Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering

Semester: (Summer, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO 2

Course Title: Database System Lab

Course Code: CSE 210 Section:PC- 193 D

Student Details

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Lab Date : 3 July, 2021

Submission Date : 9 July, 2021

Course Teacher's Name : Md. Moshiur Rahman

Lab Report Status

Marks: …… Signature:.....

Comments:..... Date:.....

1. TITLE OF THE LAB EXPERIMENT

Here we will implement 2 lab experiment

1.Implementation of Integrity constraints in MySQL(not null, null, unique, primary key, foreign key, composite key,auto increment)

2.Modifying MySQL databases and Updating Data in MySQL Table(column modification, value update)

2. OBJECTIVES/AIM [1]

Our goal is to implement all the Mysql topics properly.

3. PROCEDURE / ANALYSIS / DESIGN [2]

- At first we will implement all Integrity constraints of MySQL
  Like (not null, null, unique, primary key, foreign key, composite key,auto increment)

- 2ndly We will modify MySQL databases and Updating Data in MySQL Table
  Like (column modification, value update).

4. IMPLEMENTATION [2]

1. Implementation of Integrity constraints in MySQL

- **NOT NULL and NULL :**

```
CREATE TABLE Covid_19_information (
   patient_Name varchar (100) Not Null,
   serial_No varchar (100),
   Covid_test_report varchar(50) Not Null
);
```

Output :

#	Name	Type	Collation	Attributes	Null	Default	Co
1	patient_Name	varchar(100)	utf8mb4_general_ci		No	None	
2	serial_No	varchar(100)	utf8mb4_general_ci		Yes	NULL	
3	Covid_test_report	varchar(50)	utf8mb4_general_ci		No	None	

- **Unique :**

ALTER TABLE covid_19_information CHANGE serial_No Serial_NO varchar (50) UNIQUE;

Output :

#	Name	Type	Collation	Attributes	Null	Default	Comment
1	patient_Name	varchar(100)	utf8mb4_general_ci		No	None	
2	Serial_NO	varchar(50)	utf8mb4_general_ci		Yes	NULL	
3	Covid_test_report	varchar(50)	utf8mb4_general_ci		No	None	

Value Insertion :

INSERT INTO covid_19_information (patient_Name, Serial_NO, Covid_test_report)
VALUES ("Elite", 834738924, "negative"),
("Tushar", 97343895, "Positive");

Output

+ Options

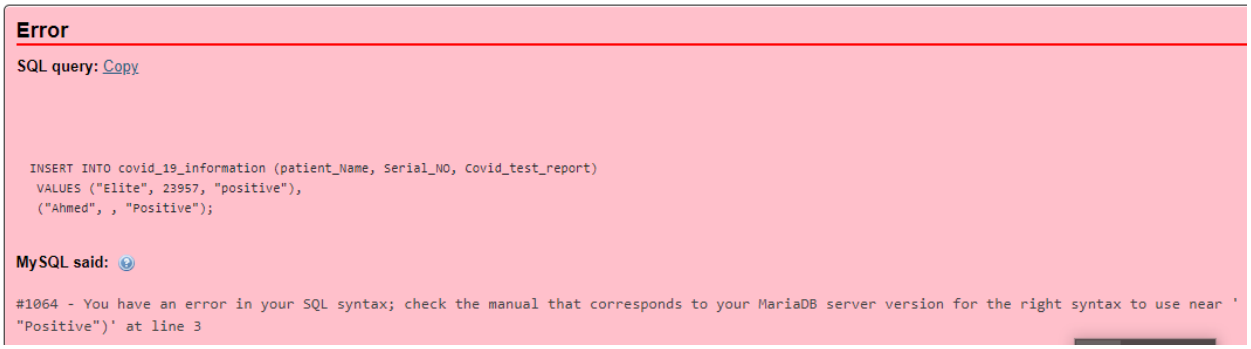
	patient_Name	Serial_NO	Covid_test_report
Edit Copy Delete	samia	23957	positive
Edit Copy Delete	Afsana	3435238	Negative
Edit Copy Delete	Tinku	3872356	Positive
Edit Copy Delete	Elite	834738924	negative
Edit Copy Delete	Tushar	97343895	Positive

.

But if we take duplicate value or If we assign NULL value then it'll show an error

INSERT INTO covid_19_information (patient_Name, Serial_NO, Covid_test_report)
VALUES ("Elite", 23957, "positive"),
("Ahmed", , "Positive");

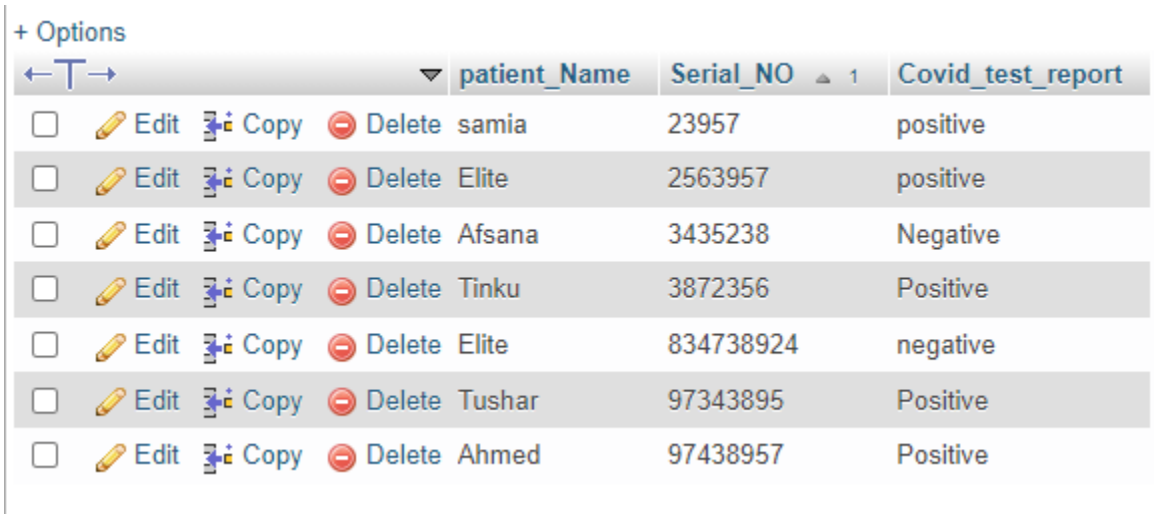
Output :



Now fixing the problem :

INSERT INTO covid_19_information (patient_Name, Serial_NO, Covid_test_report)
VALUES ("Elite", 2563957, "positive"),
("Ahmed",97438957 , "Positive");

Output :



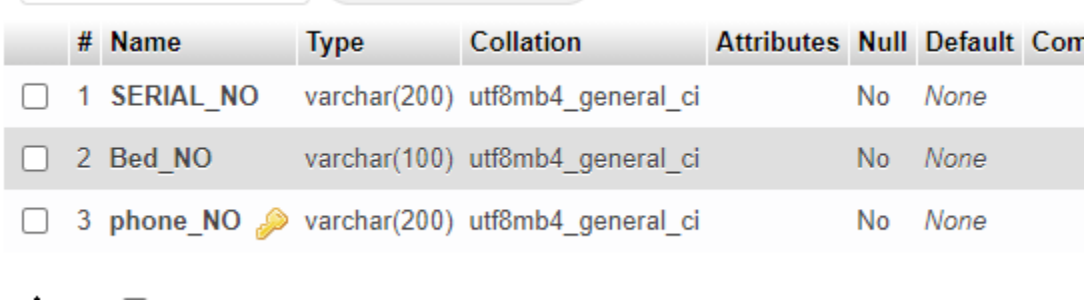
+ Options

	patient_Name	Serial_NO	Covid_test_report
Edit Copy Delete	samia	23957	positive
Edit Copy Delete	Elite	2563957	positive
Edit Copy Delete	Afsana	3435238	Negative
Edit Copy Delete	Tinku	3872356	Positive
Edit Copy Delete	Elite	834738924	negative
Edit Copy Delete	Tushar	97343895	Positive
Edit Copy Delete	Ahmed	97438957	Positive

- **Primary Key:**

```
CREATE TABLE patient_information (
   SERIAL_NO varchar (200) NOT NULL,
   Bed_NO varchar (100) NOT NULL,
   phone_NO varchar(200) Not null PRIMARY KEY
);
```

Output :

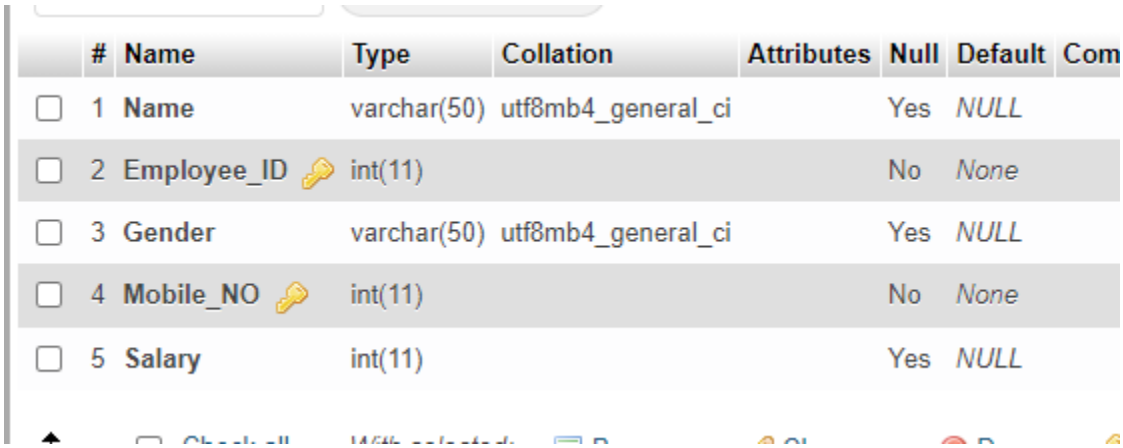


#	Name	Type	Collation	Attributes	Null	Default	Com
1	SERIAL_NO	varchar(200)	utf8mb4_general_ci		No	*None*	
2	Bed_NO	varchar(100)	utf8mb4_general_ci		No	*None*	
3	phone_NO	varchar(200)	utf8mb4_general_ci		No	*None*	

- **Composite key :**

```
CREATE TABLE employee_information (
Name varchar (50),
   Employee_ID int,
   Gender varchar(50),
   Mobile_NO int ,
   Salary int,
   CONSTRAINT main_check PRIMARY key (Employee_ID,Mobile_No)
);
```

Output :



#	Name	Type	Collation	Attributes	Null	Default	Com
1	Name	varchar(50)	utf8mb4_general_ci		Yes	*NULL*	
2	Employee_ID	int(11)			No	*None*	
3	Gender	varchar(50)	utf8mb4_general_ci		Yes	*NULL*	
4	Mobile_NO	int(11)			No	*None*	
5	Salary	int(11)			Yes	*NULL*	

- **Foreign key :**

For foreign key 1st we'll create 2 tables then we'll link those 2 tables by primary key.

1st table:

```
CREATE TABLE Customer_information (
   cus_id int PRIMARY KEY,
   cus_name varchar (100),
   cus_product varchar(200),
   cus_gender varchar (50),
   cus_address varchar (200),
   cus_email varchar (100),
   cus_phone int
);
```

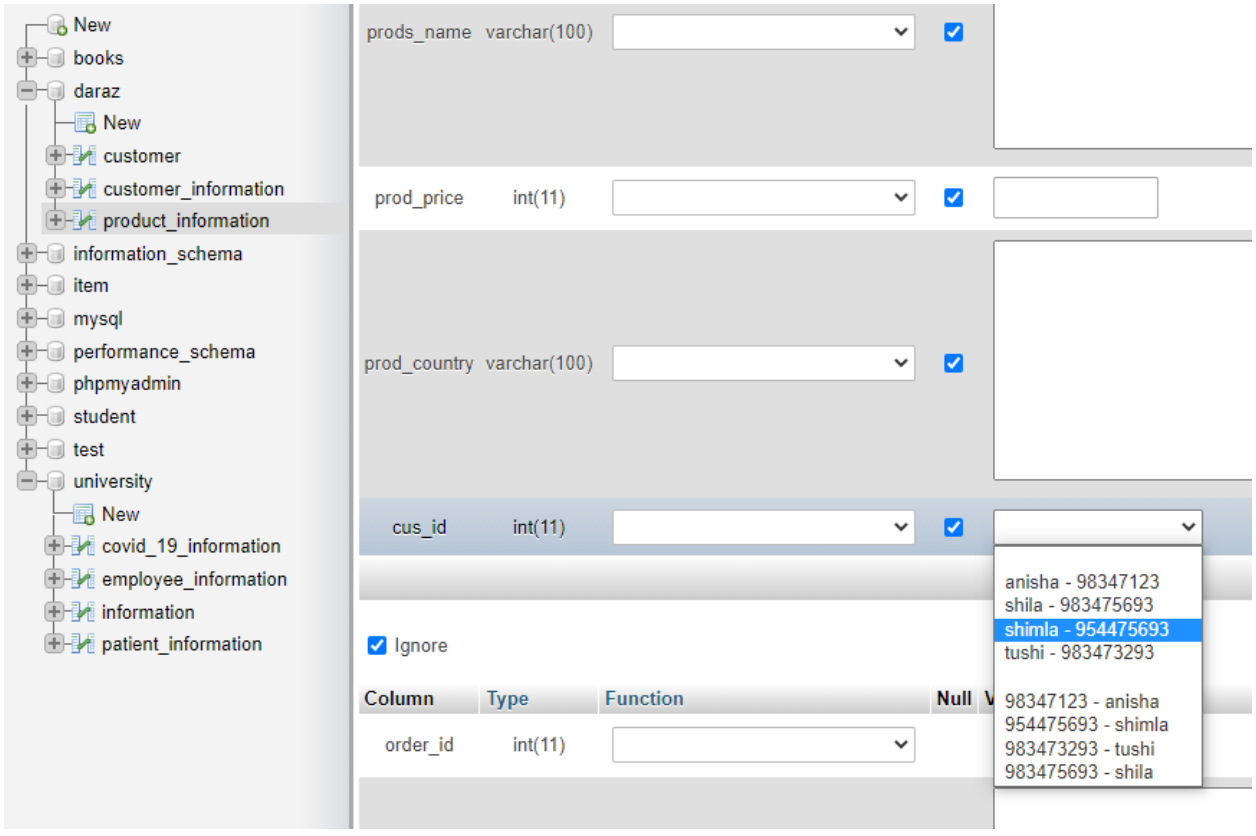
2nd table :

```
CREATE TABLE product_information (
    order_id int PRIMARY KEY ,
    prods_name varchar (100),
    prod_price int,
    prod_country varchar(100),
    cus_id int,
    FOREIGN KEY (cus_id) REFERENCES customer_information(cus_id)
);
```

Value insertion :

```
INSERT into customer_information
(cus_id, cus_name, cus_product, cus_gender, cus_address,cus_email,cus_phone)
VALUES (983475693, "shila","oil", "female", "dhaka_1232","shila@gmail.com", 01297593478),
(954475693, "shimla","onion", "female", "dhaka_4332","shimla@gmail.com", 01264993478),
(983473293, "tushi","chicken", "female", "gazipur_1232","tushi3@gmail.com", 01745393478),
(98347123, "anisha","bread", "male", "dhaka_1652","anisha54@gmail.com", 0129759348);
```

Output from product_information :

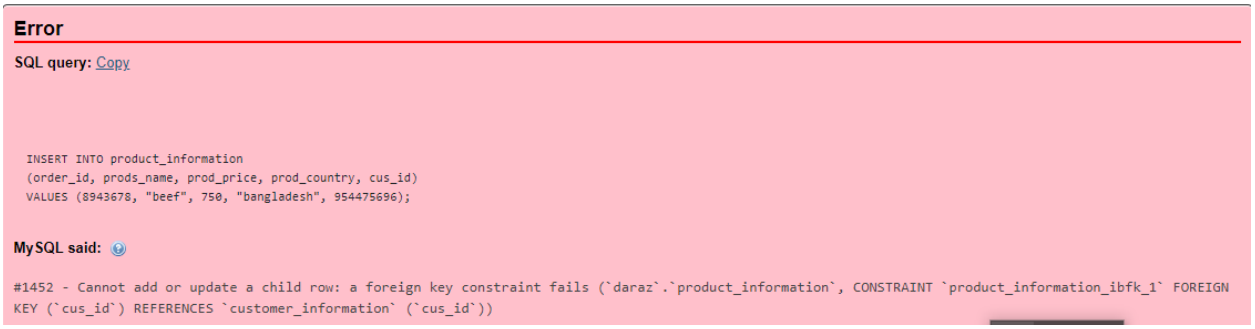


Now we will add value to make sure that our foreign key works properly or not.

If we take this values this will shows an error because cus_id only contains same cus_id

INSERT INTO product_information
(order_id, prods_name, prod_price, prod_country, cus_id)
VALUES (8943678, "beef", 750, "bangladesh", 954475696);

Output :



But if we set the same cus_Id then it doesn't shows any error

INSERT INTO product_information
(order_id, prods_name, prod_price, prod_country, cus_id)
VALUES (8943678, "beef", 750, "bangladesh", 954475693);

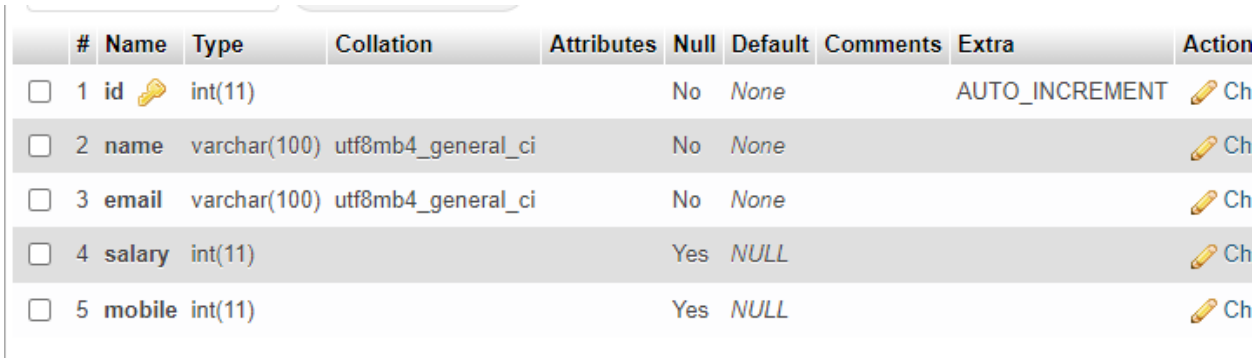
Output:

	order_id	prods_name	prod_price	prod_country	cus_id
Copy Delete	8943678	beef	750	bangladesh	954475693

- **Auto increment :**

```
CREATE TABLE  job
(
   id int NOT null PRIMARY KEY AUTO_INCREMENT,
   name varchar (100) NOT null,
   email varchar (100) not null,
   salary int,
   mobile int
);
```

Output :

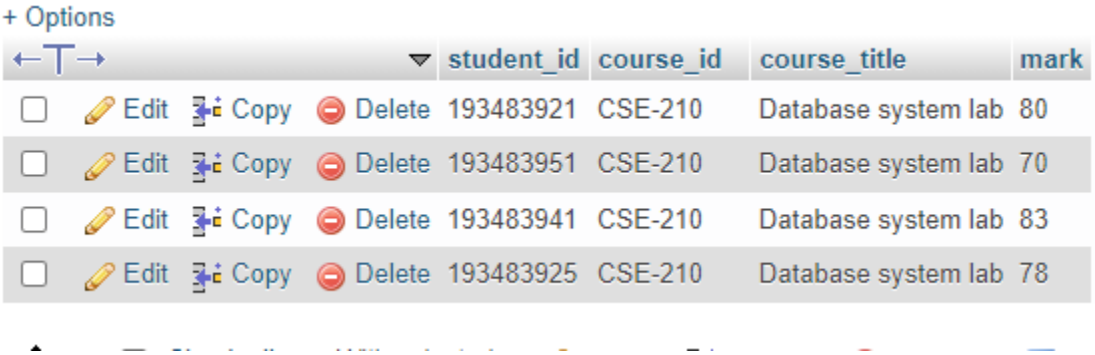


	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	id	int(11)			No	*None*		AUTO_INCREMENT	Ch
☐	2	name	varchar(100)	utf8mb4_general_ci		No	*None*			Ch
☐	3	email	varchar(100)	utf8mb4_general_ci		No	*None*			Ch
☐	4	salary	int(11)			Yes	*NULL*			Ch
☐	5	mobile	int(11)			Yes	*NULL*			Ch

2. Modifying MySQL databases and Updating Data in MySQL Table

- **Column modification:**

Before column name modification



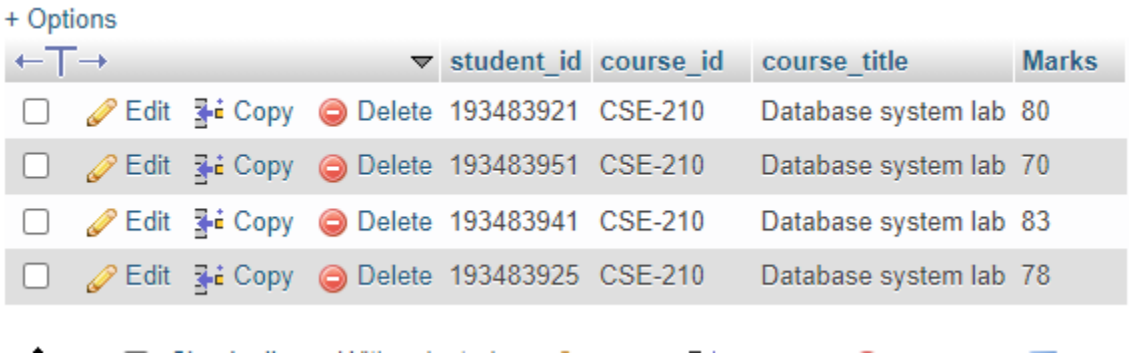
+ Options

		student_id	course_id	course_title	mark
☐	Edit Copy Delete	193483921	CSE-210	Database system lab	80
☐	Edit Copy Delete	193483951	CSE-210	Database system lab	70
☐	Edit Copy Delete	193483941	CSE-210	Database system lab	83
☐	Edit Copy Delete	193483925	CSE-210	Database system lab	78

Column name modification:

ALTER TABLE result CHANGE mark Marks varchar (50);

After Column Name Modification:



+ Options

		student_id	course_id	course_title	Marks
☐	Edit Copy Delete	193483921	CSE-210	Database system lab	80
☐	Edit Copy Delete	193483951	CSE-210	Database system lab	70
☐	Edit Copy Delete	193483941	CSE-210	Database system lab	83
☐	Edit Copy Delete	193483925	CSE-210	Database system lab	78

- **Column Add:**

Before modification:

+ Options

	student_id	course_id	course_title	Marks
Edit Copy Delete	193483921	CSE-210	Database system lab	80
Edit Copy Delete	193483951	CSE-210	Database system lab	70
Edit Copy Delete	193483941	CSE-210	Database system lab	83
Edit Copy Delete	193483925	CSE-210	Database system lab	78

Column Add:

ALTER TABLE result ADD section varchar (30);

After Modification:

+ Options

	student_id	course_id	course_title	Marks	section
Edit Copy Delete	193483921	CSE-210	Database system lab	80	*NULL*
Edit Copy Delete	193483951	CSE-210	Database system lab	70	*NULL*
Edit Copy Delete	193483941	CSE-210	Database system lab	83	*NULL*
Edit Copy Delete	193483925	CSE-210	Database system lab	78	*NULL*

- **Drop column :**

Before drop column :

+ Options

	pub_id	Name	city	Price
Edit Copy Delete	28374654	shimla	gazipur	1
Edit Copy Delete	28374655	shahida	Narayanganj	1
Edit Copy Delete	28374656	MIM	gazipur	1
Edit Copy Delete	28374657	samia	gazipur	1
Edit Copy Delete	28374658	raisa	Dhaka	1
Edit Copy Delete	28374659	pintu	Narayanganj	1

Drop Column:

ALTER TABLE publishers DROP COLUMN Price;

After Dropping Column :

+ Options

	pub_id	Name	city
Edit Copy Delete	28374654	shimla	gazipur
Edit Copy Delete	28374655	shahida	Narayanganj
Edit Copy Delete	28374656	MIM	gazipur
Edit Copy Delete	28374657	samia	gazipur
Edit Copy Delete	28374658	raisa	Dhaka
Edit Copy Delete	28374659	pintu	Narayanganj

☐ Value update:

Before updating Covid_test_report

	patient_Name	Serial_NO ▲ 1	Covid_test_report
Edit Copy Delete	samia	23957	positive
Edit Copy Delete	Elite	2563957	positive
Edit Copy Delete	Afsana	3435238	Negative
Edit Copy Delete	Tinku	3872356	Positive
Edit Copy Delete	Elite	834738924	negative
Edit Copy Delete	Tushar	97343895	Positive
Edit Copy Delete	Ahmed	97438957	Positive

After updating Covid_test_report:

```
UPDATE covid_19_information
SET Covid_test_report = "Negative"
WHERE Serial_NO = 2563957;
```

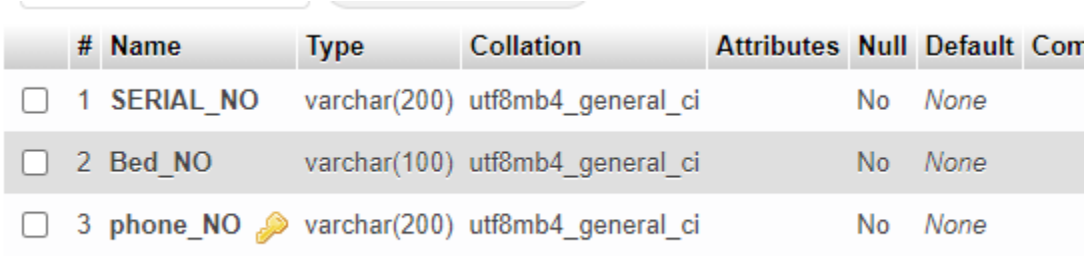
Output :

+ Options

	patient_Name	Serial_NO	Covid_test_report
Edit Copy Delete	Afsana	3435238	Negative
Edit Copy Delete	Elite	834738924	negative
Edit Copy Delete	Elite	2563957	Negative
Edit Copy Delete	samia	23957	positive
Edit Copy Delete	Tinku	3872356	Positive
Edit Copy Delete	Tushar	97343895	Positive
Edit Copy Delete	Ahmed	97438957	Positive

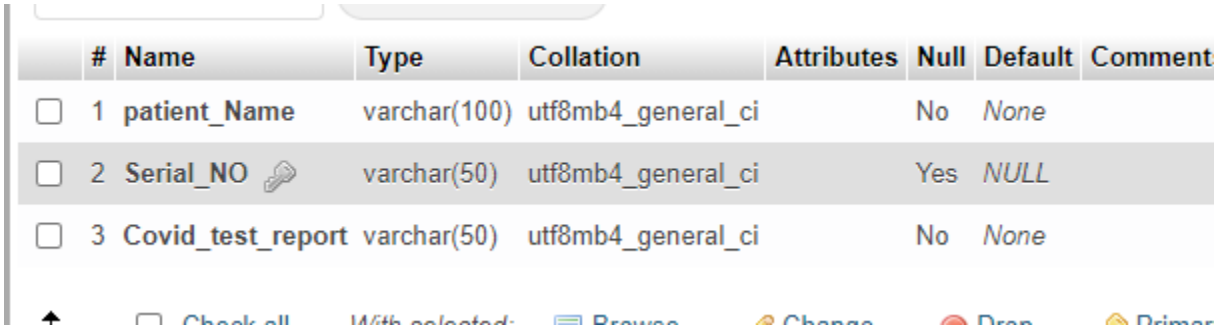
5. TEST RESULT / OUTPUT [2]

For Primary key



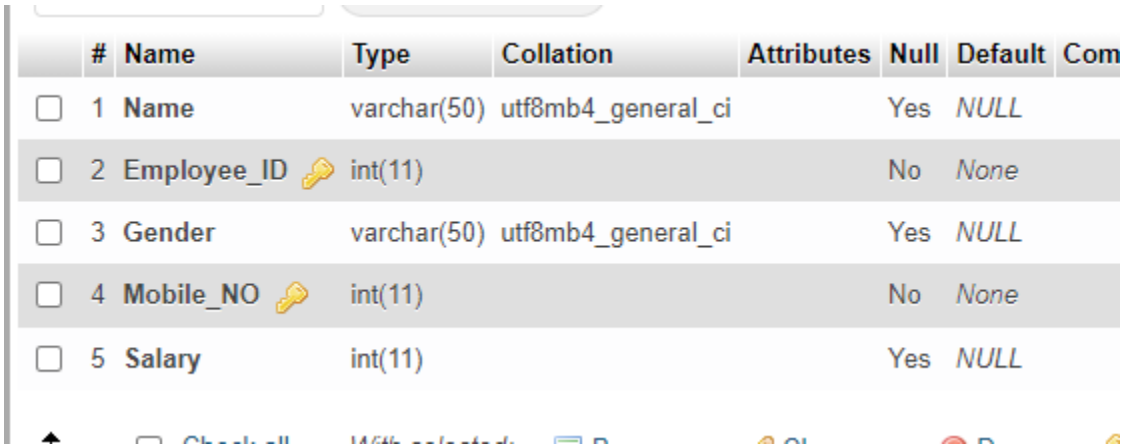
#	Name	Type	Collation	Attributes	Null	Default	Com
1	SERIAL_NO	varchar(200)	utf8mb4_general_ci		No	*None*	
2	Bed_NO	varchar(100)	utf8mb4_general_ci		No	*None*	
3	phone_NO	varchar(200)	utf8mb4_general_ci		No	*None*	

For Unique



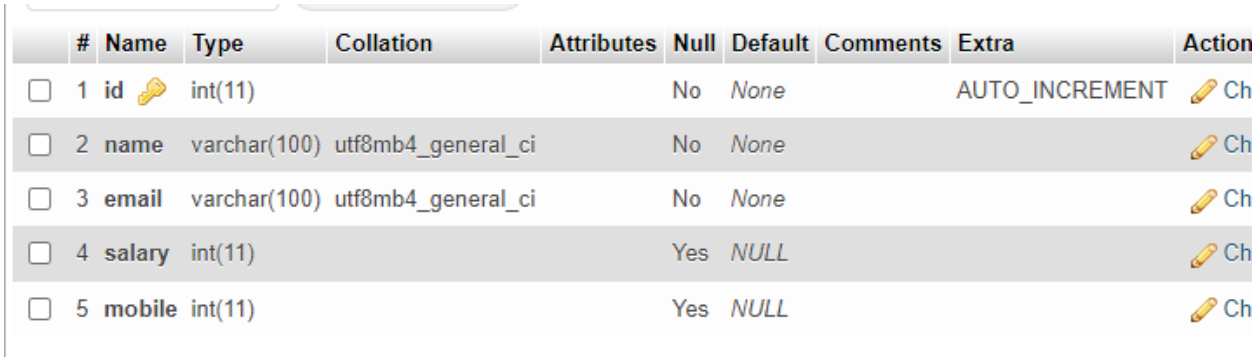
#	Name	Type	Collation	Attributes	Null	Default	Comment
1	patient_Name	varchar(100)	utf8mb4_general_ci		No	*None*	
2	Serial_NO	varchar(50)	utf8mb4_general_ci		Yes	*NULL*	
3	Covid_test_report	varchar(50)	utf8mb4_general_ci		No	*None*	

For Composite Key



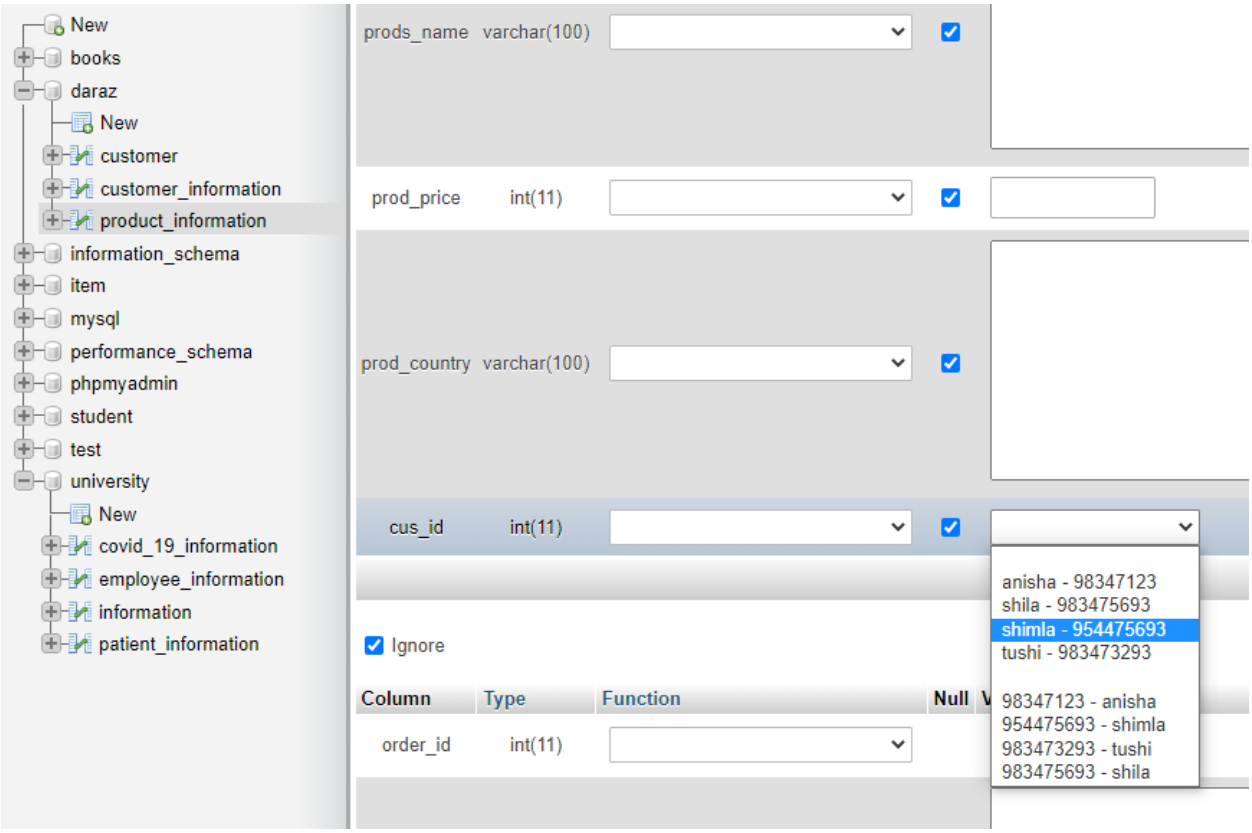
#	Name	Type	Collation	Attributes	Null	Default	Com
1	Name	varchar(50)	utf8mb4_general_ci		Yes	*NULL*	
2	Employee_ID	int(11)			No	*None*	
3	Gender	varchar(50)	utf8mb4_general_ci		Yes	*NULL*	
4	Mobile_NO	int(11)			No	*None*	
5	Salary	int(11)			Yes	*NULL*	

For Auto increment



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(11)			No	*None*		AUTO_INCREMENT	Ch
2	name	varchar(100)	utf8mb4_general_ci		No	*None*			Ch
3	email	varchar(100)	utf8mb4_general_ci		No	*None*			Ch
4	salary	int(11)			Yes	*NULL*			Ch
5	mobile	int(11)			Yes	*NULL*			Ch

For Foreign Key



6. ANALYSIS AND DISCUSSION [2]

At first we implemented all Integrity constraints of MySQL. Like (not null, null, unique, primary key, foreign key, composite key,auto increment).

After that We modify MySQL databases and Updating Data in MySQL Table. Like (column modification, value update).

7. SUMMARY:

In this lab report I tried to implement all the topics that I learned from 210 lab class.Here is a simple thing that if we just remember the keywords and how to initialize them then everyone can make a database without any hesitation. This important small task makes a database more powerful because it also shows the relation between two tables.