**Prepare Lab Sheet of MYSQL Statements for following.**

1. Create a database named “Yourname\_Roll\_COMPANY” e.g.: Atiz\_02\_Company and then create following tables within the database. Specify proper primary keys and the needed constraints while defining the tables. Use appropriate data types for the attributes.

Ans:

**Query:**

**mysql> create database Suraj\_38\_Company;**

Query OK, 1 row affected (0.02 sec)

**mysql> show databases;**

**Result**

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

| Database |

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

| classicmodels |

| information\_schema |

| mysql |

| performance\_schema |

| shopping |

| suraj\_38\_company |

| sys |

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

7 rows in set (0.03 sec)

**Query:**

mysql> use Suraj\_38\_company;

Database changed

1. Employee (SSN, Ename, Gender, Bdate, Address, Salary, Ono, Years\_of\_experience); whereOno is a foreign key referencing to the Office table. Set default value of salary to 0.00. The Ename should not be null. Set SSN to auto increment. The Ename and address should be varchar, Gender should be char(1), Bdate should be date type, Salary should be decimal type with two digits after decimal.Years\_of\_experience should be integer. Use Check constraint for gender as CHECK (Gender  [IN](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/comparison-operators.html#function_in) (‘M’, ‘F’))

**Ans:**

To create Employee table, create those table whose primary key is referencing as foreign key in employee table i.e. here is Ono is foreign key which is taken from office schema. So, firstly we need to create office schema before creating Employee Schema.

**Query:**

CREATE TABLE Employee(

SSN INT AUTO\_INCREMENT PRIMARY KEY,

Ename VARCHAR(55) NOT NULL,

Gender char(1) CHECK (Gender IN('M','F')),

Bdate Date,

Address varchar(100),

Salary decimal(10,2) Default 0.00,

Ono int,

Year\_of\_experence int,

FOREIGN KEY (Ono) references Office(Onumber)

);

desc Employee;

**Result:**

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

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

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

| SSN | int | NO | PRI | NULL | auto\_increment |

| Ename | varchar(55) | NO | | NULL | |

| Gender | char(1) | YES | | NULL | |

| Bdate | date | YES | | NULL | |

| Address | varchar(100) | YES | | NULL | |

| Salary | decimal(10,2) | YES | | 0.00 | |

| Ono | int | YES | MUL | NULL | |

| Year\_of\_experence | int | YES | | NULL | |

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

8 rows in set (0.01 sec)

1. Office (Onumber, Oname, Country); where Oname should not be NULL. Country should be varchar.

Ans:

**Query:**

CREATE TABLE Office(

Onumber INT NOT NULL AUTO\_INCREMENT PRIMARY KEY,

Oname VARCHAR(55) NOT NULL,

Country varchar(50) );

desc Office;

**Result:**

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

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

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

| Onumber | int | NO | PRI | NULL | auto\_increment |

| Oname | varchar(55) | NO | | NULL | |

| Country | varchar(50) | YES | | NULL | |

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

1. Project (Pnumber, Pname, Plocation, Onumber); where Onumber is a foreign key referencing Office table. Create a constraint name fk\_pro for the foreign key. Pname should be unique and should not be null. Both Pname and Plocations should be of type varchar(40).

**Ans:**

**Query:**

create table Project(

Pnumber int auto\_increment primary key,

Pname varchar(40) not null unique,

Plocation varchar(40),

Onumber int,

CONSTRAINT fk\_pro FOREIGN KEY (Onumber) REFERENCES Office(Onumber)

);

Desc Project;

**Result:**

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

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

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

| Pnumber | int | NO | PRI | NULL | auto\_increment |

| Pname | varchar(40) | NO | UNI | NULL | |

| Plocation | varchar(40) | YES | | NULL | |

| Onumber | int | YES | MUL | NULL | |

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

4 rows in set (0.00 sec)

1. Works\_on( ESSN, Pno); where ESSN references Employee SSN and Pno references to Pnumber from Project . Set cascade on update and cascade on delete to both

**Ans:**

**Query:**

CREATE TABLE Works\_on

(

ESSN int,

Pno int,

foreign key(ESSN) references Employee(SSN) on update cascade on delete cascade,

foreign key(Pno) references Project(Pnumber) on update cascade on delete cascade

);

desc Works\_on;

**Reuslt:**

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

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

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

| ESSN | int | YES | MUL | NULL | |

| Pno | int | YES | MUL | NULL | |

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

2 rows in set (0.00 sec)

1. Dependents(Did, Dname, Dage, SSN); where SSN is Foreign key referencing the employee. Set NULL on delete and on update to the foreign key. Add constraint age\_constraint using CHECK(Dage<16).

Ans: create table Dependents

(

Did int auto\_increment primary key,

Dname varchar(50),

Dage int,

SSN int,

foreign key (SSN) references Employee(SSN) on update set null on delete set null,

constraint age\_constraint check (Dage<16)

);

desc Dependents;

Output:

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

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

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

| Did | int | NO | PRI | NULL | auto\_increment |

| Dname | varchar(50) | YES | | NULL | |

| Dage | int | YES | | NULL | |

| SSN | int | YES | MUL | NULL | |

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

4 rows in set (0.00 sec)

1. Alter table Dependent and add an attribute Drelation of type Char(50).

Ans:

**Query:**

alter table Dependents add column Drelation char(50);

**Result:**

**Before**:

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

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

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

| Did | int | NO | PRI | NULL | auto\_increment |

| Dname | varchar(50) | YES | | NULL | |

| Dage | int | YES | | NULL | |

| SSN | int | YES | MUL | NULL | |

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

4 rows in set (0.00 sec)

**After:**

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

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

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

| Did | int | NO | PRI | NULL | auto\_increment |

| Dname | varchar(50) | YES | | NULL | |

| Dage | int | YES | | NULL | |

| SSN | int | YES | MUL | NULL | |

| Drelation | char(50) | YES | | NULL | |

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

5 rows in set (0.00 sec)

1. Alter table Dependent and modify the attribute Drelation of type Char(50) to Varchar(50)

**Ans:**

**Query:**

alter table Dependents modify Drelation varchar(50);

**Result:**

**Before:**

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

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

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

| Did | int | NO | PRI | NULL | auto\_increment |

| Dname | varchar(50) | YES | | NULL | |

| Dage | int | YES | | NULL | |

| SSN | int | YES | MUL | NULL | |

| Drelation | char(50) | YES | | NULL | |

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

**After:**

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

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

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

| Did | int | NO | PRI | NULL | auto\_increment |

| Dname | varchar(50) | YES | | NULL | |

| Dage | int | YES | | NULL | |

| SSN | int | YES | MUL | NULL | |

| Drelation | varchar(50) | YES | | NULL | |

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

5 rows in set (0.00 sec)

1. Insert at least five tuples into the tables. (Illustrate insertion of single tuple and multiple tuples both). During insertion insert following as well.

There should be one record in the Employee table having Ename “Your name” i. e. Deric and SSN “Your roll number” e.g. 2.

**Ans:**

**Query:**

insert into Employee( SSN , Ename,Gender , Bdate,Address, Salary, Ono,Year\_of\_experence) values (38 , 'SuraJ', 'M' ,'2024-07-03', "lalitpur-2" , "30000" ,2,3 );

INSERT INTO Employee (SSN , Ename,Gender , Bdate,Address, Salary, Ono,Year\_of\_experence)

VALUES (39 , 'hari', 'M' ,'2024-08-03', "lamahi-2" , "40000" ,4,7 ),

(40, 'Ram', 'M' ,'2024-01-03', "ktm-2" , "20000" ,1,10 ),

(41, 'Sita', 'F' , '1990-05-02' , 'australia' , '10000' ,5 ,4),

(42, 'pratiksha', 'F' , '2061-05-07' , 'dang' , '100000' ,1 ,7);

**Result:**

mysql> select \*from Employee;

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

| SSN | Ename | Gender | Bdate | Address | Salary | Ono | Year\_of\_experence |

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

| 38 | SuraJ | M | 2024-07-03 | lalitpur-2 | 30000.00 | 2 | 3 |

| 39 | hari | M | 2024-08-03 | lamahi-2 | 40000.00 | 4 | 7 |

| 40 | Ram | M | 2024-01-03 | ktm-2 | 20000.00 | 1 | 10 |

| 41 | Sita | F | 1990-05-02 | australia | 10000.00 | 5 | 4 |

| 42 | pratiksha | F | 2061-05-07 | dang | 100000.00 | 1 | 7 |

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

5 rows in set (0.00 sec)

There should be one record in the Project table having Pname =“Your name\_ProjMDS” and Pnumber = 2\*Your Roll number.

**Ans:**

**Query:**

insert into Project(Pnumber,Pname,Plocation,Onumber) values(2\*38 ,'Suraj\_ProjMDS', 'lalitpur', 1 );

insert into Project(Pnumber, Pname, Plocation, Onumber) values

( 20 ,'Hari\_ProjMDS', 'bhaktapur', 2),

( 21 ,'Sita\_ProjMDS', 'australia', 3),

( 22 ,'pratiksha\_ProjMDS', 'bhaktapur', 4),

( 23 ,'Ram\_ProjMDS', 'ktm-2', 5);

**Result:**

mysql> select \*from project;

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

| Pnumber | Pname | Plocation | Onumber |

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

| 20 | Hari\_ProjMDS | bhaktapur | 2 |

| 21 | Sita\_ProjMDS | australia | 3 |

| 22 | pratiksha\_ProjMDS | bhaktapur | 4 |

| 23 | Ram\_ProjMDS | ktm-2 | 5 |

| 76 | Suraj\_ProjMDS | lalitpur | 1 |

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

5 rows in set (0.00 sec)

One of the tuple in Office table should have office name “Yourname\_Office\_Roll” i.e. Deric\_Office\_06. Similarly one of the tuple in employee should have salary 30000.

In addition, there should be one tuple in office table having office name Yourname\_Ncell\_Roll.

**Ans:**

**Query:**

insert into Office(Onumber ,Oname,Country) values(1, 'Suraj\_Office\_38' ,'USA');

insert into Office(Onumber ,Oname,Country) values( 2,'Suraj\_ncell\_38' ,'UK');

INSERT INTO Office (Onumber, Oname, Country)

VALUES (3, 'hari\_Office\_06' , 'Nepal'),

(4, 'Ram\_Ncell\_06', 'china'),

(5, 'Sita\_Ncell\_06', 'australia');

**Result:**

mysql> select \*from Office;

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

| Onumber | Oname | Country |

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

| 1 | Suraj\_Office\_38 | USA |

| 2 | Suraj\_ncell\_38 | UK |

| 3 | hari\_Office\_06 | Nepal |

| 4 | Ram\_Ncell\_06 | china |

| 5 | Sita\_Ncell\_06 | australia |

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

5 rows in set (0.00 sec)

In the dependents table insert the rows with Dname and Drelation having values from your family. For example, Deric has his elder brother and mother as his dependents. So the table will have records with values Dname=Denish and Drelation=Brother and Dname=Gayatri and Drelation=Mother. Take assumptions based on your family members while inserting the values.

**Ans:**

**Query:**

insert into Dependents ( Did, Dname , Dage , SSN , Drelation) values( 1, 'himesh' , 15, 38 , 'brother');

insert into Dependents ( Did, Dname , Dage , SSN , Drelation) values( 2, 'yam' , 15, 38 , 'mother');

insert into Dependents (Did , Dname ,Dage , SSN, Drelation) values

(3,'sima', 10, 39, 'sister'),

(4, 'krinjal', 5, 40 , 'brother'),

(5, 'basu' , 14, 41, 'cousin' );

**Result:**

mysql> select \*from Dependents;

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

| Did | Dname | Dage | SSN | Drelation |

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

| 1 | himesh | 15 | 38 | brother |

| 2 | yam | 15 | 38 | mother |

| 3 | sima | 10 | 39 | sister |

| 4 | krinjal | 5 | 40 | brother |

| 5 | basu | 14 | 41 | cousin |

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

5 rows in set (0.01 sec)

1. Update the name of office having office name “Yourname\_Ncell\_Roll” to “Yourname\_Ntc\_Roll”.

**Ans:**

**Query:**

update Office

Set Oname = 'Suraj\_ntc\_38'

where Onumber = 2;

**Result:**

**Before:**

mysql> select \* from Office;

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

| Onumber | Oname | Country |

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

| 1 | Suraj\_Office\_38 | USA |

| 2 | Suraj\_ncell\_38 | UK |

| 3 | hari\_Office\_06 | Nepal |

| 4 | Ram\_Ncell\_06 | china |

| 5 | Sita\_Ncell\_06 | australia |

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

5 rows in set (0.00 sec)

**After:**

mysql> select \* from Office;

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

| Onumber | Oname | Country |

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

| 1 | Suraj\_Office\_38 | USA |

| 2 | Suraj\_ntc\_38 | UK |

| 3 | hari\_Office\_06 | Nepal |

| 4 | Ram\_Ncell\_06 | china |

| 5 | Sita\_Ncell\_06 | australia |

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

5 rows in set (0.00 sec)

1. Delete those employee whose SSN is 1.

**Ans:**

**Query:**

Delete from Employee where SSN = 1;

**Result:**

**Before:**

mysql> select \* from Employee;

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

| SSN | Ename | Gender | Bdate | Address | Salary | Ono | Year\_of\_experence |

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

| 38 | SuraJ | M | 2024-07-03 | lalitpur-2 | 30000.00 | 2 | 3 |

| 39 | hari | M | 2024-08-03 | lamahi-2 | 40000.00 | 4 | 7 |

| 40 | Ram | M | 2024-01-03 | ktm-2 | 20000.00 | 1 | 10 |

| 41 | Sita | F | 1990-05-02 | australia | 10000.00 | 5 | 4 |

| 42 | pratiksha | F | 2061-05-07 | dang | 100000.00 | 1 | 7 |

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

5 rows in set (0.00 sec)

**After:**

mysql> select \* from Employee;

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

| SSN | Ename | Gender | Bdate | Address | Salary | Ono | Year\_of\_experence |

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

| 38 | SuraJ | M | 2024-07-03 | lalitpur-2 | 30000.00 | 2 | 3 |

| 39 | hari | M | 2024-08-03 | lamahi-2 | 40000.00 | 4 | 7 |

| 40 | Ram | M | 2024-01-03 | ktm-2 | 20000.00 | 1 | 10 |

| 41 | Sita | F | 1990-05-02 | australia | 10000.00 | 5 | 4 |

| 42 | pratiksha | F | 2061-05-07 | dang | 100000.00 | 1 | 7 |

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

5 rows in set (0.00 sec)

1. Alter table Project to rename the attribute in Plcoation to Proj\_location

**Ans:**

alter table Project

change column Plocation Proj\_location varchar(40);

**output:**

mysql> select \*from project;

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

| Pnumber | Pname | Proj\_location | Onumber |

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

| 20 | Hari\_ProjMDS | bhaktapur | 2 |

| 21 | Sita\_ProjMDS | australia | 3 |

| 22 | pratiksha\_ProjMDS | bhaktapur | 4 |

| 23 | Ram\_ProjMDS | ktm-2 | 5 |

| 76 | Suraj\_ProjMDS | lalitpur | 1 |

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

**5 rows in set (0.01 sec)**

1. Select tuples from all of the tables individually.

mysql> select \*from Employee;

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

| SSN | Ename | Gender | Bdate | Address | Salary | Ono | Year\_of\_experence |

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

| 38 | SuraJ | M | 2024-07-03 | lalitpur-2 | 30000.00 | 2 | 3 |

| 39 | hari | M | 2024-08-03 | lamahi-2 | 40000.00 | 4 | 7 |

| 40 | Ram | M | 2024-01-03 | ktm-2 | 20000.00 | 1 | 10 |

| 41 | Sita | F | 1990-05-02 | australia | 10000.00 | 5 | 4 |

| 42 | pratiksha | F | 2061-05-07 | dang | 100000.00 | 1 | 7 |

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

5 rows in set (0.00 sec)

mysql> select \*from Office;

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

| Onumber | Oname | Country |

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

| 1 | Suraj\_Office\_38 | USA |

| 2 | Suraj\_ntc\_38 | UK |

| 3 | hari\_Office\_06 | Nepal |

| 4 | Ram\_Ncell\_06 | china |

| 5 | Sita\_Ncell\_06 | australia |

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

5 rows in set (0.00 sec)

mysql> select \* from Project;

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

| Pnumber | Pname | Proj\_location | Onumber |

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

| 20 | Hari\_ProjMDS | bhaktapur | 2 |

| 21 | Sita\_ProjMDS | australia | 3 |

| 22 | pratiksha\_ProjMDS | bhaktapur | 4 |

| 23 | Ram\_ProjMDS | ktm-2 | 5 |

| 76 | Suraj\_ProjMDS | lalitpur | 1 |

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

5 rows in set (0.00 sec)

mysql> select \*from Dependents;

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

| Did | Dname | Dage | SSN | Drelation |

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

| 1 | himesh | 15 | 38 | brother |

| 2 | yam | 15 | 38 | mother |

| 3 | sima | 10 | 39 | sister |

| 4 | krinjal | 5 | 40 | brother |

| 5 | basu | 14 | 41 | cousin |

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

5 rows in set (0.00 sec)

mysql> select \*from Works\_on;

Empty set (0.01 sec)

1. Drop the table Works\_on. Make sure to export your database before you drop it so that you can recover.

Ans:

**Query:**

Drop table Works\_on;

**Output:**

mysql> Drop table Works\_on;

Query OK, 0 rows affected (0.04 sec)

mysql> desc works\_on;

ERROR 1146 (42S02): Table 'suraj\_38\_company.works\_on' doesn't exist

1. Drop the constraint age\_constraint from dependent table

**Ans:**

**Query:** alter table Dependents

drop constraint age\_constraint

**Result:**

**Before:**

mysql> select \*from Dependents;

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

| Did | Dname | Dage | SSN | Drelation |

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

| 1 | himesh | 15 | 38 | brother |

| 2 | yam | 15 | 38 | mother |

| 3 | sima | 10 | 39 | sister |

| 4 | krinjal | 5 | 40 | brother |

| 5 | basu | 14 | 41 | cousin |

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

5 rows in set (0.00 sec)

**After:**

mysql> alter table Dependents drop constraint age\_constraint;

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table Dependents drop constraint age\_constraint;

ERROR 3940 (HY000): Constraint 'age\_constraint' does not exist.

1. Drop the database COMPANY. Make sure to export your database before you drop it so that you can recover.

**Ans:**

**Query:**

Drop Suraj\_38\_company

**Result:**

mysql> drop database Suraj\_38\_Company;

Query OK, 0 rows affected (0.06 sec)

mysql> show databases;

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

| Database |

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

| classicmodels |

| information\_schema |

| mysql |

| performance\_schema |

| shopping |

| sys |

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

6 rows in set (0.01 sec)