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)

DEPOSITOR (customer-name: String, accno:int)

CUSTOMER( 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)

create database BANKING;

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

mysql>create table BRANCH(branch\_name varchar(60),branch\_city varchar(60),assets real,primary key(branch\_name));

mysql> desc BRANCH;

+-------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------------+-------------+------+-----+---------+-------+

| branch\_name | varchar(60) | NO | PRI | NULL | |

| branch\_city | varchar(60) | YES | | NULL | |

| assets | double | YES | | NULL | |

+-------------+-------------+------+-----+---------+-------+

mysql> create table ACCOUNTS(accno int,branch\_name varchar(60),balance real,

primary key(accno,branch\_name),foreign key(branch\_name) references BRANCH(branch\_name)on delete cascade on update cascade);

mysql> desc ACCOUNTS;

+-------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------------+-------------+------+-----+---------+-------+

| accno | int | NO | PRI | NULL | |

| branch\_name | varchar(60) | NO | PRI | NULL | |

| balance | double | YES | | NULL | |

+-------------+-------------+------+-----+---------+-------+

mysql> create table DEPOSITOR(customer\_name varchar(60),accno int,

primary key(customer\_name,accno),foreign key(accno) references ACCOUNTS(accno)on delete cascade on update cascade);

mysql> desc DEPOSITOR;

+---------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------------+-------------+------+-----+---------+-------+

| customer\_name | varchar(60) | NO | PRI | NULL | |

| accno | int | NO | PRI | NULL | |

+---------------+-------------+------+-----+---------+-------+

mysql> create table CUSTOMER(customer\_name varchar(60),customer\_street varchar(60), customer\_city varchar(60),

primary key(customer\_name),foreign key(customer\_name) references DEPOSITOR(customer\_name)on delete cascade on update cascade);

mysql> desc CUSTOMER;

+-----------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-----------------+-------------+------+-----+---------+-------+

| customer\_name | varchar(60) | NO | PRI | NULL | |

| customer\_street | varchar(60) | YES | | NULL | |

| customer\_city | varchar(60) | YES | | NULL | |

+-----------------+-------------+------+-----+---------+-------+

mysql> create table LOAN(loan\_number int,branch\_name varchar(60),amount real,

primary key(loan\_number,branch\_name),foreign key(branch\_name) references BRANCH(branch\_name));

mysql> desc LOAN;

+-------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------------+-------------+------+-----+---------+-------+

| loan\_number | int | NO | PRI | NULL | |

| branch\_name | varchar(60) | NO | PRI | NULL | |

| amount | double | YES | | NULL | |

+-------------+-------------+------+-----+---------+-------+

mysql> create table BORROWER(customer\_name varchar(60),loan\_number int,primary key(customer\_name,loan\_number),

foreign key(customer\_name) references DEPOSITOR(customer\_name) on delete cascade on update cascade,

foreign key(loan\_number) references LOAN(loan\_number) on delete cascade on update cascade);

mysql> desc BORROWER;

+---------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------------+-------------+------+-----+---------+-------+

| customer\_name | varchar(60) | NO | PRI | NULL | |

| loan\_number | int | NO | PRI | NULL | |

+---------------+-------------+------+-----+---------+-------+

ii. Enter at least five tuples for each relation.

mysql> insert into BRANCH values

-> ('ICICI','DHARWAD',50000),

-> ('SBI','BANGALORE',45000),

-> ('SBI-BASVANGUDI','BANGALORE',37000),

-> ('ALLAHABADH','HUBLI',15000),

-> ('KARNATAKA-BANK','BELGAUM',90000);

mysql> select \*from BRANCH;

+----------------+-------------+--------+

| branch\_name | branch\_city | assets |

+----------------+-------------+--------+

| ALLAHABADH | HUBLI | 15000 |

| ICICI | DHARWAD | 50000 |

| KARNATAKA-BANK | BELGAUM | 90000 |

| SBI | BANGALORE | 45000 |

| SBI-BASVANGUDI | BANGALORE | 37000 |

+----------------+-------------+--------+

mysql> insert into ACCOUNTS values

-> (12345,'ALLAHABADH',4000),

-> (67890,'SBI-BASVANGUDI',7500),

-> (34567,'KARNATAKA-BANK',9000);

-> (12389,'ICICI',5600),

-> (49389,'ICICI',1780),

-> (34567,'ICICI',5000);

mysql> select \*from ACCOUNTS;

+-------+----------------+---------+

| accno | branch\_name | balance |

+-------+----------------+---------+

| 12345 | ALLAHABADH | 4000 |

| 12389 | ICICI | 5600 |

| 34567 | KARNATAKA-BANK | 9000 |

| 49389 | ICICI | 1780 |

| 67890 | SBI-BASVANGUDI | 7500 |

| 34567 | ICICI | 5000 |

+-------+----------------+---------+

mysql> insert into DEPOSITOR values

-> ('KRISHNA',12345),

-> ('RADHA',12389),

-> ('BALRAM',34567),

-> ('AKSHAY',49389),

-> ('PALLAVI',67890),

-> ('AKSHAY',34567);

mysql> select \*from DEPOSITOR;

+---------------+-------+

| customer\_name | accno |

+---------------+-------+

| KRISHNA | 12345 |

| RADHA | 12389 |

| BALRAM | 34567 |

| AKSHAY | 49389 |

| PALLAVI | 67890 |

+---------------+-------+

mysql> insert into CUSTOMER values

-> ('KRISHNA','NR COLONY','BANGALORE'),

-> ('RADHA','BANSANKARI','BANGALORE'),

-> ('BALRAM','VIDYANAGAR','DHARWAD'),

-> ('AKSHAY','RAMNAGAR','HUBLI'),

-> ('PALLAVI','RAMNAGAR','HUBLI');

mysql> select \*from CUSTOMER;

+---------------+-----------------+---------------+

| customer\_name | customer\_street | customer\_city |

+---------------+-----------------+---------------+

| AKSHAY | RAMNAGAR | HUBLI |

| BALRAM | VIDYANAGAR | DHARWAD |

| KRISHNA | NR COLONY | BANGALORE |

| PALLAVI | RAMNAGAR | HUBLI |

| RADHA | BANSANKARI | BANGALORE |

+---------------+-----------------+---------------+

mysql> insert into LOAN values

-> (1,'ALLAHABADH',56000),

-> (2,'ICICI',47890),

-> (3,'KARNATAKA-BANK',45000),

-> (4,'SBI',45000),

-> (5,'SBI',20000);

mysql> select \*from LOAN;

+-------------+----------------+--------+

| loan\_number | branch\_name | amount |

+-------------+----------------+--------+

| 1 | ALLAHABADH | 56000 |

| 2 | ICICI | 47890 |

| 3 | KARNATAKA-BANK | 45000 |

| 4 | SBI | 45000 |

| 5 | SBI | 20000 |

+-------------+----------------+--------+

mysql> insert into BORROWER values

('KRISHNA',4),

('RADHA',5),

('PALLAVI',5),

('AKSHAY',1),

('BALRAM',3);

mysql> select \*from BORROWER;

+---------------+-------------+

| customer\_name | loan\_number |

+---------------+-------------+

| AKSHAY | 1 |

| BALRAM | 3 |

| KRISHNA | 4 |

| PALLAVI | 5 |

| RADHA | 5 |

+---------------+-------------+

iii. Find all the customers who have at least two accounts at the Main branch (ex.SBI\_ResidencyRoad).

mysql> select customer\_name from DEPOSITOR join ACCOUNTS on DEPOSITOR.accno=ACCOUNTS.accno where

ACCOUNTS.branch\_name='ICICI' group by DEPOSITOR.customer\_name having count(DEPOSITOR.customer\_name)>=2;

+---------------+

| customer\_name |

+---------------+

| AKSHAY |

+---------------+

iv. Find all the customers who have an account at all the branches located in a specific city (Ex. Delhi).

mysql> select customer\_name from DEPOSITOR join ACCOUNTS on ACCOUNTS.accno=DEPOSITOR.accno join BRANCH on

BRANCH.branch\_name=ACCOUNTS.branch\_name where BRANCH.branch\_city='DHARWAD' GROUP BY DEPOSITOR.customer\_name

having count(DISTINCT BRANCH.branch\_name)=(SELECT COUNT(branch\_name) FROM BRANCH where branch\_city='DHARWAD');

+---------------+

| customer\_name |

+---------------+

| AKSHAY |

| BALRAM |

| RADHA |

+---------------+

v. Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

mysql> DELETE FROM ACCOUNTS WHERE branch\_name in (select branch\_name from BRANCH where branch\_city='BELGAUM');

mysql> select \*from ACCOUNTS;

+-------+----------------+---------+

| accno | branch\_name | balance |

+-------+----------------+---------+

| 12345 | ALLAHABADH | 4000 |

| 12389 | ICICI | 5600 |

| 34567 | ICICI | 5000 |

| 49389 | ICICI | 1780 |

| 67890 | SBI-BASVANGUDI | 7500 |

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