

Connection code:

```
cd\  
cd xampp  
cd mysql  
cd bin  
mysql -u root -p -h 127.0.0.1
```

1) create a database named customers_db.

Syntax:

```
MariaDB [(none)]> use customer_db;  
Database changed  
MariaDB [customer_db]> |
```

2) create a table named customers with following columns adding constraints following constraints Customer_id: Primary key

Name: not null

| Customer id | Name | Email | Age | Address |
|-------------|-------------|-------------|-----|-------------|
| int | Varchar(30) | Varchar(30) | int | Varchar(30) |

Syntax:

| Field | Type | Null | Key | Default | Extra |
|-------------|--------------|------|-----|---------|-------|
| customer_id | int(11) | NO | PRI | NULL | |
| name | varchar(30) | NO | | NULL | |
| email | varchar(255) | YES | | NULL | |
| age | int(11) | YES | | NULL | |
| address | varchar(30) | YES | | NULL | |

3) We have already added two constraints (PRIMARY KEY and NULL) while creating table customers. We can add constraints after creating table as well.

- Email must be unique of each customer

Syntax:

- Age must be greater than 18

Syntax:

- The default value of address must be bhaktapur

Syntax:

| Field | Type | Null | Key | Default | Extra |
|-------------|--------------|------|-----|-----------|-------|
| customer_id | int(11) | NO | PRI | NULL | |
| name | varchar(30) | NO | | NULL | |
| email | varchar(255) | YES | UNI | NULL | |
| age | int(11) | YES | | NULL | |
| address | varchar(30) | YES | | bhaktapur | |

4) Now insert records of customer with and without violating constraints.

Primary key

Syntax:

| customer_id | name | email | age | address |
|-------------|------|----------------|-----|-----------|
| 1 | ram | ram@gmail.com | 22 | kathmandu |
| 2 | sita | sita@gmail.com | 25 | pokhara |

Syntax:

```
ERROR 1062 (23000): Duplicate entry '2' for key 'PRIMARY'
```

NOT NULL

Syntax:

| customer_id | name | email | age | address |
|-------------|------|----------------|-----|-----------|
| 1 | ram | ram@gmail.com | 22 | kathmandu |
| 2 | sita | sita@gmail.com | 25 | pokhara |
| 3 | | gita@gmail.com | 26 | butwal |

CHECK

Syntax:

| customer_id | name | email | age | address |
|-------------|------|----------------|-----|-----------|
| 1 | ram | ram@gmail.com | 22 | kathmandu |
| 2 | sita | sita@gmail.com | 25 | pokhara |
| 3 | | gita@gmail.com | 26 | butwal |
| 4 | hari | hari@gmail.com | 27 | lalitpur |

Syntax:

```
ERROR 4025 (23000): CONSTRAINT 'CONSTRAINT_1' failed for 'customer_db`.`customers`
```

UNIQUE

Syntax:

```
ERROR 1062 (23000): Duplicate entry 'ram@gmail.com' for key 'email'
```

DEFAULT

Syntax:

| customer_id | name | email | age | address |
|-------------|-------|-----------------|-----|-----------|
| 1 | ram | ram@gmail.com | 22 | kathmandu |
| 2 | sita | sita@gmail.com | 25 | pokhara |
| 3 | | gita@gmail.com | 26 | butwal |
| 4 | hari | hari@gmail.com | 27 | lalitpur |
| 5 | gopal | gopal@gmail.com | 20 | bhaktapur |

FOREIGN KEY

We have already created table customers with following columns

| Customer_id | Name | Email | Age | Address |
|-------------|-------------|-------------|-----|-------------|
| int | Varchar(30) | Varchar(30) | int | Varchar(30) |

Now we have to create table orders with following columns.

| Order_id | Product_name | price | Customer_id |
|----------|--------------|-------|-------------|
| | | | |

and order_id is primary key and customer_id as foreign key for customer

Syntax:

| Field | Type | Null | Key | Default | Extra |
|--------------|-------------|------|-----|---------|-------|
| order_id | int(11) | NO | PRI | NULL | |
| product_name | varchar(30) | YES | | NULL | |
| price | int(11) | YES | | NULL | |
| customer_id | int(11) | YES | MUL | NULL | |

Now let update customer table

Syntax:

| customer_id | name | email | age | address |
|-------------|-------|-----------------|-----|-----------|
| 1 | ram | ram@gmail.com | 22 | kathmandu |
| 2 | sita | sita@gmail.com | 25 | pokhara |
| 3 | gita | gita@gmail.com | 26 | butwal |
| 4 | hari | hari@gmail.com | 27 | lalitpur |
| 5 | gopal | gopal@gmail.com | 20 | bhaktapur |

Again insert some rows in orders table

Syntax:

| order_id | product_name | price | customer_id |
|----------|--------------|--------|-------------|
| 1 | iron | 1200 | 1 |
| 2 | guitar | 4500 | 2 |
| 3 | phone | 57000 | 1 |
| 4 | printer | 88000 | 3 |
| 5 | drone | 125000 | 2 |
| 6 | smartwatch | 7500 | 4 |
| 7 | oven | 14500 | 5 |

Try to insert customer_id in orders table that does not exist in customers table

Syntax:

```
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails ('customer_db`.`orders`, CONSTRAINT `orders_ibfk_1` FOREIGN KEY (`customer_id`) REFERENCES `customers` (`customer_id`))
```

DISSCUSION:

CONCLUSION: