**Create a Database in MySQL**
*create database <database-name>;*

Note that the database name is case-sensitive

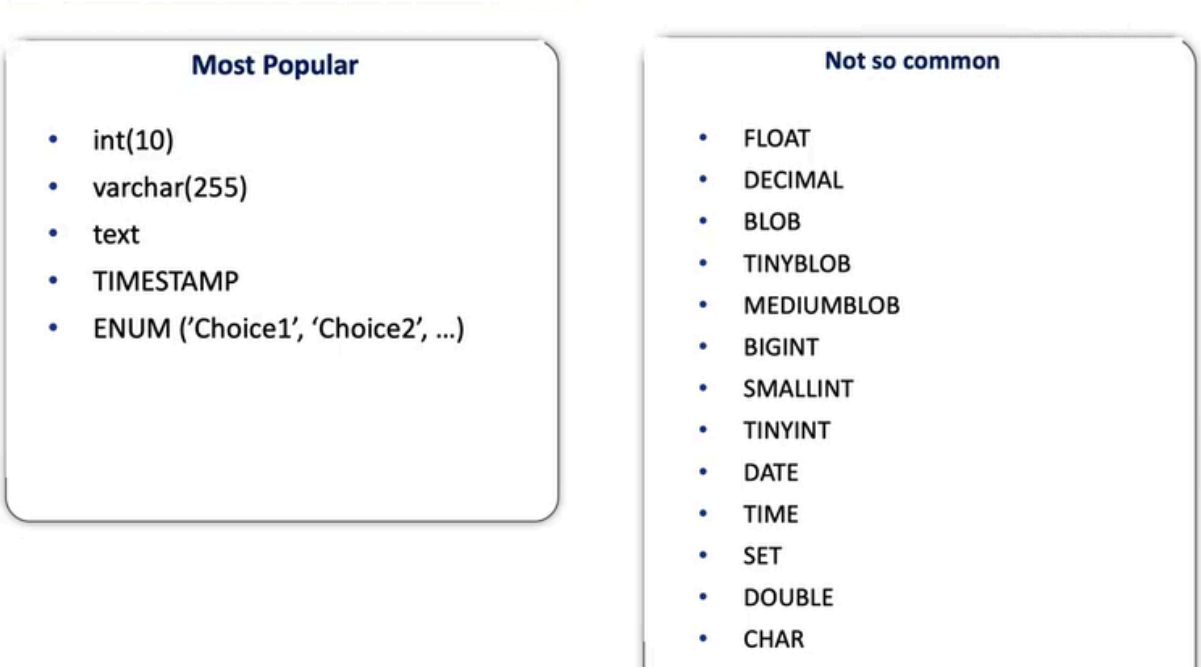
**Show Databases in MySQL**
*show databases;*

**Change current database**
*use <database-name>;*

**Create a table**
Suppose you want to create a UserDetails table with the following schema
Name - text
Designation - text
Salary - text

*Create table UserDetails (Name text, Designation text, Salary int);*

**Datatypes**




- int(10) - Here the number in the bracket tells the length of integer. This helps SQL to optimize queries if it already knows tha maximum limit of number. Suppose if value range is 0-1000 then int(4) is a good choice.
- varchar(255) - It represents the string datatype with maximum length 255
- text - It also represents text but no limit on the length of character

- TIMESTAMP - Data time
- ENUM - for categorical classes
- FLOAT and DECIMAL - both are used for storing decimal points but FLOAT is not exact but DECIMAL stored decimal values in exact format. However you can specify the number of precision points like - FLOAT(M, D) and DECIMAL(M, D). Example - `DECIMAL(10, 2)` allows 10 digits in total, 2 of which are after the decimal point (e.g., `12345678.99`). `DECIMAL(5, 2)` can store numbers from `-999.99` to `999.99`
- `BLOB, TINYBLOB, MEDIUMBLOB and LONGBLOB - They are used to store data like images, video or audios. The difference is only in the maximum size of data, they can store. Like -`
    - `TINYBLOB - 1bytes`
    - `BLOB - 2bytes`
    - `MEDIUMBLOB - 3bytes`
    - `LONGBLOB -4bytes`

**Describe Tables**

```
mysql> describe UserDetails;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| Name        | text | YES  |     | NULL    |       |
| Designation | text | YES  |     | NULL    |       |
| Salary      | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
3 rows in set (0.17 sec)

mysql> show create table UserDetails;
+-------------+-----------------------------------------------------------------
-----------------------------------------------------+
| Table       | Create Table
                                                     |
+-------------+-----------------------------------------------------------------
-----------------------------------------------------+
| UserDetails | CREATE TABLE `userdetails` (
  `Name` text,
  `Designation` text,
  `Salary` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-------------+-----------------------------------------------------------------
-----------------------------------------------------+
1 row in set (0.05 sec)
```

**Insert Command**

*create into <table-name> values(val1, val2);*

*create into <table-name>(field1, field2) values(va1, val2);*

The first command is used to add all the values to the table. The second command can be used to add only specific values to the table. Rest will be set to NULL if allowed.

```
mysql> insert into UserDetails values("Rohit", "SDE", 22);
Query OK, 1 row affected (0.01 sec)

mysql> select * from UserDetails
    -> ;
+--------+---------------+--------+
| Name   | Designation   | Salary |
+--------+---------------+--------+
| Parul  | DataScientist |     10 |
| Shreya | Marketing     |     40 |
| Ram    | NULL          |     40 |
| Rohit  | SDE           |     22 |
+--------+---------------+--------+
4 rows in set (0.00 sec)
```

```
mysql> insert into UserDetails(Name, Salary) values("Ram",40);
Query OK, 1 row affected (0.01 sec)

mysql> select * from UserDetails;
+--------+---------------+--------+
| Name   | Designation   | Salary |
+--------+---------------+--------+
| Parul  | DataScientist |     10 |
| Shreya | Marketing     |     40 |
| Ram    | NULL          |     40 |
+--------+---------------+--------+
3 rows in set (0.00 sec)
```

**<u>Retrieving Records</u>**

- Select all records

  *select * from <table-name>*

```
mysql> select * from userdetails;
+--------+---------------+--------+
| Name   | Designation   | Salary |
+--------+---------------+--------+
| Parul  | DataScientist |     10 |
| Shreya | Marketing     |     40 |
| Ram    | NULL          |     40 |
| Rohit  | SDE           |     22 |
+--------+---------------+--------+
4 rows in set (0.01 sec)
```

- Select particular column

  *select <colum-name1>,<column-name2> from <table-name>*

```
mysql> select name, designation from userdetails;
+--------+---------------+
| name   | designation   |
+--------+---------------+
| Parul  | DataScientist |
| Shreya | Marketing     |
| Ram    | NULL          |
| Rohit  | SDE           |
+--------+---------------+
4 rows in set (0.00 sec)
```

- Select specific field value of a column

  *select <column-name1>, <column-name2> from <table-name> where <field=name>=<field-value>*

```
mysql> select name, designation from userdetails where salary=40;
+--------+-------------+
| name   | designation |
+--------+-------------+
| Shreya | Marketing   |
| Ram    | NULL        |
+--------+-------------+
2 rows in set (0.01 sec)
```

**NULL vs NOT NULL**

NULL - This means the field of the table is not mandatory
NOT NULL - This means that the row field value musts be set for the record to be inserted in the table

If you want to fetch all the records whose field is NULL you can use following command

*select * from <table-name> where <field> is NULL*

```
mysql> select * from userdetails where designation is NULL;
+------+-------------+--------+
| Name | Designation | Salary |
+------+-------------+--------+
| Ram  | NULL        |     40 |
+------+-------------+--------+
1 row in set (0.00 sec)
```

If you want to fetch record from the table whose field value is not NULL.

*select * from  <table-name> where <field-name> is not NULL*

```
mysql> select * from userdetails where designation is not NULL;
+--------+--------------+--------+
| Name   | Designation  | Salary |
+--------+--------------+--------+
| Parul  | DataScientist |     10 |
| Shreya | Marketing     |     40 |
| Rohit  | SDE           |     22 |
+--------+--------------+--------+
3 rows in set (0.00 sec)
```

**Update Table**

UPDATE `table_name` SET `column_name` = `new_value' [WHERE condition];

**Things to note**

- Updates have to be done one column at a time
- Where clause is used to select the rows on which we want to do the updates
- If the where clause is not used it with set all rows of `column_name` to `new_value'

```
mysql> update userdetails set salary=11;
Query OK, 4 rows affected (0.04 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from userdetails;
+--------+--------------+--------+
| Name   | Designation  | Salary |
+--------+--------------+--------+
| Parul  | DataScientist |     11 |
| Shreya | Marketing     |     11 |
| Ram    | NULL          |     11 |
| Rohit  | SDE           |     11 |
+--------+--------------+--------+
4 rows in set (0.00 sec)
```

Since, where clause is not defined the changes are applied to all the records of the columns.

```
mysql> update userdetails set salary=40 where name="Ram";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from userdetails;
+--------+--------------+--------+
| Name   | Designation  | Salary |
+--------+--------------+--------+
| Parul  | DataScientist |     11 |
| Shreya | Marketing     |     11 |
| Ram    | NULL          |     40 |
| Rohit  | SDE           |     11 |
+--------+--------------+--------+
4 rows in set (0.00 sec)
```

Here, where clause is used hence only Salary field of one record is set.

**Deleting Records**

*Delete from <table-name> where <field-name>=<some-clause>*

```
mysql> delete from userdetails where designation is null;
Query OK, 1 row affected (0.01 sec)

mysql> select * from userdetails;
+--------+--------------+--------+
| Name   | Designation  | Salary |
+--------+--------------+--------+
| Parul  | DataScientist |     11 |
| Shreya | Marketing     |     11 |
| Rohit  | SDE           |     11 |
+--------+--------------+--------+
3 rows in set (0.00 sec)
```

**Alter Table**

## ALTER Command

- To add a new column -

  ALTER TABLE *table_name* ADD COLUMN *column_name data_type*;

- To rename a column -

  ALTER TABLE *table_name* CHANGE COLUMN *old_column_name new_column_name data_type*;

- To change datatype of a column -

  ALTER TABLE *table_name* MODIFY *column_name data_type*;

- To delete a column from table -

  ALTER TABLE *table_name* DROP COLUMN *column_name*;

**Drop Table**

*drop table <table-name>*