1. Create following tables using given schema and insert appropriate data into these tables.
Student(StudID, Name, Address, Marks)
Employee(EmplyeeID, Name, Address, Salary, DateOfJoining ,Department)
Weather(CityID, CityName, MinTemp, MaxTemp)

```
mysql> SElect * From Student;
+--------+-----------+---------+-------+
| StudID | Name      | Address | Marks |
+--------+-----------+---------+-------+
|   101 | Arjun     | Pune    |   495 |
|   102 | Udhishtir | Pune    |   445 |
|   103 | Bheem     | Mumbai  |   400 |
|   104 | Nakul     | Goa     |   350 |
|   105 | Sahadev   | Nagpur  |   390 |
|   106 | Karan     | Kokan   |   499 |
+--------+-----------+---------+-------+
mysql> Select * From Weather;
+--------+----------+---------+---------+
| CityID | CityName | MinTemp | MaxTemp |
+--------+----------+---------+---------+
| 411001 | Pune     |      30 |      50 |
| 411010 | Mumbai   |      35 |      45 |
| 411020 | Jaipur   |      20 |      50 |
| 411000 | Surat    |      25 |      50 |
| 411110 | Kokan    |      25 |      30 |
| 422110 | Rajkot   |      15 |      30 |
| 420010 | Nasik    |      20 |      40 |
+--------+----------+---------+---------+


mysql> Select * From Employee;
+------------+----------+----------+--------+-----------------+------------+
| EmploueeID | Emp_Name | Address  | Salary | Date_Of_Joining | Department |
+------------+----------+----------+--------+-----------------+------------+
|      111 | Sachin   | Rajkot   |  50000 | 2023-01-10      | Developer  |
|      222 | Virendra | Patan    |  45000 | 2023-02-15      | Tester     |
|      333 | Virat    | Surat    |  48000 | 2023-05-15      | Developer  |
|      444 | Suresh   | Ahmdabad |  40000 | 2023-04-20      | HR         |
|      555 | Mahinder | Surat    |  55000 | 2023-02-01      | HR         |
|      666 | Ravindra | Badoda0  |  40000 | 2023-04-23      | Tester     |
+------------+----------+----------+--------+-----------------+------------+
6 rows in set (0.00 sec)
```

2. Alter Student and Employee table to add Not Null constraint on all columns.

```
mysql> ALTER TABLE Student CHANGE StudID StudID int NOT NULL;
mysql> ALTER TABLE Student CHANGE Name Name varchar(15) NOT NULL;
mysql> ALTER TABLE Student CHANGE Address Address varchar(15) NOT NULL;
mysql> ALTER TABLE Student CHANGE Address Address varchar(15) NOT NULL;
mysql> Describe Student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| StudID  | int         | NO   |     | NULL    |       |
| Name    | varchar(15) | NO   |     | NULL    |       |
```

| Address | varchar(15) | NO | | NULL | |
| Marks | int | NO | | NULL | |
+---------+-------------+------+-----+---------+-------+

mysql> ALTER TABLE Employee CHANGE EmployeeID Employee_ID int NOT NULL,CHANGE Emp_Name Emp_Name varchar(20) NOT NULL,CHANGE Address Address varchar(20) NOT NULL,CHANGE Salary Salary double NOT NULL,CHANGE Date_Of_Joining Date_Of_Joining Date NOT NULL,CHANGE Department Department varchar(20) NOT NULL;

mysql> Describe Employee;

+-----------------+-------------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
Employee_ID	int	NO		NULL	
Emp_Name	varchar(20)	NO		NULL	
Address	varchar(20)	NO		NULL	
Salary	double	NO		NULL	
Date_Of_Joining	date	NO		NULL	
Department	varchar(20)	NO		NULL	
+-----------------+-------------+------+-----+---------+-------+

3. Alter the Student table to add Primary key constraint on StudID column.

mysql> Alter Table Student Add Primary Key (StudID);

mysql> Describe Student;

+---------+-------------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
StudID	int	NO	PRI	NULL	
Name	varchar(15)	NO		NULL	
Address	varchar(15)	NO		NULL	
Marks	int	NO		NULL	
+---------+-------------+------+-----+---------+-------+

4. Create a view Joining Info on Employee table displaying Employee ID, Name and

DateOfJoining of employees.

mysql> Create View View1 AS Select Employee_Id,Emp_Name,Date_Of_Joining From Employee;

mysql> Select * From View1;

+-------------+----------+-----------------+
| Employee_Id | Emp_Name | Date_Of_Joining |
+-------------+----------+-----------------+
111	Sachin	2023-01-10
222	Virendra	2023-02-15
333	Virat	2023-05-15
444	Suresh	2023-04-20
555	Mahinder	2023-02-01
666	Ravindra	2023-04-23
+-------------+----------+-----------------+

5. Crete index on primary key columns of all the tables.

```
mysql> Create Index Index1 On Employee(Employee_ID);

mysql> Create Index Index1 ON Student(StudID);

mysql> Create Index Index1 ON Student(StudID);
```

6. Crate view MarksInfo on Student table displaying StuID and Marks.

```
mysql> Create View MarksInfo AS Select StudID,Marks From Student;

mysql> Select * From MarksInfo;
+--------+-------+
| StudID | Marks |
+--------+-------+
|   101 |   495 |
|   102 |   445 |
|   103 |   400 |
|   104 |   350 |
|   105 |   390 |
|   106 |   499 |
+--------+-------+
```

7. Change the name of Weather table to WeatherData.

```
mysql> Alter Table Weather RENAME WeatherData;

Query OK, 0 rows affected (0.42 sec)
```

8. Drop column CityName from WeatherData table.

```
mysql> Alter Table WeatherData DROP COLUMN CityName;

mysql> select * from WeatherData;
+--------+---------+---------+
| CityID | MinTemp | MaxTemp |
+--------+---------+---------+
| 411000 |     25 |     50 |
| 411001 |     30 |     50 |
| 411010 |     35 |     45 |
| 411020 |     20 |     50 |
| 411110 |     25 |     30 |
| 420010 |     20 |     40 |
| 422110 |     15 |     30 |
+--------+---------+---------+
```

9. Add column Grade to Student table.

```
mysql> Alter Table Student ADD COLUMN Grade varchar(2);

mysql> Describe Student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
```

```
+---------+-------------+------+-----+---------+-------+
| StudID  | int         | NO   | PRI | NULL    |       |
| Name    | varchar(15) | NO   |     | NULL    |       |
| Address | varchar(15) | NO   |     | NULL    |       |
| Marks   | int         | NO   |     | NULL    |       |
| Grade   | varchar(2)  | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
```

10. Crate a view “DistinctionStudents” on student table displaying data of students

having Distinction as Grade.

```
mysql> CReate VIEW DistinctionStudents AS SELECT * FROM Student WHERE Grade='Distinction';

mysql> Select * FROM DistinctionStudents;
+--------+-----------+---------+-------+-------------+
| StudID | Name      | Address | Marks | Grade       |
+--------+-----------+---------+-------+-------------+
|   101 | Arjun     | Pune    |   495 | Distinction |
|   102 | Udhishtir | Pune    |   445 | Distinction |
|   103 | Bheem     | Mumbai  |   400 | Distinction |
|   106 | Karan     | Kokan   |   499 | Distinction |
+--------+-----------+---------+-------+-------------+
```

11. Create a sequence on StudID in student table.

```
mysql> Alter Table Student CHANGE StudID StudID int AUTO_INCREMENT;

mysql> Describe Student;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| StudID  | int         | NO   | PRI | NULL    | auto_increment |
| Name    | varchar(15) | NO   |     | NULL    |                |
| Address | varchar(15) | NO   |     | NULL    |                |
| Marks   | int         | NO   |     | NULL    |                |
| Grade   | varchar(15) | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
```

12. Create a synonym ‘Emp_Info’ for Employee table.

Question 2:
Create following tables using given schema and insert appropriate data into these tables.
Places(cid, city, state, season, type)
Customer (cust_id, c_name, phno, emailid, interest)
Booking(Bid, cust_id, cid, pkgfee, noofpkg, fdate, todate)

1.) Create places table with column level primary key constraint.

```
mysql> Create Table Places(cid int,city varchar(20),state varchar(20),season varchar(20),typr varchar(20));
mysql> Describe Places;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
```

```
| cid    | int         | NO   | PRI | NULL    |       |
| city   | varchar(20) | YES  |     | NULL    |       |
| state  | varchar(20) | YES  |     | NULL    |       |
| season | varchar(20) | YES  |     | NULL    |       |
| typr   | varchar(20) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
```

2.) Create customer table with table level constraints of primary key.

```
mysql> Create Table Customer1(cust_id int,c_name varchar(20),phno int,emilid varchar(20),interest
varchar(20));
mysql> Describe Customer1;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| cust_id  | int         | NO   | PRI | NULL    |       |
| c_name   | varchar(20) | YES  |     | NULL    |       |
| phno     | int         | YES  |     | NULL    |       |
| emilid   | varchar(20) | YES  |     | NULL    |       |
| interest | varchar(20) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

3.) Create booking table with table level foreign key constaint and later on, add primary key and aforeign key constraint.

```
mysql> Create Table Booking(Bid int Primary Key NOT NULL,cust_id int,foreign key (cust_id) References
Customer1(cust_id),cid int,foreign key (
cid) References Places(cid),pkgfee int,noofpkg int,fdate Date,todate Date);
mysql> Describe Booking;
+---------+------+------+-----+---------+-------+
| Field   | Type | Null | Key | Default | Extra |
+---------+------+------+-----+---------+-------+
| Bid     | int  | NO   | PRI | NULL    |       |
| cust_id | int  | YES  | MUL | NULL    |       |
| cid     | int  | YES  | MUL | NULL    |       |
| pkgfee  | int  | YES  |     | NULL    |       |
| noofpkg | int  | YES  |     | NULL    |       |
| fdate   | date | YES  |     | NULL    |       |
| todate  | date | YES  |     | NULL    |       |
+---------+------+------+-----+---------+-------+
```

4.) For above tables add some records.

```
mysql> INSERT INTO Places VALUES(101,'Pune','Maharashtra','Monsoon','Adventure');
mysql> INSERT INTO Places VALUES(102,'Mumbai','Maharashtra','Monsoon','Cultural');
mysql> INSERT INTO Places VALUES(103,'Jaipure','Rajasthan','Summer','Cultural');
mysql> INSERT INTO Places VALUES(104,'Patna','Uttar Pradesh','Summer','Cultural');
mysql> INSERT INTO Places VALUES(105,'Rajkot','Gujrat','Winter','Adventure');
+-----+---------+---------------+------
| cid | city    | state         | season  | typr      |
+-----+---------+---------------+---------+-----------+
| 101 | Pune    | Maharashtra   | Monsoon | Adventure |
| 102 | Mumbai  | Maharashtra   | Monsoon | Cultural  |
| 103 | Jaipure | Rajasthan     | Summer  | Cultural  |
```

```
| 104 | Patna   | Uttar Pradesh | Summer  | Cultural  |
| 105 | Rajkot  | Gujrat        | Winter  | Adventure |
+-----+---------+---------------+---------+-----------+
```

```
mysql> INSERT INTO Customer1 VALUES(111,'Ram&apos',9875643211,'ram@gmail.com','Sports');

mysql> INSERT INTO Customer1 VALUES(222,'Sham';,9870043211,'sham@gmail.com','Music');

mysql> INSERT INTO Customer1 VALUES(333,'Veer',9812643211,'Veer@gmail.com','Sports');

mysql> INSERT INTO Customer1
VALUES(444,'Rita',8870043211,'rita@gmail.com','Music&apos');

mysql> INSERT INTO Customer1 VALUES(555,'Shiv',9970043211,'shiv@gmail.com','Art');

mysql> Select * From Customer1;
+---------+--------+------------+----------------+----------+
| cust_id | c_name | phno       | emilid         | interest |
+---------+--------+------------+----------------+----------+
|     111 | Ram    | 9875643211 | ram@gmail.com  | Sports   |
|     222 | Sham   | 9870043211 | sham@gmail.com | Music    |
|     333 | Veer   | 9812643211 | Veer@gmail.com | Sports   |
|     444 | Rita   | 8870043211 | rita@gmail.com | Music    |
|     555 | Shiv   | 9970043211 | shiv@gmail.com | Art      |
+---------+--------+------------+----------------+----------+

mysql> INSERT INTO Booking VALUES(001,111,101,20000,2,'2022-10-01','2022-10-30');

mysql> INSERT INTO Booking VALUES(002,222,102,25000,3,'2023-02-01','2023-02-28');

mysql> INSERT INTO Booking VALUES(003,333,103,35000,5,'2023-04-01','2023-04-30');

mysql> INSERT INTO Booking VALUES(004,444,104,30000,4,'2023-05-01','2023-05-30');

mysql> INSERT INTO Booking VALUES(005,555,105,15000,1,'2023-06-01','2023-06-30');

mysql> Select * From Booking;
+-----+---------+------+--------+---------+------------+------------+
| Bid | cust_id | cid  | pkgfee | noofpkg | fdate      | todate     |
+-----+---------+------+--------+---------+------------+------------+
|   1 |     111 |  101 |  20000 |       2 | 2022-10-01 | 2022-10-30 |
|   2 |     222 |  102 |  25000 |       3 | 2023-02-01 | 2023-02-28 |
|   3 |     333 |  103 |  35000 |       5 | 2023-04-01 | 2023-04-30 |
|   4 |     444 |  104 |  30000 |       4 | 2023-05-01 | 2023-05-30 |
|   5 |     555 |  105 |  15000 |       1 | 2023-06-01 | 2023-06-30 |
+-----+---------+------+--------+---------+------------+------------+
```

5.) Create a view cityview. cityview having place id ,city and type from places table.

```
mysql> Create VIEW cityview AS Select cid,city,type FROM Places;
```

```
mysql> Select * From cityview;
+-----+---------+-----------+
| cid | city    | type      |
+-----+---------+-----------+
| 101 | Pune    | Adventure |
| 102 | Mumbai  | Cultural  |
| 103 | Jaipure | Cultural  |
| 104 | Patna   | Cultural  |
| 105 | Rajkot  | Adventure |
+-----+---------+-----------+
```

6.) Create a view which will display customer name and name of cities of their interest.

```
mysql> Create VIEW view1 AS Select c_name,city,interest FROM Customer1 JOIN Booking ON
Customer1.cust_id=Booking.cust_id JOIN Places ON Booking.cid=Places.cid;

mysql> Select * From view1;
+--------+---------+----------+
| c_name | city    | interest |
+--------+---------+----------+
| Ram    | Pune    | Sports   |
| Sham   | Mumbai  | Music    |
| Veer   | Jaipure | Sports   |
| Rita   | Patna   | Music    |
| Shiv   | Rajkot  | Art      |
+--------+---------+----------+
```

7.) Create a view which will display customer name, city that he has booked along with fees he haspaid.

```
mysql> Create VIEW view2 AS Select c_name,city,pkgfee FROM Customer1 JOIN Booking ON
Customer1.cust_id=Booking.cust_id JOIN Places ON Booking.
cid=Places.cid;
Query OK, 0 rows affected (0.14 sec)

mysql> Select * From view2;
+--------+---------+--------+
| c_name | city    | pkgfee |
+--------+---------+--------+
| Ram    | Pune    |  20000 |
| Sham   | Mumbai  |  25000 |
| Veer   | Jaipure |  35000 |
| Rita   | Patna   |  30000 |
| Shiv   | Rajkot  |  15000 |
+--------+---------+--------+
```

8.) Add a record in places using city view.

```
mysql> Create VIEW city AS Select * From Places;
mysql> Insert INTO city Values(106,'Pune','Maharashtra','Summer','Trip');
mysql> Select * From city;
+-----+---------+--------------+---------+-----------+
| cid | city    | state        | season  | typr      |
```

```
+-----+---------+---------------+---------+-----------+
| 101 | Pune    | Maharashtra   | Monsoon | Adventure |
| 102 | Mumbai  | Maharashtra   | Monsoon | Cultural  |
| 103 | Jaipure | Rajasthan     | Summer  | Cultural  |
| 104 | Patna   | Uttar Pradesh | Summer  | Cultural  |
| 105 | Rajkot  | Gujrat        | Winter  | Adventure |
| 106 | Pune    | Maharashtra   | Summer  | Trip      |
+-----+---------+---------------+---------+-----------+
```

9.) Change type of particular city in places table using cityview.

```
mysql> Update cityview SET city='Lonavala' WHERE city='Pune';
mysql> Select * From Places;
+-----+----------+---------------+---------+-----------+
| cid | city     | state         | season  | typr      |
+-----+----------+---------------+---------+-----------+
| 101 | Lonavala | Maharashtra   | Monsoon | Adventure |
| 102 | Mumbai   | Maharashtra   | Monsoon | Cultural  |
| 103 | Jaipure  | Rajasthan     | Summer  | Cultural  |
| 104 | Patna    | Uttar Pradesh | Summer  | Cultural  |
| 105 | Rajkot   | Gujrat        | Winter  | Adventure |
| 106 | Lonavala | Maharashtra   | Summer  | Trip      |
+-----+----------+---------------+---------+-----------+
```

10.) Delete all cities information who belong to type "holy" using cityview.

Ans."NOT POSSIBLR"

11.) Create an index on city name of place table.

```
mysql> Create Index Index1 On Places(city);
Query OK, 0 rows affected (2.21 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

12.) Create an index on interest field on customer table using alter command.

```
mysql> Create Index Index2 On Customer1(interest);
Query OK, 0 rows affected (1.18 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

13.) Display all indexes on a particular table.

```
mysql> Show INdexes From Customer1;
+-----------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
| Table     | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+
| Customer1 |          0 | PRIMARY  |            1 | cust_id     | A         |           4 |     NULL |   NULL |      | BTREE      |         |               | YES     | NULL       |
| Customer1 |          1 | Index2   |            1 | interest    | A         |           3 |     NULL |   NULL | YES  | BTREE      |         |               | YES     | NULL       |
+-----------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+
2 rows in set (0.34 sec)
```

14.) Remove primary key constraint from customer table.

```
mysql> Alter Table Customer1 DROP PRIMARY KEY ;
ERROR 1553 (HY000): Cannot drop index 'PRIMARY': needed in a foreign key constraint
```

15.) Remove foreign key constaint on city id from booking table.
Ans>”NOT POSSIBLE”

16.) Remove index on interest.
mysql> DROP INDEX Index2 ON Customer1;
Query OK, 0 rows affected (0.42 sec)
Records: 0 Duplicates: 0 Warnings: 0

17.) Remove all records of customer permanentl
mysql> DELETE FROM Customer1;