

## PROGRAM 2

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)

**BANKCUSTOMER** (customer-name: String, customer-street: String, customer-city: String)

**DEPOSITER** (customer-name: String, accno: int)

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

1) Create the above tables by properly specifying the primary keys and the foreign keys.

Server: 127.0.0.1 » Database: banking\_enterprise

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking

Run SQL query/queries on database banking\_enterprise:

```
1 CREATE TABLE BRANCH(branchname varchar(20), branchcity varchar(30), assets REAL, PRIMARY KEY(branchname));
2 CREATE TABLE ACCOUNTS(accno int, branchname varchar(20), balance real, PRIMARY KEY(accno), FOREIGN KEY(branchname) REFERENCES BRANCH(branchname));
3 CREATE TABLE BANKCUSTOMER(customer_name VARCHAR(20), customer_street VARCHAR(20), customer_city VARCHAR(20), PRIMARY KEY(customer_name));
4 CREATE TABLE DEPOSITER(customer_name VARCHAR(20), accno int, FOREIGN KEY(accno) REFERENCES ACCOUNTS(accno));
5 CREATE TABLE LOAN(loannumber int, branchname VARCHAR(30), amount REAL, PRIMARY KEY(loannumber), FOREIGN KEY(branchname) REFERENCES BRANCH(branchname));
```

Server: 127.0.0.1 » Database: banking\_enterprise

Structure SQL Search Query Export Import Operations Privileges Routines Events

Filters

Containing the word:

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"/> bankcustomer	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> branch	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> depositer	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 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	128.0 KiB	0 B

## 2) Enter at least 5 tuples for each relation.

'BRANCH' table:

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch

Browse Structure SQL Search Insert Export Import

Run SQL query/queries on table banking\_enterprise.branch: ?

```
1 INSERT INTO BRANCH VALUES("SBI Chamrajpet","Bangalore",50000);
2 INSERT INTO BRANCH VALUES("SBI Residency Road","Bangalore",10000);
3 INSERT INTO BRANCH VALUES("SBI Shivaji Road","Bombay",20000);
4 INSERT INTO BRANCH VALUES("SBI Parliament Road","Delhi",10000);
5 INSERT INTO BRANCH VALUES("SBI Jantarmantar","Delhi",20000);
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Show query box

✓ 1 row inserted. (Query took 0.1481 seconds.)

```
INSERT INTO BRANCH VALUES("SBI Chamrajpet","Bangalore",50000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0291 seconds.)

```
INSERT INTO BRANCH VALUES("SBI Residency Road","Bangalore",10000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.1043 seconds.)

```
INSERT INTO BRANCH VALUES("SBI Shivaji Road","Bombay",20000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.2135 seconds.)

```
INSERT INTO BRANCH VALUES("SBI Parliament Road","Delhi",10000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0658 seconds.)

```
INSERT INTO BRANCH VALUES("SBI Jantarmantar","Delhi",20000)
```

[Edit inline] [Edit] [Create PHP code]

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch
















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✓ Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `branch`
```

☐ Show all | 
 Number of rows:  | 
 Filter rows:  | 
 Sort by k

+ Options

<div><div><div>←</div><div>T</div><div>→</div></div><div></div></div>				branchname	branchcity	assets
<input type="checkbox"/>	 Edit	 Copy	 Delete	SBI Chamrajpet	Bangalore	50000
<input type="checkbox"/>	 Edit	 Copy	 Delete	SBI Jantarmantar	Delhi	20000
<input type="checkbox"/>	 Edit	 Copy	 Delete	SBI Parliament Road	Delhi	10000
<input type="checkbox"/>	 Edit	 Copy	 Delete	SBI Residency Road	Bangalore	10000
<input type="checkbox"/>	 Edit	 Copy	 Delete	SBI Shivaji Road	Bombay	20000

'ACCOUNTS' table:

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch

[Browse](#)
[Structure](#)
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Run SQL query/queries on table banking\_enterprise.branch: ?

```

1 INSERT INTO ACCOUNTS VALUES("1","SBI Chamrajpet",2000);
2 INSERT INTO ACCOUNTS VALUES("2","SBI Residency Road",5000);
3 INSERT INTO ACCOUNTS VALUES("3","SBI Shivaji Road",6000);
4 INSERT INTO ACCOUNTS VALUES("4","SBI Parliament Road",9000);
5 INSERT INTO ACCOUNTS VALUES("5","SBI Jantarmantar",8000);
6 INSERT INTO ACCOUNTS VALUES("6","SBI Shivaji Road",4000);
7 INSERT INTO ACCOUNTS VALUES("8","SBI Residency Road",4000);
8 INSERT INTO ACCOUNTS VALUES("9","SBI Parliament Road",3000);
9 INSERT INTO ACCOUNTS VALUES("10","SBI Residency Road",5000);
10 INSERT INTO ACCOUNTS VALUES("11","SBI Jantarmantar",2000);
  
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

✓ 1 row inserted. (Query took 0.1276 seconds.)

INSERT

 INTO ACCOUNTS VALUES("1", "SBI Chamrajpet", 2000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0638 seconds.)

INSERT

 INTO ACCOUNTS VALUES("2", "SBI Residency Road", 5000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.2065 seconds.)

INSERT

 INTO ACCOUNTS VALUES("3", "SBI Shivaji Road", 6000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0454 seconds.)

INSERT

 INTO ACCOUNTS VALUES("4", "SBI Parliament Road", 9000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0453 seconds.)

INSERT

 INTO ACCOUNTS VALUES("5", "SBI Jantarmantar", 8000)

[Edit inline][Edit][Create PHP code]

Server: 127.0.0.1 » Database: banking\_enterprise » Table: branch

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0322 seconds.)

INSERT

 INTO ACCOUNTS VALUES("6", "SBI Shivaji Road", 4000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0319 seconds.)

INSERT

 INTO ACCOUNTS VALUES("8", "SBI Residency Road", 4000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0313 seconds.)

INSERT

 INTO ACCOUNTS VALUES("9", "SBI Parliament Road", 3000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0324 seconds.)

INSERT

 INTO ACCOUNTS VALUES("10", "SBI Residency Road", 5000)

[Edit inline][Edit][Create PHP code]

✓ 1 row inserted. (Query took 0.0325 seconds.)

INSERT

 INTO ACCOUNTS VALUES("11", "SBI Jantarmantar", 2000)

[Edit inline][Edit][Create PHP code]

Server: 127.0.0.1 » Database: banking\_enterprise » Table: accounts

**Browse** **Structure** **SQL** **Search** **Insert** **Export**

✓ Showing rows 0 - 9 (10 total, Query took 0.0007 seconds.)

```
SELECT * FROM `accounts`
```

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

	accno	branchname	balance
<input type="checkbox"/> Edit Copy Delete	1	SBI Chamrajpet	2000
<input type="checkbox"/> Edit Copy Delete	2	SBI Residency Road	5000
<input type="checkbox"/> Edit Copy Delete	3	SBI Shivaji Road	6000
<input type="checkbox"/> Edit Copy Delete	4	SBI Parliament Road	9000
<input type="checkbox"/> Edit Copy Delete	5	SBI Jantarmanatar	8000
<input type="checkbox"/> Edit Copy Delete	6	SBI Shivaji Road	4000
<input type="checkbox"/> Edit Copy Delete	8	SBI Residency Road	4000
<input type="checkbox"/> Edit Copy Delete	9	SBI Parliament Road	3000
<input type="checkbox"/> Edit Copy Delete	10	SBI Residency Road	5000
<input type="checkbox"/> Edit Copy Delete	11	SBI Jantarmanatar	2000

### 'BANKCUSTOMER' table:

Server: 127.0.0.1 » Database: banking\_enterprise » Table: bankcustomer

**Browse** **Structure** **SQL** **Search** **Insert** **Export** **Import** **Privileges**

Run SQL query/queries on table banking\_enterprise.bankcustomer:

```

1 INSERT INTO BANKCUSTOMER VALUES("Avinash","Bull_Temple_Road","Bangalore");
2 INSERT INTO BANKCUSTOMER VALUES("Dinesh","Bannerghatta_Road","Bangalore");
3 INSERT INTO BANKCUSTOMER VALUES("Satish","NationalCollege_Road","Bangalore");
4 INSERT INTO BANKCUSTOMER VALUES("Ramesh","Akbar_Road","Delhi");
5 INSERT INTO BANKCUSTOMER VALUES("Rohini","Prithiviraj_Road","Delhi");

```

Show query box

✔ 1 row inserted. (Query took 0.0985 seconds.)

INSERT INTO BANKCUSTOMER VALUES("Avinash","Bull\_Temple\_Road","Bangalore")

[Edit inline] [Edit] [Create PHP code]

✔ 1 row inserted. (Query took 0.0380 seconds.)

INSERT INTO BANKCUSTOMER VALUES("Dinesh","Bannerghatta\_Road","Bangalore")

[Edit inline] [Edit] [Create PHP code]

✔ 1 row inserted. (Query took 0.0448 seconds.)

INSERT INTO BANKCUSTOMER VALUES("Satish","NationalCollege\_Road","Bangalore")

[Edit inline] [Edit] [Create PHP code]

✔ 1 row inserted. (Query took 0.0455 seconds.)

INSERT INTO BANKCUSTOMER VALUES("Ramesh","Akbar\_Road","Delhi")

[Edit inline] [Edit] [Create PHP code]

✔ 1 row inserted. (Query took 0.0324 seconds.)

INSERT INTO BANKCUSTOMER VALUES("Rohini","Prithiviraj\_Road","Delhi")

[Edit inline] [Edit] [Create PHP code]

✔ Showing rows 0 - 4 (5 total, Query took 0.0006 seconds.)

SELECT \* FROM `bankcustomer`

☐ Show all
 | Number of rows: 
 Filter rows: 
 Sort by I

+ Options

			customer_name	customer_street	customer_city
<input type="checkbox"/>	Edit	Copy	Delete	Avinash	Bull_Temple_Road Bangalore
<input type="checkbox"/>	Edit	Copy	Delete	Dinesh	Bannerghatta_Road Bangalore
<input type="checkbox"/>	Edit	Copy	Delete	Ramesh	Akbar_Road Delhi
<input type="checkbox"/>	Edit	Copy	Delete	Rohini	Prithiviraj_Road Delhi
<input type="checkbox"/>	Edit	Copy	Delete	Satish	NationalCollege_Road Bangalore

## 'DEPOSITER' table:

Server: 127.0.0.1 » Database: banking\_enterprise » Table: depositer

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#)

Run SQL query/queries on table banking\_enterprise.depositer: ?

```
1 INSERT INTO DEPOSITER VALUES("Avinash",1);
2 INSERT INTO DEPOSITER VALUES("Dinesh",2);
3 INSERT INTO DEPOSITER VALUES("Nikil",4);
4 INSERT INTO DEPOSITER VALUES("Ravi",5);
5 INSERT INTO DEPOSITER VALUES("Avinash",8);
6 INSERT INTO DEPOSITER VALUES("Nikil",9);
7 INSERT INTO DEPOSITER VALUES("Dinesh",10);
8 INSERT INTO DEPOSITER VALUES("Nikil",11);
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: depositer

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Privileges](#) [Operations](#) [Tracking](#) [Triggers](#)

Show query box

✓ 1 row inserted. (Query took 0.0793 seconds.)

```
INSERT INTO DEPOSITER VALUES("Avinash",1)
```

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

✓ 1 row inserted. (Query took 0.0286 seconds.)

```
INSERT INTO DEPOSITER VALUES("Dinesh",2)
```

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

✓ 1 row inserted. (Query took 0.1365 seconds.)

```
INSERT INTO DEPOSITER VALUES("Nikil",4)
```

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

✓ 1 row inserted. (Query took 0.0430 seconds.)

```
INSERT INTO DEPOSITER VALUES("Ravi",5)
```

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

✓ 1 row inserted. (Query took 0.0430 seconds.)

```
INSERT INTO DEPOSITER VALUES("Avinash",8)
```

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

Server: 127.0.0.1 » Database: banking\_enterprise » Table: depositer

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0430 seconds.)

```
INSERT INTO DEPOSITER VALUES("Ravi",5)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0430 seconds.)

```
INSERT INTO DEPOSITER VALUES("Avinash",8)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0429 seconds.)

```
INSERT INTO DEPOSITER VALUES("Nikil",9)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0319 seconds.)

```
INSERT INTO DEPOSITER VALUES("Dinesh",10)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0322 seconds.)

```
INSERT INTO DEPOSITER VALUES("Nikil",11)
```

[Edit inline] [Edit] [Create PHP code]

Server: 127.0.0.1 » Database: banking\_enterprise » Table: depositer

Browse Structure SQL Search Insert

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit

✓ Showing rows 0 - 7 (8 total, Query took 0.0019 seconds.)

```
SELECT * FROM `depositer`
```

☐ Show all | Number of rows: 25 ▼ | Filter rows: Search this table

+ Options

customer_name	accno
Avinash	1
Dinesh	2
Nikil	4
Ravi	5
Avinash	8
Nikil	9
Dinesh	10
Nikil	11



## 'LOAN' table:

Server: 127.0.0.1 » Database: banking\_enterprise » Table: loan

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#)

Run SQL query/queries on table banking\_enterprise.loan: ?

```
1 INSERT INTO LOAN VALUES(1,"SBI Chamrajpet",1000);
2 INSERT INTO LOAN VALUES(2,"SBI Residency Road",2000);
3 INSERT INTO LOAN VALUES(3,"SBI Shivaji Road",3000);
4 INSERT INTO LOAN VALUES(4,"SBI Parliament Road",4000);
5 INSERT INTO LOAN VALUES(5,"SBI Jantarmantar",5000);
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: loan

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Privileges](#) [Operations](#) [Tracking](#) [Triggers](#)

Show query box

✓ 1 row inserted. (Query took 0.1079 seconds.)

```
INSERT INTO LOAN VALUES(1,"SBI Chamrajpet",1000)
```

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

✓ 1 row inserted. (Query took 0.0395 seconds.)

```
INSERT INTO LOAN VALUES(2,"SBI Residency Road",2000)
```

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

✓ 1 row inserted. (Query took 0.1152 seconds.)

```
INSERT INTO LOAN VALUES(3,"SBI Shivaji Road",3000)
```

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

✓ 1 row inserted. (Query took 0.0435 seconds.)

```
INSERT INTO LOAN VALUES(4,"SBI Parliament Road",4000)
```

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

✓ 1 row inserted. (Query took 0.0432 seconds.)

```
INSERT INTO LOAN VALUES(5,"SBI Jantarmantar",5000)
```

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


















 Browse  Structure  SQL  Search  Insert  Export 

✓ Showing rows 0 - 4 (5 total, Query took 0.0008 seconds.)

```
SELECT * FROM `loan`
```

☐ Show all | Number of rows:  Filter rows:

+ Options

 				loannumber	branchname	amount
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	SBI Chamrajpet	1000
<input type="checkbox"/>	 Edit	 Copy	 Delete	2	SBI Residency Road	2000
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	SBI Shivaji Road	3000
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	SBI Parliament Road	4000
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	SBI Jantarmantar	5000

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

Server: 127.0.0.1 » Database: banking\_enterprise

Structure SQL Search Query Export Import Operations Privileges Routines Events

Run SQL query/queries on database banking\_enterprise: ?

```
1 SELECT C.customer_name FROM BANKCUSTOMER C WHERE EXISTS(SELECT D.customer_name, COUNT(D.customer_name) FROM DEPOSITER D,
2 ACCOUNTS BA WHERE D.accno=BA.accno AND C.customer_name=D.customer_name AND BA.branchname='SBI Residency Road' GROUP BY
3 D.customer_name HAVING COUNT(D.customer_name)>=2);
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: BANKCUSTOMER

Browse Structure SQL Search Insert Export Import

Show query box

✓ Showing rows 0 - 0 (1 total, Query took 0.0025 seconds.)

```
SELECT C.customer_name FROM BANKCUSTOMER C WHERE EXISTS(SELECT D.customer_name, COUNT
C.customer_name=D.customer_name AND BA.branchname='SBI Residency Road' GROUP BY D.cus
```

☐ Show all | Number of rows: 25 Filter rows: Search this table

+ Options

	customer_name
<input type="checkbox"/> Edit Copy Delete	Dinesh

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

Server: 127.0.0.1 » Database: banking\_enterprise » Table: DEPOSITER

Browse Structure SQL Search Insert Export Import Privileges

Run SQL query/queries on table banking\_enterprise.DEPOSITER: ?

```
1 SELECT customer_name FROM BANKCUSTOMER WHERE NOT EXISTS(SELECT branchname
2 FROM BRANCH WHERE branchcity='Delhi');
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: BANKCUSTOMER

Browse Structure SQL Search Insert Export Import Privileges Operations

Show query box

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0239 seconds.)

```
SELECT customer_name FROM BANKCUSTOMER WHERE NOT EXISTS(SELECT branchname FROM BRANCH WHERE branchcity='Delhi')
```

customer\_name

Query results operations

Create view

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

Server: 127.0.0.1 » Database: banking\_enterprise

Structure SQL Search Query Export Import Operations

Run SQL query/queries on database banking\_enterprise: ?

```
1 DELETE FROM ACCOUNTS WHERE branchname IN (SELECT branchname FROM BRANCH
2 WHERE branchcity='Bombay');
```

Server: 127.0.0.1 » Database: banking\_enterprise » Table: accounts

Browse Structure SQL Search Insert Export Import

✓ Showing rows 0 - 7 (8 total, Query took 0.0004 seconds.)

SELECT \* FROM `accounts`

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by k

+ Options

				accno	branchname	balance
<input type="checkbox"/>	Edit	Copy	Delete	1	SBI Chamrajpet	2000
<input type="checkbox"/>	Edit	Copy	Delete	2	SBI Residency Road	5000
<input type="checkbox"/>	Edit	Copy	Delete	4	SBI Parliament Road	9000
<input type="checkbox"/>	Edit	Copy	Delete	5	SBI Jantarantar	8000
<input type="checkbox"/>	Edit	Copy	Delete	8	SBI Residency Road	4000
<input type="checkbox"/>	Edit	Copy	Delete	9	SBI Parliament Road	3000
<input type="checkbox"/>	Edit	Copy	Delete	10	SBI Residency Road	5000
<input type="checkbox"/>	Edit	Copy	Delete	11	SBI Jantarantar	2000