

CONSTRAINTS IN MYSQL

Constraints are some rules that are imposed on the columns.

1) NOT NULL:

It enforces the column that it should not contain any NULL Value.

Create table <tbl_name>
(col1 datatype NOT NULL,
Col2 datatype NOT NULL,
Col3 datatype,.....);

2) UNIQUE:

It enforces that the column should contain only UNIQUE values.

ie. There won't be any duplicate values in the specified column.

Create table <tbl_name>
(col1 datatype UNIQUE,
Col2 datatype UNIQUE,
Col3 datatype,);

3) Primary Key:

It is made up from the combination of NOT NULL and UNIQUE Constraint.

It is used to uniquely identify each record in the table.

One table can contain only one PK.

Create table <tbl_name>

(

Col1 datatype primary key,

Col2 datatype,

Col3 datatype,

.....);

4) FOREIGN KEY:

Foreign key in one table takes the reference of the PK in another table.

```
Create table <tbl_name>
(col1 datatype,
Col2 dataype,
Foreign key(col2) references
PK_tbl_name(PK_COL_NAME) ON
UPDATE CASCADE ON DELETE CASCADE
);
```

RELATIONSHIPS IN MYSQL

1) One-to-One:

When one primary key is referred by one foreign key.

2) One-to-Many:

When one primary key is referred by multiple foreign keys.

3) Many-to-Many:

When multiple primary keys are referred by multiple foreign keys.

Enter password: ****

Welcome to the MySQL monitor. Commands
end with ; or \g.

Your MySQL connection id is 206

Server version: 8.0.26 MySQL Community
Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> use b27;
```

Database changed

```
mysql> show tables;
```

```
+-----+
```

```
| Tables_in_b27 |
```

```
+-----+
```

```
| stud_bkp      |
```

```
| student       |
```

```
+-----+
```

2 rows in set (0.02 sec)

```
mysql> desc student;
```

```
+-----+-----+-----+-----+-----+-----+
```

```
| Field | Type      | Null | Key | Default |
```

```
Extra |
```

rn	int	YES	NULL
name	varchar(40)	YES	NULL
marks	float	YES	NULL

3 rows in set (0.04 sec)

mysql> create table customer

-> (

-> cid int,

-> name varchar(30),

-> city varchar(30) NOT NULL

->);

Query OK, 0 rows affected (0.07 sec)

mysql> desc customer;

cid	name	city
-----	------	------

Field	Type	Null	Key	Default	Extra
cid	int	YES		NULL	
name	varchar(30)	YES		NULL	
city	varchar(30)	NO		NULL	

3 rows in set (0.01 sec)

```
mysql> insert into customer(cid,name) values
-> (1, 'Akshay');
```

ERROR 1364 (HY000): Field 'city' doesn't have a default value

```
mysql> insert into customer(cid,name,city)
values
```

```
-> (1, 'Akshay', 'Pune');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> select * from customer;
```

```
+-----+-----+-----+  
| cid | name | city |  
+-----+-----+-----+  
| 1 | Akshay | Pune |  
+-----+-----+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> insert into customer(name, city)  
values
```

```
-> ('Saurabh', 'Mumbai');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from customer;
```

```
+-----+-----+-----+  
| cid | name | city |  
+-----+-----+-----+
```



```
| 1 | Akshay | Pune |  
| NULL | Saurabh | Mumbai |  
+-----+-----+-----+
```

2 rows in set (0.00 sec)

```
mysql> create table st_info
```

```
-> (
```

```
-> rn int UNIQUE,
```

```
-> name varchar(30),
```

```
-> marks float
```

```
-> );
```

ERROR 1064 (42000): You have an error in
your SQL syntax; check the manual that
corresponds to your MySQL server version for
the right syntax to use near 'UNQUIUE,
name varchar(30),
marks float
)' at line 3

```
mysql> create table st_info
```

```
-> rn int UNQIUE,
```

```
-> ^C
```

```
mysql> create table st_info
```

```
-> (
```

```
-> rn int UNIQUE,
```

```
-> name varchar(40),
```

```
-> marks float
```

```
-> );
```

```
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> desc st_info;
```

```
+-----+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| rn    | int       | YES  | UNI | NULL    |       |
```

name	varchar(40)	YES		NULL	
marks	float	YES		NULL	

+-----+-----+-----+-----+-----+-----+

3 rows in set (0.02 sec)

mysql> insert into st_info values

-> (1, 'Akshay', 78);

Query OK, 1 row affected (0.02 sec)

mysql> insert into st_info values

-> (1, 'Akshay', 78);

ERROR 1062 (23000): Duplicate entry '1' for
key 'st_info.rn'

mysql> select 8 from st_info;

8

+----+

```
| 8 |
```

```
+---+
```

```
1 row in set (0.00 sec)
```

```
mysql> select * from st_info;
```

```
+-----+-----+-----+
```

```
| rn | name | marks |
```

```
+-----+-----+-----+
```

```
| 1 | Akshay | 78 |
```

```
+-----+-----+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> insert into st_info values
```

```
-> (2, 'Akshay', 88);
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from st_info;
```

```

+-----+-----+-----+
| rn   | name  | marks |
+-----+-----+-----+
|  1   | Akshay | 78    |
|  2   | Akshay | 88    |
+-----+-----+-----+

```

2 rows in set (0.00 sec)

```
mysql> insert into st_info values
-> ();
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into st_info(name, marks)
values
-> ('Ajay', 90);
```

Query OK, 1 row affected (0.01 sec)

```
mysql> select * from st_info;
```

```

+-----+-----+-----+
| rn  | name  | marks |
+-----+-----+-----+
|  1  | Akshay |   78  |
|  2  | Akshay |   88  |
| NULL | NULL   | NULL  |
| NULL | Ajay   |   90  |
+-----+-----+-----+

```

4 rows in set (0.00 sec)

mysql> desc st_info;

```

+-----+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| rn    | int       | YES  | UNI | NULL    |       |
| name  | varchar(40) | YES  |     | NULL    |       |

```

marks float	YES	NULL	
+-----+-----+	+-----+	+-----+	+-----+

3 rows in set (0.02 sec)

mysql> create database newb27;

Query OK, 1 row affected (0.02 sec)

mysql> use newb27;

Database changed

mysql> create table customer

-> (

-> cid int primary key,

-> name varchar(30),

-> product varchar(40)

->);

Query OK, 0 rows affected (0.04 sec)

```
mysql> desc customer;
```

Field	Type	Null	Key	Default	Extra
cid	int	NO	PRI	NULL	
name	varchar(30)	YES		NULL	
product	varchar(40)	YES		NULL	

```
3 rows in set (0.02 sec)
```

```
mysql> insert into customer values
```

- > (1, 'Akshay', 'Laptop'),
- > (2, 'Deepak', 'Dhruv'),
- > (3, 'Shrutika', 'Mobile'),
- > (4, 'Rohit', 'Watch'),

-> (5, 'Ajinkya', 'Shoes');

Query OK, 5 rows affected (0.02 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
mysql> select * from customer;
```

cid	name	product
1	Akshay	Laptop
2	Deepak	Dhruv
3	Shrutika	Mobile
4	Rohit	Watch
5	Ajinkya	Shoes

5 rows in set (0.01 sec)

```
mysql> insert into customer(name,product)
values
```

```
-> ('Arohi', 'Clothes');
```

ERROR 1364 (HY000): Field 'cid' doesn't have a default value

```
mysql>
```

```
mysql> insert into customer values
```

```
-> (2, 'Shubham', 'TV');
```

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

```
mysql> insert into customer values
```

```
-> (6, 'Akshay', 'laptop'),
```

```
-> (8, 'Shrutika', 'Mobile');
```

Query OK, 2 rows affected (0.03 sec)

Records: 2 Duplicates: 0 Warnings: 0

```
mysql> select * from customer;
```

```
+-----+-----+-----+
| cid | name   | product |
+-----+-----+-----+
```

	1		Akshay		Laptop	
	2		Deepak		Dhruv	
	3		Shrutika		Mobile	
	4		Rohit		Watch	
	5		Ajinkya		Shoes	
	6		Akshay		laptop	
	8		Shrutika		Mobile	

+-----+-----+-----+

7 rows in set (0.01 sec)

mysql> desc customer;

+-----+-----+-----+-----+-----+-----+

Field	Type	Null	Key	Default	
Extra					

+-----+-----+-----+-----+-----+-----+

cid	int	NO	PRI	NULL	
name	varchar(30)	YES		NULL	

```
| product | varchar(40) | YES | | NULL |  
|
```

```
+-----+-----+-----+-----+-----+-----+
```

3 rows in set (0.02 sec)

```
mysql> create table student
```

```
-> (
```

```
-> rn int primary key,
```

```
-> name varchar(30)
```

```
-> );
```

Query OK, 0 rows affected (0.04 sec)

```
mysql> create table courses
```

```
-> 9
```

```
-> ;
```

ERROR 1064 (42000): You have an error in
your SQL syntax; check the manual that

corresponds to your MySQL server version for the right syntax to use near '9' at line 2

```
mysql> create table courses
```

```
-> (
```

```
-> coursename varchar(100),
```

```
-> rn_fk int
```

```
-> ,foreign key(rn_fk) references  
student(rn) ON UPDATE CASCADE ON DELETE  
CASCADE
```

```
-> );
```

Query OK, 0 rows affected (0.06 sec)

```
mysql> desc student;
```

```
+-----+-----+-----+-----+-----+-----+  
| Field | Type      | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| rn    | int       | NO   | PRI | NULL    |       |
```

name	varchar(30)	YES		NULL	

```
+-----+-----+-----+-----+-----+
```

2 rows in set (0.00 sec)

mysql> desc courses;

```
+-----+-----+-----+-----+-----+-----+
--+
```

Field	Type	Null	Key	Default	
Extra					

```
+-----+-----+-----+-----+-----+-----+
--+
```

course	varchar(100)	YES		
NAME				

rn_fk	int	YES	MUL	NULL	

```
+-----+-----+-----+-----+-----+-----+
--+
```

2 rows in set (0.00 sec)

```
mysql> insert into student values
```

```
-> (1, 'Akshay'),
```

```
-> (2, 'Dushyant'),
```

```
-> (3, 'Hari');
```

```
Query OK, 3 rows affected (0.02 sec)
```

```
Records: 3  Duplicates: 0  Warnings: 0
```

```
mysql> select * from student;
```

```
+----+-----+
```

```
| rn | name  |
```

```
+----+-----+
```

```
| 1 | Akshay |
```

```
| 2 | Dushyant |
```

```
| 3 | Hari   |
```

```
+----+-----+
```

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

```
mysql> insert into courses values
```

```
-> ('PYTHON', 2);
```

```
Query OK, 1 row affected (0.03 sec)
```

```
mysql> select * from courses;
```

```
+-----+-----+
```

```
| coursename | rn_fk |
```

```
+-----+-----+
```

```
| PYTHON    | 2 |
```

```
+-----+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> insert into courses values
```

```
-> ('TESTING', 1),
```

```
-> ('TESTING', 2);
```

```
Query OK, 2 rows affected (0.02 sec)
```


Records: 2 Duplicates: 0 Warnings: 0

```
mysql> select * from student;
```

```
+----+-----+
```

```
| rn | name  |
```

```
+----+-----+
```

```
| 1 | Akshay |
```

```
| 2 | Dushyant |
```

```
| 3 | Hari   |
```

```
+----+-----+
```

3 rows in set (0.01 sec)

```
mysql> select * from courses;
```

```
+-----+-----+
```

```
| course name | rn_fk |
```

```
+-----+-----+
```

```
| PYTHON      | 2 |
```

TESTING		1	
---------	--	---	--

TESTING		2	
---------	--	---	--

+-----+	+-----+	
---------	---------	--

3 rows in set (0.01 sec)

```
mysql> insert into courses values
```

```
    -> ('HADOOP', 4);
```

ERROR 1452 (23000): Cannot add or update a
child row: a foreign key constraint fails

(`newb27`.`courses`, CONSTRAINT
`courses_ibfk_1` FOREIGN KEY (`rn_fk`)
REFERENCES `student` (`rn`) ON DELETE
CASCADE ON UPDATE CASCADE)

```
mysql>
```

```
mysql> update student
```

```
    -> set rn=10
```

```
    -> where rn=2;
```

Query OK, 1 row affected (0.02 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from student;
```

```
+----+-----+
```

```
| rn | name  |
```

```
+----+-----+
```

```
| 1  | Akshay |
```

```
| 3  | Hari   |
```

```
| 10 | Dushyant |
```

```
+----+-----+
```

3 rows in set (0.01 sec)

```
mysql> select * from courses;
```

```
+-----+-----+
```

```
| course name | rn_fk |
```

```
+-----+-----+
```

```
| PYTHON      | 10    |
```

```
| TESTING | 1 |
```

```
| TESTING | 10 |
```

```
+-----+-----+
```

3 rows in set (0.01 sec)

```
mysql> delete from student where rn=1;
```

Query OK, 1 row affected (0.02 sec)

```
mysql> select * from student;
```

```
+----+-----+
```

```
| rn | name |
```

```
+----+-----+
```

```
| 3 | Hari |
```

```
| 10 | Dushyant |
```

```
+----+-----+
```

2 rows in set (0.00 sec)

```
mysql> select * from courses;
```

```
+-----+-----+
```

```
| courseName | rn_fk |
```

```
+-----+-----+
```

```
| PYTHON    | 10 |
```

```
| TESTING   | 10 |
```

```
+-----+-----+
```

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

```
mysql>
```