TABLES

```
MariaDB [BidvestBank]> create table BankBranch(
   -> branchName varchar(10) not null,
    -> branchCity varchar(10) not null,
    -> assets varchar(10) not null,
    -> primary key(branchName)
    -> );
Query OK, 0 rows affected (0.79 sec)
MariaDB [BidvestBank]> create table Customer(
   -> customerName varchar(10) not null,
    -> customerStreet varchar(10) not null,
    -> customerCity varchar(10) not null,
    -> primary key(customerName)
Query OK, 0 rows affected (0.46 sec)
MariaDB [BidvestBank]> create table createAccount(
   -> accountNumber varchar(10) not null,
    -> branchName varchar(10) not null,
    -> balance varchar(10) not null,
    -> primary key(accountNumber)
    -> );
Query OK, 0 rows affected (0.71 sec)
MariaDB [BidvestBank]> create table Loan(
    -> loanNumber varchar(10) not null,
    -> branchName varchar(10) not null,
    -> amount varchar(10) not null,
    -> primary key(loanNumber)
Query OK, 0 rows affected (0.65 sec)
```

```
MariaDB [BidvestBank]> create table Depositor(
       -> customerName varchar(10) not null,
       -> accountNumber varchar(10) not null,
       -> primary key(accountNumber)
       -> );
Query OK, 0 rows affected (1.94 sec)
MariaDB [BidvestBank]> create table Borrower(
       -> customerName varchar(10) not null,
      -> loanNumber varchar(10) not null,
      -> primary key(loanNumber)
      -> );
Query OK, 0 rows affected (0.56 sec)
MariaDB [BidvestBank]> create table Employee(
      -> employeeName varchar(10) not null,
      -> branchName varchar(10) not null,
       -> salary varchar(10) not null,
      -> primary key(employeeName)
       -> );
Query OK, 0 rows affected (0.41 sec)
MariaDB [BidvestBank]> insert into BankBranch values('Midrand', 'Johannesburg', 7100000);
ERROR 1406 (22001): Data too long for column 'branchCity' at row 1
MariaDB [BidvestBank]> show tables;
 Tables in bidvestbank
 bankbranch
 borrower
 createaccount
 customer
 depositor
 employee
 loan
 rows in set (0.01 sec)
MariaDB [BidvestBank]> ALTER TABLE * MODIFY Type VARCHAR(225);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the rig
pe VARCHAR(225)' at line 1
MariaDB [BidvestBank]> ALTER TABLE bankBranch MODIFY Type VARCHAR(255);
ERROR 1054 (42522): Unknown column 'Type' in 'bankbranch'
MariaDB [BidvestBank]> describe BidvestBank;
ERROR 1146 (42502): Table 'bidvestbank.bidvestbank' doesn't exist
MariaDB [BidvestBank]> describe databases;
ERROR 1864 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the rig
at line 1
MariaDB [BidvestBank]> describe bankBranch;
```

```
| Field | Type | Null | Key | Default | Extra |
| branchName | varchar(10) | NO | PRI | NULL |
| branchCity | varchar(10) | NO | NULL |
| assets | varchar(10) | NO | NULL |
```

3 rows in set (0.45 sec)

```
MariaDB [BidvestBank]> ALTER TABLE bankBranch MODIFY Type VARCHAR(255);
ERROR 1054 (42522): Unknown column 'Type' in 'bankbranch'
MariaDB [BidvestBank]> ALTER TABLE Customer MODIFY type VARCHAR(255);
ERROR 1054 (42522): Unknown column 'type' in 'customer'
MariaDB [BidvestBank]> ALTER TABLE Customer MODIFY columnname VARCHAR(255)
->;
ERROR 1054 (42522): Unknown column 'columnname' in 'customer'
```

```
MariaDB [BidvestBank]> ALTER TABLE bankBrank MODIFY branchName VARCHAR(255)not null;
ERROR 1146 (42S02): Table 'bidvestbank.bankbrank' doesn't exist
MariaDB [BidvestBank]> ALTER TABLE bankBranch MODIFY branchName VARCHAR(255)not null;
Query OK, 0 rows affected (1.62 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE bankBranch MODIFY branchCity VARCHAR(2555)not null;
Query OK, 0 rows affected (1.79 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE bankBranch MODIFY assets VARCHAR(255) not null;
Query OK, 0 rows affected (0.17 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> describe Borrower;
                                  | Null | Key | Default | Extra |
  Field
                  Type
  customerName | varchar(10) | NO
loanNumber | varchar(10) | NO
                                                   NULL
  loanNumber
                                            PRI
                                                   NULL
2 rows in set (0.24 sec)
MariaDB [BidvestBank]> ALTER TABLE Borrower MODIFY customerName VARCHAR(255) not null;
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Borrower MODIFY loanNumber VARCHAR(255) not null;
Query OK, 0 rows affected (0.62 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> RENAME TABLE `createAccount` TO `CustomerAccount`;
Query OK, 0 rows affected (0.69 sec)
MariaDB [BidvestBank]> describe CustomerAccount;
  Field
                                    Null | Key | Default | Extra
                    Type
                    varchar(10)
  accountNumber
                                    NO
                                             PRI
                                                    NULL
                    varchar(10)
  branchName
                                    NO
                                                    NULL
                    varchar(10)
  balance
                                    NO
                                                    NULL
  rows in set (0.35 sec)
```

```
MariaDB [BidvestBank]> ALTER TABLE CustomerAccount MODIFY accountNumber VARCHAR(255) not null;
Query OK, 0 rows affected (0.55 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE CustomerName MODIFY branchName VARCHAR(255) not null;
ERROR 1146 (42502): Table 'bidvestbank.customername' doesn't exist
MariaDB [BidvestBank]> ALTER TABLE CustomerAccount MODIFY brachName VARCHAR(255) not null;
ERROR 1054 (42S22): Unknown column 'brachName' in 'customeraccount'
MariaDB [BidvestBank]> ALTER TABLE CustomerAccount MODIFY branchName VARCHAR(255) not null;
Query OK, 0 rows affected (0.20 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE CustomerAccount MODIFY balance VARCHAR(255) not null;
Query OK, 0 rows affected (0.15 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> describe Customer;
  Field
                                             | Null | Key | Default | Extra |
                           Type
  customerName
                          varchar(10) | NO
                                                          PRI
                                                                L NULL
                           varchar(10)
                                               NO
   customerStreet
                                                                  NULL
   customerCity
                           varchar(10) | NO
                                                                  NULL
3 rows in set (0.12 sec)
MariaDB [BidvestBank]> ALTER TABLE Customer MODIFY customerName VARCHAR(255) not null;
Query OK, 0 rows affected (1.85 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Customer MODIFY customerStreet VARCHAR(255) not null;
Query OK, 0 rows affected (0.18 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Customer MODIFY customerCity VARCHAR(255) not null;
Query OK, 0 rows affected (0.18 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
MariaDB [BidvestBank]> describe Depositor;
  Field
                    Type
                                     | Null | Key | Default | Extra
                     varchar(10) | NO
varchar(10) | NO
                      varchar(10)
  customerName
                                                        NULL
  accountNumber
                                                PRI
                                                        NULL
 rows in set (0.51 sec)
MariaDB [BidvestBank]> ALTER TABLE Depositor MODIFY customerName VARCHAR(255) not null;
Query OK, 0 rows affected (0.32 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Depositor MODIFY accountNumber VARCHAR(255) not null;
Query OK, 0 rows affected (0.62 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> describe Employee;
 Field
                                    | Null | Key | Default | Extra |
                   Type
  employeeName
                     varchar(10)
                                      NO
                                                       NULL
                    varchar(10)
varchar(10)
  branchName
                                      NO
                                                      NULL
 salary
                                      NO
                                                      NULL
 rows in set (0.17 sec)
MariaDB [BidvestBank]> ALTER TABLE Employee MODIFY employeeName VARCHAR(255) not null;
Query OK, 0 rows affected (0.58 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Employee MODIFY branchName VARCHAR(255) not null;
Query OK, 0 rows affected (0.38 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Employee MODIFY salary VARCHAR(255) not null;
Query OK, 0 rows affected (0.15 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
MariaDB [BidvestBank]> describe Loan;
 Field
              Type
                             | Null | Key | Default | Extra |
  loanNumber | varchar(10) | NO
branchName | varchar(10) | NO
amount | varchar(10) | NO
                                      PRT
                                             NULL
                                             NULL
                                             NULL
3 rows in set (0.37 sec)
MariaDB [BidvestBank]> ALTER TABLE Loan MODIFY loanNumber VARCHAR(255) not null;
Query OK, 0 rows affected (0.77 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Loan MODIFY branchName VARCHAR(255) not null;
Query OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> ALTER TABLE Loan MODIFY amount VARCHAR(255) not null;
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> show tables;
 Tables_in_bidvestbank |
  bankbranch
  borrower
  customer
  customeraccount
  depositor
  employee
  loan
  rows in set (0.00 sec)
```

POPULATE

BankBranch Table

```
HariaDB [BidvestBank]> insert into BankBranch values('Midrand', 'Johannesburg', 7100000);
Query OK, 1 row affected (0.05 sec)

HariaDB [BidvestBank]> Insert into BankBranch values('Newtown', 'Johannesburg', 9000000);
Query OK, 1 row affected (0.08 sec)

HariaDB [BidvestBank]> Insert into BankBranch values('Mabopane', 'Pretoria', 400000);
Query OK, 1 row affected (0.08 sec)

HariaDB [BidvestBank]> Insert into BankBranch values('Belgravia', 'Kimberly',3700000);
Query OK, 1 row affected (0.07 sec)

HariaDB [BidvestBank]> Insert into BankBranch values('Sunnyside', 'Pretoria', 1700000);
Query OK, 1 row affected (0.07 sec)
```

```
MariaDB [BidvestBank]> Insert into BankBranch values('Unuversitas', 'Bloemfontein', 2100000);
Query OK, 1 row affected (0.06 sec)

MariaDB [BidvestBank]> update BranchBank set branchName = 'Universitas';
ERROR 1146 (42502): Table 'bidvestbank.branchbank' doesn't exist

MariaDB [BidvestBank]> update BankBranch set branchName = 'Universitas';
ERROR 1062 (23000): Duplicate entry 'Universitas' for key 'PRIMARY'

MariaDB [BidvestBank]> Insert into BankBranch values('Mamelodi', 'Pretoria', 8000000);
Query OK, 1 row affected (0.10 sec)

MariaDB [BidvestBank]> Insert into BankBranch values('Amanzimtoti','Durban', 300000);
```

Borrower Table

```
MariaDB [BidvestBank]> Insert into Borrower values('Modise', 'L-16');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Jooste', 'L-93');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Johnson', 'L-15');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Jackson', 'L-14');
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Zwane', 'l-17');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Smith', 'L-11');
Query OK, 1 row affected (0.10 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Smith', 'L-23');
Query OK, 1 row affected (0.04 sec)
MariaDB [BidvestBank]> Insert into Borrower values('Williams', 'L-17');
ERROR 1062 (23000): Duplicate entry 'L-17' for key 'PRIMARY
```

Customer Table

```
MariaDB [BidvestBank]> Insert into Customer values('Modise', 'Springs', 'George');
Query OK, 1 row affected (0.25 sec)
MariaDB [BidvestBank]> Insert into Customer values('Brooks', 'Senator', 'Johannesburg');
Query OK, 1 row affected (0.26 sec)
MariaDB [BidvestBank]> Insert into Customer values('Jooste','North','Kimberly');
Query OK, 1 row affected (0.08 sec)
MariaDB [BidvestBank]> Insert into Customer values('Mokwena','Walnut','Port-Elizabeth');
Query OK, 1 row affected (0.10 sec)
MariaDB [BidvestBank]> Insert into Customer values('Johnson','Alma', 'Bloemfontein');
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Customer values('Johnson','Mmabatho','Mafikeng');
ERROR 1062 (23000): Duplicate entry 'Johnson' for key 'PRIMARY'
MariaDB [BidvestBank]> Insert into Customer values('Johnnson', 'Mmabatho','Mafikeng');
Query OK, 1 row affected (0.14 sec)
MariaDB [BidvestBank]> Insert into Customer values('Zwane','Main','Mafikeng');
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Customer values('Lindsay','Park','George');
Query OK, 1 row affected (0.21 sec)
MariaDB [BidvestBank]> Insert into Customer values('Smith','North','Kimberly');
Query OK, 1 row affected (0.10 sec)
MariaDB [BidvestBank]> Insert into Customer values('Dlamini','Putnam','Port-Elizabeth');
Ouery OK, 1 row affected (0.07 sec)
MariaDB [BidvestBank]> Insert into Customer values('Williams<sup>'</sup>,'Nassau','Giyane');
Query OK, 1 row affected (0.04 sec)
```

CustomerAccount Table

```
MariaDB [BidvestBank]> Insert into customerAccount values('A-5324', 'Newtown',500);
ERROR 1062 (23000): Duplicate entry 'A-5324' for key 'PRIMARY'
MariaDB [BidvestBank]> Insert into customerAccount values('A-5624', 'Sunnyside', 400);
ERROR 1062 (23000): Duplicate entry 'A-5624' for key 'PRIMARY'
MariaDB [BidvestBank]> Insert into customerAccount values('A-7794', 'Midrand',900);
ERROR 1062 (23000): Duplicate entry 'A-7794' for key 'PRIMARY'
MariaDB [BidvestBank]> Insert into customerAccount values('A-4467', 'Mabopane',700);
Query OK, 1 row affected (0.12 sec)

MariaDB [BidvestBank]> Insert into customerAccount values('A-3546', 'Midrand',750);
Query OK, 1 row affected (0.10 sec)

MariaDB [BidvestBank]> Insert into customerAccount values('A-3453', 'Universitas',700);
Query OK, 1 row affected (0.09 sec)

MariaDB [BidvestBank]> Insert into customerAccount values('A-2542', 'Mamelodi',350);
Query OK, 1 row affected (0.10 sec)
```

Depositor Table

```
MariaDB [BidvestBank]> Insert into Depositor values('Johnson','A-5624');
Query OK, 1 row affected (0.11 sec)
MariaDB [BidvestBank]> Insert into Depositor values('Johnnson','A-5624');
ERROR 1062 (23000): Duplicate entry 'A-5624' for key 'PRIMARY'
MariaDB [BidvestBank]> Insert into Depositor values('Johnnson','A-7794');
Query OK, 1 row affected (0.12 sec)
MariaDB [BidvestBank]> Insert into Depositor values('Zwane','A-3546');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Depositor values('Lindsay','A-3453');
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Depositor values('Smith','A-2542');
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Update 'Depositor' SET 'accountNumber' = 'A-4467' WHERE 'customerName'='Smith';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your Maria
on for the right syntax to use near ''Depositor' SET 'accountNumber' = 'A-4467' WHERE 'customerName'='Smi
MariaDB [BidvestBank]> UPDATE 'Depositor' SET 'accountNumber' = 'A-4467' WHERE 'customerName' = 'Smith';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your Maria
on for the right syntax to use near ''Depositor' SET 'accountNumber' = 'A-4467' WHERE 'customerName' = 'S
MariaDB [BidvestBank]> UPDATE Depositor SET accountNumber = 'A-4467' WHERE customerName = 'Smith';
Query OK, 1 row affected (0.30 sec)
 Rows matched: 1 Changed: 1 Warnings: 0
MariaDB [BidvestBank]> Insert into Depositor values('Dlamini','A-2542');
Query OK, 1 row affected (0.11 sec)
```

Employee Table

```
MariaDB [BidvestBank]> Insert into Employee values('Modise', 'Sunnyside',1500);
Query OK, 1 row affected (0.13 sec)
MariaDB [BidvestBank]> ALTER TABLE Employee AUTO INCREMENT = 1;
Query OK, 0 rows affected (0.49 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> Insert into Employee values('Brown','Sunnyside',1300);
Query OK, 1 row affected (0.12 sec)
MariaDB [BidvestBank]> Insert into Employee values('Gopal', 'Sunnyside',5300);
Query OK, 1 row affected (0.13 sec)
MariaDB [BidvestBank]> Insert into Employee values('Johnson','Newtown',1500);
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Employee values('Loreena','Newtown'1300);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to
erver version for the right syntax to use near '1300)' at line 1
MariaDB [BidvestBank]> Insert into Employee values('Loreena','Newtown',1300);
Query OK, 1 row affected (0.15 sec)
MariaDB [BidvestBank]> Insert into Employee values('Peterson','Newtown',2500);
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Employee values('Rao','Austin',1500);
Query OK, 1 row affected (0.04 sec)
MariaDB [BidvestBank]> Insert into Employee values('Sato','Austin',1600);
Query OK, 1 row affected (0.11 sec)
```

Loan Table

```
MariaDB [BidvestBank]> ALTER TABLE Loan AUTO INCREMENT = 1;
Query OK, 0 rows affected (0.26 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [BidvestBank]> Insert into Loan values('L-11','Mamelodi',900);
Query OK, 1 row affected (0.10 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-14','Newtown',1500);
Query OK, 1 row affected (0.13 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-15','Sunnyside',1500);
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-16','Sunnyside',1300);
Query OK, 1 row affected (0.14 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-17','Newtown',1000);
Query OK, 1 row affected (0.06 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-23','Universitas',2000);
Query OK, 1 row affected (0.09 sec)
MariaDB [BidvestBank]> Insert into Loan values('L-93','Mabopane',500);
Query OK, 1 row affected (0.11 sec)
```

```
MariaDB [BidvestBank]> SELECT * FROM customerAccount WHERE balance < 700;
        accountNumber | branchName | balance |
                    | Mamelodi
| Newtown
                                      350
500
        A-2542
        A-5324
        A-5624 | Sunnyside | 400
       3 rows in set (0.18 sec)
i.
       MariaDB [BidvestBank]> SELECT customerName FROM Customer WHERE customerCity = "Johannesburg";
        customerName
       Brooks
       1 row in set (0.07 sec)
ii.
       MariaDB [BidvestBank]> SELECT * FROM Employee WHERE not branchName ="Newtown" and salary >1500;
        employeeName | branchName | salary |
        Gopal | Sunnyside | 5300
Sato | Austin | 1600
        rows in set (0.07 sec)
iii.
       MariaDB [BidvestBank]> SELECT avg(salary) as "avgSalary" FROM Employee;
        avgSalary |
            2062.5
       1 row in set (0.23 sec)
iv.
       MariaDB [BidvestBank]> SELECT branchName ,max(assets) FROM BankBranch;
        branchName | max(assets) |
        Amanzimtoti | 9000000
       1 row in set (0.09 sec)
٧.
```

i.

ii.

iii.

٧.

```
MariaDB [BidvestBank]> SELECT * FROM Borrower;
 customerName | loanNumber |
 Smith
               L-11
 Jackson
              L-14
 Johnson
              L-15
 Modise
              L-16
 Zwane
              1-17
 Smith
              L-23
 Jooste
              L-93
7 rows in set (0.08 sec)
```

MariaDB [BidvestBank]> SELECT accountNumber FROM CustomerAccount WHERE balance >900; Empty set (0.00 sec)

MariaDB [BidvestBank]> SELECT accountNumber,balance FROM CustomerAccount WHERE branchName = "Newton" and balance > 600; Empty set (0.05 sec)

MariaDB [BidvestBank]>

```
MariaDB [BidvestBank]> SELECT branchName,assets FROM BankBranch;
 branchName | assets
 Amanzimtoti | 300000
Belgravia | 3700000
 Mabopane
              400000
 Mamelodi
              8000000
 Midrand
              7100000
              9000000
 Newtown
 Sunnyside
               1700000
 Unuversitas | 2100000
8 rows in set (0.05 sec)
MariaDB [BidvestBank]>
```