

# CONSTRAINTS -RULES

```
mysql> CREATE TABLE ORG(ID INT,NAME VARCHAR(20));
```

Query OK, 0 rows affected (0.03 sec)

```
mysql> DESCRIBE ORG;
```

Field	Type	Null	Key	Default	Extra
ID	int	YES		NULL	
NAME	varchar(20)	YES		NULL	

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,'BUNTY');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	Name
111	Bunty

1 row in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,'SHYAM');
```

Query OK, 1 row affected (0.00 sec)



```
mysql> SELECT * FROM ORG;
```

ID	Name
111	Bunty
111	Shyam

2 rows in set (0.00 sec)

```
mysql> DROP TABLE ORG;
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> SELECT * FROM ORG;
```

ERROR 1146 (42S02): Table 'mysql.org' doesn't exist

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## PRIMARY KEY CONSTRAINT

```
mysql> CREATE TABLE ORG(ID INT PRIMARY KEY,NAME VARCHAR(20));  
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> DESCRIBE ORG;
```

Field	Type	Null	Key	Default	Extra
ID	int	NO	PRI	NULL	
Name	varchar(20)	YES		NULL	

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,'BUNTY');  
Query OK, 1 row affected (0.00 sec)
```

ID	Name
111	Bunty

```
mysql> SELECT * FROM ORG;
```

1 row in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,'SHYAM');
```

**ERROR 1062 (23000): Duplicate entry '111' for key 'org.PRIMARY'**

```
mysql> INSERT INTO ORG VALUES(222,'SHYAM');
```

Query OK, 1 row affected (0.00 sec)



mysql> SELECT \* FROM ORG;

ID	Name
111	BUNTY
222	SHYAM

2 rows in set (0.00 sec)



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```
mysql> INSERT INTO ORG VALUES(222,'ROHAN');
```

**ERROR 1062 (23000): Duplicate entry '222' for key 'org.PRIMARY'**

```
mysql> INSERT INTO ORG VALUES(333,'ROHAN');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	Name
111	BUNTY
222	SHYAM
333	ROHAN

3 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(444,'ROHAN');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	Name
111	BUNTY
222	SHYAM
333	ROHAN
444	ROHAN



4 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(NULL,'RAKESH');
```

**ERROR 1048 (23000): Column 'ID' cannot be null**

```
mysql> INSERT INTO ORG VALUES(555,'RAKESH');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	Name
111	BUNTY
222	SHYAM
333	ROHAN
444	ROHAN
555	RAKESH

4 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(666,NULL);
```

Query OK, 1 row affected (0.00 sec)

mysql> SELECT \* FROM ORG;

ID	Name
111	BUNTY
222	SHYAM
333	ROHAN
444	ROHAN
555	RAKESH
666	NULL

5 rows in set (0.00 sec)

mysql> **DROP TABLE ORG;**

Query OK, 0 rows affected (0.02 sec)

mysql> SELECT \* FROM ORG;

**ERROR 1146 (42S02): Table 'mysql.org' doesn't exist**

## Q1: Create A Table Where Every Id Is Different And Every Name Of Employees Should Be Different?

**ANS:-**

```
mysql> CREATE TABLE ORG(ID INT PRIMARY KEY, NAME VARCHAR(20) UNIQUE);
```

Query OK, 0 rows affected (0.05 sec)

```
mysql> DESCRIBE ORG;
```

FIELD	TYPE	NULL	KEY	DEFAULT	EXTRA
ID	INT	NO	PRI	NUL	
NAME	VARHCAR(20)	YES	UNIQUE	NULL	

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,'RAMESH');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME
111	RAMESH

1 row in set (0.00 sec)





```
mysql> INSERT INTO ORG VALUES(222,'RAMESH');
```

**ERROR 1062 (23000): Duplicate entry 'RAMESH' for key 'org.NAME'**

```
mysql> INSERT INTO ORG VALUES(222,'SANGITA');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME
111	RAMESH
222	SANGITA

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(333,'SANGITA');
```

**ERROR 1062 (23000): Duplicate entry 'SANGITA' for key 'org.NAME'**

```
mysql> INSERT INTO ORG VALUES(333,'MAHESH');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME
111	RAMESH
222	SANGITA
333	MAHESH

3 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(444,NULL);
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME
111	RAMESH
222	SANGITA
333	MAHESH
444	NULL

4 rows in set (0.00 sec)

### PRIMARY KEY:

1. ONLY ONE PRIMARY KEY IN EVERY TABLE.
2. IT CANNOT ACCEPT NULL VALUES.(IMPLICITLY ="NOT NULL")
3. EVERY ENTRY IN PRIMARY KEY COLOUMN SHOULD BE UNIQUE.
4. DUPLICATE DATA IS NOT ALLOWED.
- 5.PRIMARY KEY IS A KEYWORD USED TO DECLARE A PRIMARY KEY

#### CONSTRAINT

Syntax:

```
create table table_name(Col1 Data_Type Primary Key);
```

6.CONSTRAINTS MEANS RULE.

## **UNIQUE KEY:**

1. MULTIPLE UNIQUE KEY CAN BE PRESENT IN A SINGLE TABLE.
2. IT ACCEPTS THE NULL VALUES.
3. EVERY ENTRY IN UNIQUE KEY COLOUMN SHOULD BE UNIQUE(DIFFERENT).
4. DUPLICATE DATA IS NOT ALLOWED.
5. UNIQUE IS A KEYWORD USED TO DECLARE A UNIQUE KEY CONSTRAINT.

### **Syntax:**

Create Table Table\_Name(Col1 Data\_Type Unique);

6. UNIQUE KEY IS A CONSTRAINT.

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**Q: Display A Table With Multiple Unique Column And One**

**Primary Column?**

**ANS:**

```
mysql> CREATE TABLE ORG(ID INT PRIMARY KEY, NAME  
VARCHAR(20) UNIQUE, SALARY INT UNIQUE, LOC VARCHAR(20) UNIQUE);
```

Query OK, 0 rows affected (0.05 sec)

```
mysql> DESCRIBE ORG;
```

Field	Type	Null	Key	Default	Extra
ID	INT	NO	PRI	NULL	
NAME	VARCHAR(20)	YES	UNIQUE	NULL	
SALARY	INT	YES	UNIQUE	NULL	
LOC	VARCHAR(20)	YES	UNIQUE	NULL	

4 rows in set (0.00 sec)

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```
mysql> INSERT INTO ORG VALUES(111,'RAJU',1500,'PUNE');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME	SALARY	LOC
111	RAJU	1500	PUNE

1 row in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(222,'MAHESH',1500,'MUMBAI');
```

**ERROR 1062 (23000): Duplicate entry '1500' for key 'org.SALARY'**

```
mysql> INSERT INTO ORG VALUES(222,'MAHESH',2500,'PUNE');
```

**ERROR 1062 (23000): Duplicate entry 'PUNE' for key 'org.LOC'**

```
mysql> INSERT INTO ORG VALUES(222,'MAHESH',2500,'MUMBAI');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(333,'SUPRIYA',3500,'BANGLORE');
```

Query OK, 1 row affected (0.00 sec)



mysql> SELECT \* FROM ORG;

ID	NAME	SALARY	LOC
111	RAJU	1500	PUNE
222	MAHESH	2500	MUMBAI
333	SUPRIYA	3500	BANGLORE

3 rows in set (0.00 sec)

mysql> INSERT INTO ORG VALUES(444,NULL,NULL,NULL);

Query OK, 1 row affected (0.00 sec)

mysql> SELECT \* FROM ORG;

ID	NAME	SALARY	LOC
111	RAJU	1500	PUNE
222	MAHESH	2500	MUMBAI
333	SUPRIYA	3500	BANGLORE
444	NULL	NULL	NULL

4 rows in set (0.00 sec)

**Q: Display A Table With 1 Primary Key And Multiple UniqueKey  
But Do Not Allow Unique Column to Accept NullValues?**

```
mysql> CREATE TABLE ORG(ID INT PRIMARY KEY,NAME VARCHAR(20) UNIQUE NOT NULL,SALARY  
INT UNIQUE NOT NULL, LOC VARCHAR(20) NOT NULL);
```

Query OK, 0 rows affected (0.11 sec)

```
mysql> DESCRIBE ORG;
```

FIELD	TYPE	NULL	KEY	DEFAULT	EXTRA
ID	INT	NO	PRI	NULL	
NAME	VARCHAR(20)	NO	UNIQUE	NULL	
SALARY	INT	NO	UNIQUE	NULL	
LOC	VARCHAR(20)	NO		NULL	

4 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(111,NULL,NULL,NULL);
```

**ERROR 1048 (23000): Column 'NAME' cannot be null**

```
mysql> INSERT INTO ORG VALUES(111,'BUNTY',NULL,NULL);
```

**ERROR 1048 (23000): Column 'SALARY' cannot be null**



```
mysql> INSERT INTO ORG VALUES(111,'BUNTY',1500,NULL);
```

**ERROR 1048 (23000): Column 'LOC' cannot be null**

```
mysql> INSERT INTO ORG VALUES(111,'BUNTY',1500,'PUNE');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE

1 row in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(222,'BUBLI',2500,'PUNE');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE
222	BUBLI	2500	PUNE

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(333,'MAHESH',3500,NULL);
```

**ERROR 1048 (23000): Column 'LOC' cannot be null**

```
mysql> INSERT INTO ORG VALUES(333,'MAHESH',3500,'MUMBAI')
```





Query OK, 1 row affected (0.00 sec)

mysql> SELECT \* FROM ORG;

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE
222	BUBLI	2500	PUNE
333	MAHESH	3500	MUMBAI

3 rows in set (0.00 sec)

**Q: Display A Table Having Multiple Column As No TNull?**

CREATE TABLE ORG(ID INT PRIMARY KEY, NAME VARCHAR(20) NOT NULL, SALARY INT NOT NULL, LOC VARCHAR(20) NOT NULL);

mysql> SELECT \* FROM ORG;

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE

1 row in set (0.00 sec)



```
mysql> INSERT INTO ORG VALUES(222,'BUNTY',1500,'PUNE');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE
222	BUNTY	1500	PUNE

2 rows in set (0.00 sec)

```
mysql> INSERT INTO ORG VALUES(333,NULL,NULL,NULL);
```

ERROR 1048 (23000): Column 'NAME' cannot be null

```
mysql> INSERT INTO ORG VALUES(333,'ABHI',NULL,NULL);
```

ERROR 1048 (23000): Column 'SALARY' cannot be null

```
mysql> INSERT INTO ORG VALUES(333,'ABHI',3500,NULL);
```

ERROR 1048 (23000): Column 'LOC' cannot be null

```
mysql> INSERT INTO ORG VALUES(333,'ABHI',3500,'CHENNAI');
```

Query OK, 1 row affected (0.00 sec)

```
mysql> SELECT * FROM ORG;
```

ID	NAME	SALARY	LOC
111	BUNTY	1500	PUNE
222	BUNTY	1500	PUNE
333	ABHI	3500	CHENNAI

3 rows in set (0.00 sec)

**NOT NULL:** IT DOES NOT ALLOW NULL VALUES.

**SYNTAX:**

```
CREATE TABLE TABLE_NAME(COL DATA_TYPE NOT NULL);
```

---

**check constraint:**

A check constraint is a type of integrity constraint in SQL which specifies a requirement that must be met by each row in a database table. The constraint must be a predicate. It can refer to a single column, or multiple columns of the table. The result of the predicate can be either **TRUE**, **FALSE**, or **UNKNOWN**, depending on the presence of NULLs. If the predicate evaluates to **UNKNOWN**, then the constraint is not violated and the row can be inserted or updated in the table.

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```
mysql> use mysql;  
Database changed  
mysql> create table Age(age int check(age>=30));  
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> describe Age;
```

Field	Type	Nul	Key	Default	Extra
age	int	YES		NULL	

```
1 row in set (0.02 sec)
```

```
:  
mysql> insert into Age values(34);  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into Age values(44);  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> insert into Age values(55);  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from Age;
```

Age
34
44
55

```
3 rows in set (0.00 sec)
```

```
mysql> insert into Age values(14);  
ERROR 3819 (HY000): Check constraint 'age_chk_1' is violated.  
mysql> insert into Age values(29);
```



**ERROR 3819 (HY000): Check constraint 'age\_chk\_1' is violated.**

## Default Constraint:

Default Constraint is used when the data is obvious in any particular column or is repeated. Hence to avoid multiple inputs for the same data, default constraint is applied so as to which displays the data repeatedly in the column by default instead of explicitly inserting values in it.

```
mysql> create table def(id int, name varchar(20), loc varchar(20) default "Pune");
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> describe def;
```

Field	Type	Null	Key	Default	Extra
Id	int	YES		NULL	
Name	varchar(20)	YES		NULL	
loc	varchar(20)	YES		Pune	

3 rows in set (0.00 sec)

```
mysql> insert into def(id,name) values(101,"Ramesh");
```

Query OK, 1 row affected (0.00 sec)

```
mysql> insert into def(id,name) values(102,"Suresh");
```

Query OK, 1 row affected (0.00 sec)

```
mysql> insert into def(id,name) values(103,"Dilip");
```

Query OK, 1 row affected (0.00 sec)

```
mysql> insert into def(id,name) values(104,"Yogesh");
```

Query OK, 1 row affected (0.00 sec)

```
mysql> select * from def;
```



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Id	name	loc
101	Ramesh	Pune
102	Suresh	Pune
103	Dilip	Pune
104	Yogesh	Pune

4 rows in set (0.00 sec)

## CONSTRAINTS:

1. PRIMARY KEY.
2. UNIQUE KEY.
3. UNIQUE NOT NULL.
4. NOT NULL
5. Check
6. default

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