

PROGRAM 2. BANKING ENTERPRISE DATABASE

Consider the following database for a banking enterprise.

BRANCH (branch-name: String, branch-city: String, assets: real)

ACCOUNTS (accno: int, branch-name: String, balance: real)

DEPOSITOR (customer-name: String, customer-street: String, customer-city: String)

LOAN (loan-number: int, branch-name: String, amount: real)

BORROWER (customer-name: String, loan-number: int)

- i. Create the above tables by properly specifying the primary keys and the foreign keys.

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0110 seconds.)

`create database bank`

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0000 seconds.)

```
use bank
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.2620 seconds.)

```
create table branch( branch_name varchar (20) PRIMARY KEY, branch_city varchar(20), assets real)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.1630 seconds.)

```
create table accounts( accno int PRIMARY KEY, branch_name varchar(20), balance real, FOREIGN KEY (branch_name) REFERENCES branch(branch_name) )
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.1620 seconds.)

```
create table depositor( customer_name varchar(20), customer_street varchar(20), customer_city varchar(20), accno int, FOREIGN KEY(accno) REFERENCES accounts(accno) )
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.2140 seconds.)

```
CREATE table loan( loan_number int PRIMARY key, branch_name varchar (20), amount real, FOREIGN KEY (branch_name) REFERENCES branch(branch_name) )
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.2750 seconds.)

```
create table borrower( customer_name varchar(20), loan_number int Primary KEY, FOREIGN KEY(loan_number) REFERENCES loan(loan_number) )
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> accounts	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> borrower	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
<input type="checkbox"/> branch	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> depositor	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> loan	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	144.0 KiB	0 B


☐

Check all

With selected:



ii. Enter at least five tuples for each relation.

✓ 1 row inserted. (Query took 0.4440 seconds.)

```
INSERT INTO `branch` (`branch_name`, `branch_city`, `assets`) VALUES ('Hebbal','Bengaluru',178901222.12)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0810 seconds.)

```
INSERT INTO `branch` (`branch_name`, `branch_city`, `assets`) VALUES ('M.G.Road','Mumbai',278901222.12)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.3490 seconds.)

```
INSERT INTO `branch` (`branch_name`, `branch_city`, `assets`) VALUES ('Chandni Chowk','New Delhi',291901222.12)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0840 seconds.)

```
INSERT INTO `branch` (`branch_name`, `branch_city`, `assets`) VALUES ('Bull Temple Road','Bengaluru',218901281.927)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0540 seconds.)

```
INSERT INTO `branch` (`branch_name`, `branch_city`, `assets`) VALUES ('Sector 17','Chandigarh',8192901222.121)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

Options

				branch_name	branch_city	assets
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bull Temple Road	Bengaluru	218901281.927
<input type="checkbox"/>	 Edit	 Copy	 Delete	Chandni Chowk	New Delhi	291901222.12
<input type="checkbox"/>	 Edit	 Copy	 Delete	Hebbal	Bengaluru	178901222.12
<input type="checkbox"/>	 Edit	 Copy	 Delete	M.G.Road	Mumbai	278901222.12
<input type="checkbox"/>	 Edit	 Copy	 Delete	Sector 17	Chandigarh	8192901222.121

✓ 1 row inserted. (Query took 0.0990 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (1, 'Sector 17', 10000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0580 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (2, 'Bull Temple Road', 20000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0880 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (3, 'M.G.Road', 30000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0360 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (4, 'Hebbal', 40000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0420 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (5, 'Chandni Chowk', 50000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0400 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (6, 'Bull Temple Road', 60000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.1120 seconds.)

```
INSERT INTO `accounts` (`accno`, `branch_name`, `balance`) VALUES (7, 'Hebbal', 70000)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

←T→				accno	branch_name	balance
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Sector 17	10000
<input type="checkbox"/>	 Edit	 Copy	 Delete	2	Bull Temple Road	20000
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	M.G.Road	30000
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	Hebbal	40000
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Chandni Chowk	50000
<input type="checkbox"/>	 Edit	 Copy	 Delete	6	Bull Temple Road	60000
<input type="checkbox"/>	 Edit	 Copy	 Delete	7	Hebbal	70000

✔ 1 row inserted. (Query took 0.0390 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Mehta','Bull Temple Road','Bengaluru',2)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0930 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Mehta','Bull Temple Road','Bengaluru',6)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0260 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Pant','Sector 14','Chandigarh',1)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0320 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Kohli','Street 18','Mumbai',3)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0260 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Rahul','Commercial Street','Bengaluru',4)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0680 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('Dev','Street 101','New Delhi',5)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0340 seconds.)

```
INSERT INTO `depositor`(`customer_name`, `customer_street`, `customer_city`, `accno`) VALUES ('ABD','Street 1','Bengaluru',7)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

customer_name	customer_street	customer_city	accno
Mehta	Bull Temple Road	Bengaluru	2
Mehta	Bull Temple Road	Bengaluru	6
Pant	Sector 14	Chandigarh	1
Kohli	Street 18	Mumbai	3
Rahul	Commercial Street	Bengaluru	4
Dev	Street 101	New Delhi	5
ABD	Street 1	Bengaluru	7

✓ 1 row inserted. (Query took 0.0690 seconds.)

```
INSERT INTO `loan` (`loan_number`, `branch_name`, `amount`) VALUES (1, 'Bull Temple Road', 19281.29)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.1120 seconds.)

```
INSERT INTO `loan` (`loan_number`, `branch_name`, `amount`) VALUES (2, 'Chandni Chowk', 29281.29)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0370 seconds.)

```
INSERT INTO `loan` (`loan_number`, `branch_name`, `amount`) VALUES (3, 'Hebbal', 39281.29)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0720 seconds.)
















```
INSERT INTO `loan` (`loan_number`, `branch_name`, `amount`) VALUES (4, 'M.G. Road', 49281.29)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 1 row inserted. (Query took 0.0980 seconds.)

```
INSERT INTO `loan` (`loan_number`, `branch_name`, `amount`) VALUES (5, 'Sector 17', 59281.29)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

<div>←T→</div>				loan_number	branch_name	amount
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Bull Temple Road	19281.29
<input type="checkbox"/>	 Edit	 Copy	 Delete	2	Chandni Chowk	29281.29
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	Hebbal	39281.29
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	M.G.Road	49281.29
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Sector 17	59281.29

✔ 1 row inserted. (Query took 0.0290 seconds.)

```
INSERT INTO `borrower`(`customer_name`, `loan_number`) VALUES ('Nik',1)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0720 seconds.)

```
INSERT INTO `borrower`(`customer_name`, `loan_number`) VALUES ('Shan',2)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0240 seconds.)

```
INSERT INTO `borrower`(`customer_name`, `loan_number`) VALUES ('Bhuvan',3)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0310 seconds.)

```
INSERT INTO `borrower`(`customer_name`, `loan_number`) VALUES ('Ram Gopal',4)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 1 row inserted. (Query took 0.0350 seconds.)

```
INSERT INTO `borrower`(`customer_name`, `loan_number`) VALUES ('Yashan',5)
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

				customer_name	loan_number
<input type="checkbox"/>	 Edit	 Copy	 Delete	Nik	1
<input type="checkbox"/>	 Edit	 Copy	 Delete	Shan	2
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bhuvan	3
<input type="checkbox"/>	 Edit	 Copy	 Delete	Ram Gopal	4
<input type="checkbox"/>	 Edit	 Copy	 Delete	Yashan	5

iii. Find all the customers who have at least two accounts at the Main branch.

✓ Showing rows 0 - 0 (1 total, Query took 0.0440 seconds.)

```
SELECT customer_name from depositor where accno in(SELECT accno from accounts where branch_name='Bull Temple Road') GROUP by customer_name  
HAVING count(*)>=2
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼ Filter rows:

+ Options

customer_name

Mehta

☐ Show all | Number of rows: 25 ▼ Filter rows:

- iv. Find all the customers who have an account at all the branches located in a specific city.

✓ Showing rows 0 - 0 (1 total, Query took 0.0040 seconds.)

```
select customer_name, branch_name, branch_city FROM depositor, branch where customer_city=branch_city and customer_city='New delhi'
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼ Filter rows:

+ Options

customer_name	branch_name	branch_city
Dev	Chandni Chowk	New Delhi

☐ Show all | Number of rows: 25 ▼ Filter rows:

- v. Demonstrate how you delete all account tuples at every branch located in a specific city.

✓ 1 row affected. (Query took 0.2180 seconds.)

```
DELETE from accounts where branch_name in( SELECT branch_name from branch where branch_city='Mumbai')
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

				▼	accno	branch_name	balance
<input type="checkbox"/>	 Edit	 Copy	 Delete		1	Sector 17	10000
<input type="checkbox"/>	 Edit	 Copy	 Delete		2	Bull Temple Road	20000
<input type="checkbox"/>	 Edit	 Copy	 Delete		4	Hebbal	40000
<input type="checkbox"/>	 Edit	 Copy	 Delete		5	Chandni Chowk	50000
<input type="checkbox"/>	 Edit	 Copy	 Delete		6	Bull Temple Road	60000
<input type="checkbox"/>	 Edit	 Copy	 Delete		7	Hebbal	70000