warnings: 0
```

6. Perform updates for the following cases

- A customer with the name "Indri Hapsari" moved address to "Jalan Slamet Riyadi No.34"

```
MariaDB [perbankan]> UPDATE nasabah
-> SET alamat_nasabah = 'Jl. Slamet Riyadi 34'
-> WHERE nama_nasabah = 'Indri Hapsari';
Query OK, 1 row affected (0.089 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
MariaDB [perbankan]> 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. Slamet Riyadi 34
8	Sari Murti	Jl. Pangandaran 11
9	Canka Lokananta	Jl. Tidar 86
10	Budi Murtono	Jl. Merak 22

```
10 rows in set (0.001 sec)
```


- Branches with the code "BRUW" move to the address "Jalan A. Yani No.23"

```
MariaDB [perbankan]> UPDATE cabang_bank
-> SET alamat_cabang = 'Jl. Ahmad Yani No.23'
-> WHERE kode_cabang = 'BRUW';
Query OK, 1 row affected (0.056 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
MariaDB [perbankan]> 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. Ahmad Yani No.23
BRUY	Bank Rut Unit Yogyakarta	Jl. Anggrek 21

```
6 rows in set (0.000 sec)
```

7. perform deletions for the following cases

- The customer with id "7" closes his account

```
MariaDB [perbankan]> DELETE FROM nasabah
-> WHERE id_nasabah = 7;
Query OK, 1 row affected (0.103 sec)
```

```
MariaDB [perbankan]> 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 (0.000 sec)
```

- The branch with the name " Bank Rut Unit Magelang " closed its office

```
MariaDB [perbankan]> DELETE FROM cabang_bank  
-> WHERE kode_cabang = 'BRUM';  
Query OK, 1 row affected (0.100 sec)
```

```
MariaDB [perbankan]> 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. Superman 23
BRUS	Bank Rut Unit Surakarta	Jl. Slamet Riyadi 18
BRUW	Bank Rut Unit Wonogiri	Jl. Ahmad Yani No.23
BRUY	Bank Rut Unit Yogyakarta	Jl. Anggrek 21

```
5 rows in set (0.000 sec)
```

Assignment

➤ Nasabah

```
MariaDB [perbankan]> INSERT INTO nasabah (id_nasabah, nama_nasabah, alamat_nasabah) VALUES
-> (11, 'Annisa Nugraheni', 'Jl. Hasanudin 57'),
-> (12, 'Pasha Bhima', 'Jl. Manggis 23'),
-> (13, 'Nadya Ayu', 'Jl. Melati 48'),
-> (14, 'Aldila', 'Jl. Merpati 82'),
-> (15, 'Fatikha', 'Jl. Sutoyo 5'),
-> (16, 'Azzahra Sintaa', 'Jl. Slamet Riyadi 24'),
-> (17, 'Ayu Setia', 'Jl. MT Haryono 21'),
-> (18, 'Butsaina Nur', 'Jl. Pattimura 3'),
-> (19, 'Rias Wahyuni', 'Jl. Mawar 22'),
-> (20, 'Fahrunnisa', 'Jl. Naga 18');
Query OK, 10 rows affected (0.101 sec)
Records: 10 Duplicates: 0 Warnings: 0
```

```
MariaDB [perbankan]> 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
11	Annisa Nugraheni	Jl. Hasanudin 57
12	Pasha Bhima	Jl. Manggis 23
13	Nadya Ayu	Jl. Melati 48
14	Aldila	Jl. Merpati 82
15	Fatikha	Jl. Sutoyo 5
16	Azzahra Sintaa	Jl. Slamet Riyadi 24
17	Ayu Setia	Jl. MT Haryono 21
18	Butsaina Nur	Jl. Pattimura 3
19	Rias Wahyuni	Jl. Mawar 22
20	Fahrunnisa	Jl. Naga 18

```
19 rows in set (0.001 sec)
```


➤ Cabang_bank

```
MariaDB [perbankan]> INSERT INTO cabang_bank (kode_cabang, nama_cabang, alamat_cabang) VALUES
-> ('BRUA', 'Bank Rut Unit Ambon', 'Jl. Manggis 8'),
-> ('BRUC', 'Bank Rut Unit Cilacap', 'Jl. Melati 76'),
-> ('BRUD', 'Bank Rut Unit Demak', 'Jl. Sutoyo 43'),
-> ('BRUE', 'Bank Rut Unit Enarotali', 'Jl. Mawar 32'),
-> ('BRUG', 'Bank Rut Unit Gorontalo', 'Jl. Naga 17'),
-> ('BRUP', 'Bank Rut Unit Palembang', 'Jl. Pattimura 6'),
-> ('BRUI', 'Bank Rut Unit Indramayu', 'Jl. MT Haryono 20'),
-> ('BRUJ', 'Bank Rut Unit Jakarta', 'Jl. Hasanudin 54'),
-> ('BRUL', 'Bank Rut Unit Lamongan', 'Jl. Kantil 3'),
-> ('BRUT', 'Bank Rut Unit Tangerang', 'Jl. Jendral Sudirman 11');
Query OK, 10 rows affected (0.102 sec)
Records: 10 Duplicates: 0 Warnings: 0
```

```
MariaDB [perbankan]> SELECT * FROM cabang_bank;
+-----+-----+-----+
| kode_cabang | nama_cabang          | alamat_cabang          |
+-----+-----+-----+
| BRUA        | Bank Rut Unit Ambon  | Jl. Manggis 8          |
| BRUB        | Bank Rut Unit Boyolali | Jl. Ahmad Yani 45      |
| BRUC        | Bank Rut Unit Cilacap | Jl. Melati 76          |
| BRUD        | Bank Rut Unit Demak   | Jl. Sutoyo 43          |
| BRUE        | Bank Rut Unit Enarotali | Jl. Mawar 32           |
| BRUG        | Bank Rut Unit Gorontalo | Jl. Naga 17            |
| BRUI        | Bank Rut Unit Indramayu | Jl. MT Haryono 20      |
| BRUJ        | Bank Rut Unit Jakarta  | Jl. Hasanudin 54       |
| BRUK        | Bank Rut Unit Klaten   | Jl. Suparman 23        |
| BRUL        | Bank Rut Unit Lamongan | Jl. Kantil 3           |
| BRUP        | Bank Rut Unit Palembang | Jl. Pattimura 6        |
| BRUS        | Bank Rut Unit Surakarta | Jl. Slamet Riyadi 18   |
| BRUT        | Bank Rut Unit Tangerang | Jl. Jendral Sudirman 11 |
| BRUW        | Bank Rut Unit Wonogiri | Jl. Ahmad Yani No.23   |
| BRUY        | Bank Rut Unit Yogyakarta | Jl. Anggrek 21         |
+-----+-----+-----+
15 rows in set (0.000 sec)
```

➤ Rekening

```
MariaDB [perbankan]> INSERT INTO rekening (no_rekening, kode_cabangFK, pin, saldo) VALUES
-> (114, 'BRUA', '1023', 400000),
-> (115, 'BRUB', '1203', 350000),
-> (116, 'BRUC', '2345', 650000),
-> (117, 'BRUD', '3456', 250000),
-> (118, 'BRUE', '4567', 700000),
-> (119, 'BRUG', '5678', 500000),
-> (120, 'BRUS', '6789', 300000),
-> (121, 'BRUB', '7890', 700000),
-> (122, 'BRUB', '8901', 0),
-> (123, 'BRUY', '9012', 550000);
Query OK, 10 rows affected (0.088 sec)
Records: 10 Duplicates: 0 Warnings: 0
```



```

MariaDB [perbankan]> 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 | 8888 | 5000000 |
| 109 | BRUB | 9999 | 0 |
| 110 | BRUY | 1234 | 550000 |
| 111 | BRUK | 4321 | 150000 |
| 112 | BRUK | 0123 | 300000 |
| 113 | BRUY | 8888 | 255000 |
| 114 | BRUA | 1023 | 400000 |
| 115 | BRUB | 1203 | 350000 |
| 116 | BRUC | 2345 | 650000 |
| 117 | BRUD | 3456 | 250000 |
| 118 | BRUE | 4567 | 700000 |
| 119 | BRUG | 5678 | 5000000 |
| 120 | BRUS | 6789 | 300000 |
| 121 | BRUB | 7890 | 7000000 |
| 122 | BRUB | 8901 | 0 |
| 123 | BRUY | 9012 | 550000 |
+-----+-----+-----+-----+
23 rows in set (0.000 sec)

```

➤ Nasabah_has_rekening

```
MariaDB [perbankan]> INSERT INTO nasabah_has_rekening(id_nasabahFK, no_rekeningFK) VALUES
-> (11, 120),
-> (12, 104),
-> (13, 121),
-> (14, 114),
-> (15, 123),
-> (16, 122),
-> (17, 115),
-> (17, 124),
-> (18, 125),
-> (19, 126);
Query OK, 10 rows affected (0.095 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
MariaDB [perbankan]> 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
11	120
12	104
13	121
14	114
15	123
16	122
17	115
17	124
18	125
19	126

```
25 rows in set (0.000 sec)
```

➤ Transaksi

```
MariaDB [perbankan]> INSERT INTO transaksi(no_transaksi, id_nasabahFK, no_rekeningFK, jenis_transaksi, tanggal, jumlah) VALUES
-> (31, 103, 3, 'debit', '2009-12-6', 700000),
-> (32, 126, 2, 'kredit', '2009-12-7', 400000),
-> (33, 114, 4, 'kredit', '2009-12-7', 300000),
-> (34, 102, 3, 'debit', '2009-12-7', 200000),
-> (35, 125, 5, 'debit', '2009-12-8', 1000000),
-> (36, 124, 1, 'kredit', '2009-12-8', 900000),
-> (37, 113, 9, 'debit', '2009-12-9', 150000),
-> (38, 115, 5, 'debit', '2009-12-10', 40000),
-> (39, 122, 3, 'kredit', '2009-12-10', 650000),
-> (40, 108, 4, 'kredit', '2009-12-10', 800000),
-> (41, 123, 2, 'kredit', '2009-12-10', 500000),
-> (42, 112, 1, 'debit', '2009-12-11', 3000000),
-> (43, 121, 4, 'kredit', '2009-12-12', 800000),
-> (44, 101, 3, 'debit', '2009-12-12', 100000),
-> (45, 121, 1, 'kredit', '2009-12-13', 100000),
-> (46, 112, 4, 'kredit', '2009-12-13', 250000),
-> (47, 106, 2, 'debit', '2009-12-13', 50000),
-> (48, 109, 5, 'kredit', '2009-12-14', 2000000),
-> (49, 101, 10, 'debit', '2009-12-14', 2500000),
-> (50, 125, 3, 'debit', '2009-12-15', 700000);
Query OK, 20 rows affected (0.047 sec)
Records: 20 Duplicates: 0 Warnings: 0
```

```
MariaDB [perbankan]> SELECT * FROM transaksi;
```

no_transaksi	id_nasabahFK	no_rekeningFK	jenis_transaksi	tanggal	jumlah
1	105	3	debit	2009-11-10 00:00:00	50000
2	103	2	debit	2009-11-10 00:00:00	40000
3	101	4	kredit	2009-11-12 00:00:00	20000
4	106	3	debit	2009-11-13 00:00:00	50000
5	107	5	kredit	2009-11-13 00:00:00	30000
6	104	1	kredit	2009-11-15 00:00:00	200000
7	110	9	kredit	2009-11-15 00:00:00	150000
8	102	5	debit	2009-11-16 00:00:00	20000
9	105	3	kredit	2009-11-18 00:00:00	50000
10	107	4	debit	2009-11-19 00:00:00	100000
11	103	2	debit	2009-11-19 00:00:00	100000
12	104	1	debit	2009-11-19 00:00:00	50000
13	107	4	kredit	2009-11-20 00:00:00	200000
14	105	3	debit	2009-11-21 00:00:00	40000
15	104	1	kredit	2009-11-22 00:00:00	100000
16	101	4	kredit	2009-11-22 00:00:00	20000
17	103	2	debit	2009-11-22 00:00:00	50000
18	102	5	debit	2009-11-25 00:00:00	50000
19	108	10	debit	2009-11-26 00:00:00	100000
20	106	3	kredit	2009-11-27 00:00:00	50000
21	103	2	kredit	2009-11-28 00:00:00	200000
22	105	3	kredit	2009-11-28 00:00:00	100000
23	102	5	debit	2009-11-30 00:00:00	20000
24	104	1	debit	2009-12-01 00:00:00	50000
25	103	2	debit	2009-12-02 00:00:00	40000

26	101	4	debit	2009-12-04 00:00:00	50000
27	103	2	kredit	2009-12-05 00:00:00	100000
28	102	5	kredit	2009-12-05 00:00:00	200000
29	109	7	debit	2009-12-05 00:00:00	100000
30	110	9	debit	2009-12-06 00:00:00	20000
31	103	3	debit	2009-12-06 00:00:00	70000
32	126	2	kredit	2009-12-07 00:00:00	400000
33	114	4	kredit	2009-12-07 00:00:00	30000
34	102	3	debit	2009-12-07 00:00:00	200000
35	125	5	debit	2009-12-08 00:00:00	1000000
36	124	1	kredit	2009-12-08 00:00:00	900000
37	113	9	debit	2009-12-09 00:00:00	150000
38	115	5	debit	2009-12-10 00:00:00	40000
39	122	3	kredit	2009-12-10 00:00:00	650000
40	108	4	kredit	2009-12-10 00:00:00	800000
41	123	2	kredit	2009-12-10 00:00:00	500000
42	112	1	debit	2009-12-11 00:00:00	3000000
43	121	4	kredit	2009-12-12 00:00:00	800000
44	101	3	debit	2009-12-12 00:00:00	100000
45	121	1	kredit	2009-12-13 00:00:00	100000
46	112	4	kredit	2009-12-13 00:00:00	250000
47	106	2	debit	2009-12-13 00:00:00	50000
48	109	5	kredit	2009-12-14 00:00:00	2000000
49	101	10	debit	2009-12-14 00:00:00	2500000
50	125	3	debit	2009-12-15 00:00:00	700000

50 rows in set (0.000 sec)