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Lab Exercise 2:

1. Write a SQL statement to insert a record with your own value into the table countries against each columns.

Here in the following is the structure of the table countries.

```
+--------------+---------------+------+-----+---------+-------+
| Field        | Type          | Null | Key | Default | Extra |
+--------------+---------------+------+-----+---------+-------+
| COUNTRY_ID   | varchar(2)    | YES  |     | NULL    |       |
| COUNTRY_NAME | varchar(40)   | YES  |     | NULL    |       |
| REGION_ID    | decimal(10,0) | YES  |     | NULL    |       |
+--------------+---------------+------+-----+---------+-------+
```

```
mysql> INSERT INTO countries VALUES('C1','India',1001);
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM countries;
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
| C1         | India        |      1001 |
+------------+--------------+-----------+
1 row in set (0.00 sec)
```

2. Write a SQL statement to insert one row into the table countries against the column country_id and country_name.

Here in the following is the structure of the table countries.

```
+--------------+---------------+------+-----+---------+-------+
| Field        | Type          | Null | Key | Default | Extra |
+--------------+---------------+------+-----+---------+-------+
| COUNTRY_ID   | varchar(2)    | YES  |     | NULL    |       |
| COUNTRY_NAME | varchar(40)   | YES  |     | NULL    |       |
| REGION_ID    | decimal(10,0) | YES  |     | NULL    |       |
+--------------+---------------+------+-----+---------+-------+
```

```
mysql> CREATE TABLE countries3 ( COUNTRY_ID varchar(2) NOT NULL UNIQUE PRIMARY KEY,COUNTRY_NAME varchar(40) NOT NULL);
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO countries3 (country_id,country_name) VALUES('C2','US');
Query OK, 1 row affected (0.01 sec)

mysql> select * from countries3;
+------------+--------------+
| COUNTRY_ID | COUNTRY_NAME |
+------------+--------------+
| C2         | US           |
+------------+--------------+
1 row in set (0.00 sec)
```

3. Write a SQL statement to create duplicate of countries table named country_new with all structure and data.

Here in the following is the structure of the table countries.

```
+--------------+---------------+------+-----+---------+-------+
| Field        | Type          | Null | Key | Default | Extra |
+--------------+---------------+------+-----+---------+-------+
| COUNTRY_ID   | varchar(2)    | YES  |     | NULL    |       |
| COUNTRY_NAME | varchar(40)   | YES  |     | NULL    |       |
| REGION_ID    | decimal(10,0) | YES  |     | NULL    |       |
+--------------+---------------+------+-----+---------+-------+
```

```
mysql> CREATE TABLE country_new AS SELECT * FROM countries;
Query OK, 1 row affected (0.02 sec)
Records: 1  Duplicates: 0  Warnings: 0

mysql> select * from country_new;
+------------+--------------+------------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+------------+
| C1         | India        |      1001 |
+------------+--------------+------------+
1 row in set (0.00 sec)
```

4. Write a SQL statement to insert NULL values against region_id column for a row of countries table.

```
mysql> CREATE TABLE countries4 ( COUNTRY_ID varchar(2) NOT NULL UNIQUE PRIMARY KEY,COUNTRY_NAME varchar(40) NOT NULL, region_id decimal (10,2));
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO countries4 (country_id,country_name) VALUES('C1','INDIA',NULL);
ERROR 1136 (21S01): Column count doesn't match value count at row 1
mysql> INSERT INTO countries4 VALUES('C1','INDIA',NULL);
Query OK, 1 row affected (0.00 sec)

mysql> select * from countries4;
+------------+--------------+------------+
| COUNTRY_ID | COUNTRY_NAME | region_id |
+------------+--------------+------------+
| C1         | INDIA        |     NULL |
+------------+--------------+------------+
1 row in set (0.00 sec)
```

5. Write a SQL statement to insert 3 rows by a single insert statement.

```
mysql> CREATE TABLE countries5 ( COUNTRY_ID varchar(5) NOT NULL,COUNTRY_NAME varchar(40) NOT NULL,REGION_ID integer NOT NULL,PRIMARY KEY (COUNTRY_ID,REGION_ID));
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO countries5 VALUES('C0001','India',1001),('C0002','USA',1007),('C0003','UK',1003);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from countries5;
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
| C0001      | India        |      1001 |
| C0002      | USA          |      1007 |
| C0003      | UK           |      1003 |
+------------+--------------+-----------+
3 rows in set (0.00 sec)
```

6. Write a SQL statement insert rows from country_new table to countries table.

```
mysql> CREATE TABLE countries6(COUNTRY_ID varchar(5),COUNTRY_NAME varchar(40),REGION_ID decimal(10,0));
Query OK, 0 rows affected (0.02 sec)

mysql> insert into countries6 select * from country_new;
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from countries6;
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
| C1         | India        |      1001 |
| C2         | USA          |      1007 |
| C3         | UK           |      1003 |
+------------+--------------+-----------+
3 rows in set (0.00 sec)
```

Here is the rows for country_new table. Assume that, the countries table is empty.

```
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
| C0001      | India        |      1001 |
| C0002      | USA          |      1007 |
| C0003      | UK           |      1003 |
+------------+--------------+-----------+
```

7. Write a SQL statement to insert one row in jobs table to ensure that no duplicate value will be entered in the job_id column.

```
mysql> insert into jobs values(1001,'OFFICER',8000,9000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into jobs values(1001,'OFFICER',8000,9000);
ERROR 1062 (23000): Duplicate entry '1001' for key 'jobs.PRIMARY'
mysql>
```

8. Write a SQL statement to insert one row in jobs table to ensure that no duplicate value will be entered in the job_id column.

```
mysql> insert into jobs values(1001,'OFFICER',8000,9000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into jobs values(1001,'OFFICER',8000,9000);
ERROR 1062 (23000): Duplicate entry '1001' for key 'jobs.PRIMARY'
mysql>
```

9. Write a SQL statement to insert a record into the table countries to ensure that, a country_id and region_id combination will be entered once in the table.

```
mysql> INSERT INTO countries2 VALUES(50,'Italy',18);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO countries2 VALUES(50,'Italy',18);
ERROR 1062 (23000): Duplicate entry '50-18' for key 'countries2.country_id'
mysql>
```

10. Write a SQL statement to insert rows into the table countries in which the value of country_id column will be unique and auto incremented.

```
mysql> CREATE TABLE countries8(COUNTRY_ID int primary key auto_increment,COUNTRY_NAME varchar(40),REGION_ID decimal(10,0));
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO countries8(COUNTRY_NAME,REGION_ID) VALUES('India',185);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO countries8(COUNTRY_NAME,REGION_ID) VALUES('Japan',102);
Query OK, 1 row affected (0.02 sec)

mysql> select * from countries8;
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
|          1 | India        |       185 |
|          2 | Japan        |       102 |
+------------+--------------+-----------+
2 rows in set (0.00 sec)
```

11. Write a SQL statement to insert records into the table countries to ensure that the country_id column will not contain any duplicate data and this will be automatically incremented and the column country_name will be filled up by 'N/A' if no value assigned for that column.

```
mysql> CREATE TABLE countries8 (COUNTRY_ID integer NOT NULL AUTO_INCREMENT PRIMARY KEY, COUNTRY_NAME varchar(40) NOT NULL DEFAULT 'N/A', REGION_ID integer NOT NULL);
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO countries8 VALUES(501,'India',102);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO countries8(region_id) VALUES(109);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO countries8(country_name,region_id) VALUES('Australia',121);
Query OK, 1 row affected (0.00 sec)

mysql> select * from countries8;
+------------+--------------+-----------+
| COUNTRY_ID | COUNTRY_NAME | REGION_ID |
+------------+--------------+-----------+
|        501 | India        |       102 |
|        502 | N/A          |       109 |
|        503 | Australia    |       121 |
+------------+--------------+-----------+
3 rows in set (0.00 sec)
```

12. Write a SQL statement to insert rows in the job_history table in which one column job_id is containing those values which are exists in job_id column of jobs table.

```
mysql> CREATE TABLE jobs4 ( JOB_ID integer NOT NULL UNIQUE PRIMARY KEY, JOB_TITLE varchar(35) NOT NULL DEFAULT ' ',
 MIN_SALARY decimal(6,0) DEFAULT 8000, MAX_SALARY decimal(6,0) DEFAULT 20000);
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO jobs4(JOB_ID,JOB_TITLE) VALUES((1001,'OFFICER'),(1002,'CLERK'));
ERROR 1241 (21000): Operand should contain 1 column(s)
mysql> INSERT INTO jobs4(JOB_ID,JOB_TITLE) VALUES(1001,'OFFICER');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO jobs4(JOB_ID,JOB_TITLE) VALUES(1002,'CLERK');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> CREATE TABLE job_history4 (EMPLOYEE_ID integer NOT NULL PRIMARY KEY, JOB_ID integer NOT NULL, DEPARTMENT_ID
integer DEFAULT NULL, FOREIGN KEY (job_id) REFERENCES jobs4(job_id));
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO job_history4 VALUES(501,1001,60);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM job_history4;
+-------------+--------+---------------+
| EMPLOYEE_ID | JOB_ID | DEPARTMENT_ID |
+-------------+--------+---------------+
|         501 |   1001 |            60 |
+-------------+--------+---------------+
1 row in set (0.00 sec)

mysql> INSERT INTO job_history4 VALUES(502,1003,80);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`day2`.`job_history4`, CONSTR
AINT `job_history4_ibfk_1` FOREIGN KEY (`JOB_ID`) REFERENCES `jobs4` (`JOB_ID`))
mysql>
```

13. Write a SQL statement to insert rows into the table employees in which a set of columns department_id and manager_id contains a unique value and that combined values must have exists into the table departments.

```
mysql> CREATE TABLE departments ( DEPARTMENT_ID integer NOT NULL UNIQUE, DEPARTMENT_NAME varchar(30) NOT NULL, MANA
GER_ID integer , LOCATION_ID integer DEFAULT NULL, PRIMARY KEY (DEPARTMENT_ID,MANAGER_ID) );
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO departments VALUES(60,'SALES',201,89);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO departments VALUES(61,'ACCOUNTS',201,89);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO departments VALUES(80,'FINANCE',211,90);
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM departments;
+---------------+-----------------+------------+-------------+
| DEPARTMENT_ID | DEPARTMENT_NAME | MANAGER_ID | LOCATION_ID |
+---------------+-----------------+------------+-------------+
|            60 | SALES           |        201 |          89 |
|            61 | ACCOUNTS        |        201 |          89 |
|            80 | FINANCE         |        211 |          90 |
+---------------+-----------------+------------+-------------+
3 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE employees3 ( EMPLOYEE_ID integer NOT NULL PRIMARY KEY, FIRST_NAME varchar(20) DEFAULT NULL, LAS
T_NAME varchar(25) NOT NULL, JOB_ID varchar(10) NOT NULL, SALARY decimal(8,2) DEFAULT NULL, MANAGER_ID integer NOT
NULL, DEPARTMENT_ID integer NOT NULL, FOREIGN KEY(DEPARTMENT_ID,MANAGER_ID) REFERENCES  departments(DEPARTMENT_ID,M
ANAGER_ID));
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO employees3 VALUES(510,'Alex','Hanes','CLERK',18000,201,60);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO employees3 VALUES(511,'Kim','Leon','CLERK',18000,211,80);
Query OK, 1 row affected (0.00 sec)

mysql>  SELECT * FROM employees3;
+-------------+------------+-----------+--------+----------+------------+---------------+
| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | JOB_ID | SALARY   | MANAGER_ID | DEPARTMENT_ID |
+-------------+------------+-----------+--------+----------+------------+---------------+
|         510 | Alex       | Hanes     | CLERK  | 18000.00 |        201 |            60 |
|         511 | Kim        | Leon      | CLERK  | 18000.00 |        211 |            80 |
+-------------+------------+-----------+--------+----------+------------+---------------+
2 rows in set (0.00 sec)
```

14. Write a SQL statement to insert rows into the table employees in which a set of columns department_id and job_id contains the values which must have exists into the table departments and jobs.

```
CREATE TABLE IF NOT EXISTS departments ( DEPARTMENT_ID integer NOT NULL
UNIQUE, DEPARTMENT_NAME varchar(30) NOT NULL, MANAGER_ID integer DEFAULT
NULL, LOCATION_ID integer DEFAULT NULL, PRIMARY KEY (DEPARTMENT_ID) );
INSERT INTO departments VALUES(60,'SALES',201,89);
INSERT INTO departments VALUES(61,'ACCOUNTS',201,89);
SELECT * FROM departments;
```

```
CREATE TABLE jobs (
JOB_ID integer NOT NULL UNIQUE PRIMARY KEY,
JOB_TITLE varchar(35) NOT NULL DEFAULT ' ',
MIN_SALARY decimal(6,0) DEFAULT 8000,
MAX_SALARY decimal(6,0) DEFAULT 20000
);
INSERT INTO jobs(JOB_ID,JOB_TITLE) VALUES(1001,'OFFICER');
INSERT INTO jobs(JOB_ID,JOB_TITLE) VALUES(1002,'CLERK');

CREATE TABLE IF NOT EXISTS employees ( EMPLOYEE_ID integer NOT NULL PRIMARY
KEY, FIRST_NAME varchar(20) DEFAULT NULL,
LAST_NAME varchar(25) NOT NULL, DEPARTMENT_ID integer DEFAULT NULL, FOREIGN
KEY(DEPARTMENT_ID)
REFERENCES  departments(DEPARTMENT_ID),JOB_ID integer NOT NULL, FOREIGN
KEY(JOB_ID) REFERENCES  jobs(JOB_ID),
SALARY decimal(8,2) DEFAULT NULL);

INSERT INTO employees VALUES(510,'Alex','Hanes',60,1001,18000);
INSERT INTO employees VALUES(511,'Tom','Elan',60,1003,22000); //error
```