



AN ISO 9001:2015 CERTIFIED COMPANY

CHINNAKADA , KOLLAM

MYSQL DATABASE



What is Database

The database is a collection of inter-related data which is used to retrieve, insert and delete the data efficiently. It is also used to organize the data in the form of a table

For example: The college Database organizes the data about the admin, staff, students and faculty etc

There are many databases available like MySQL, Sybase, Oracle, MongoDB, Informix, PostgreSQL, SQL Server, etc



MySQL

- MySQL is a fast, easy to use relational database. It is currently the most popular open-source database. It is very commonly used in conjunction with PHP scripts to create powerful and dynamic server-side applications.
- MySQL is used for many small and big businesses. It is developed, marketed and supported by MySQL AB, a Swedish company. It is written in C and C++.



Reasons of popularity

MySQL is an open-source database so you don't have to pay a single penny to use it.

MySQL supports many operating systems with many languages like PHP, PERL, C, C++, JAVA, etc.

MySQL uses a standard form of the well-known SQL data language.

MySQL is very friendly with PHP, the most popular language for web development.



- MySQL is a Relational DataBase Management System (RDBMS).
- RDBMS means R--DB--MS.
- - DB stands for Database, a repository for the information store.
- The data in a database is organized into tables, and each table is organized into rows and columns.
- Each row in a table is called a record. A record may contains several pieces (called fields) of information, and each column in a table is known as a field.



SQL or Structured Query Language is used to operate on the data stored in a database.

Types of Database Language

Data Definition Language

- o **Create:** It is used to create objects in the database.
- o **Alter:** It is used to alter the structure of the database.
- o **Drop:** It is used to delete objects from the database.
- o **Truncate:** It is used to remove all records from a table.



Data Manipulation Language

- o **Select**: It is used to retrieve data from a database.
- o **Insert**: It is used to insert data into a table.
- o **Update**: It is used to update existing data within a table.
- o **Delete**: It is used to delete all records from a table



The SQL CREATE TABLE statement is used to create a new table and database.

- CREATE

```
CREATE DATABASE database_name;
```

Syntax

```
CREATE TABLE table_name(  
    column1 datatype,  
    column2 datatype,  
    column3 datatype,  
    ....  
    columnN datatype);
```

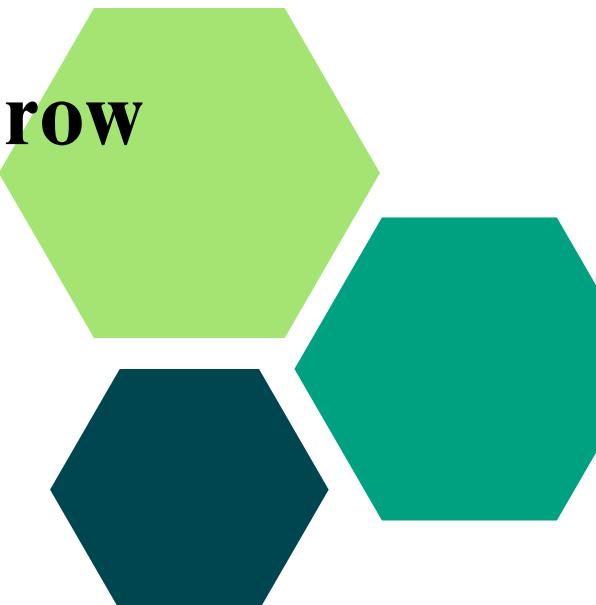


Example

```
CREATE TABLE Employees_details(  
ID int,  
Name varchar(20),  
Address varchar(20) );
```

Example

```
CREATE TABLE Details (  
PersonID int,  
LastName varchar(255),  
FirstName varchar(255),  
City varchar(255)  
);
```



INSERT: The INSERT statement is a SQL query. It is used to insert data into the row of a table.

Syntax:

**INSERT INTO TABLE_NAME (col1, col2, col3,... col N)
VALUES (value1, value2, value3, valueN);**

Or

**INSERT INTO TABLE_NAME
VALUES (value1, value2, value3, valueN);**

For example:

INSERT INTO javatable (Author, Subject) VALUES ("Sonoo", "DBMS");



ALTER: It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

Syntax:

**ALTER TABLE table_name
ADD column_name datatype;**

EXAMPLE

**ALTER TABLE STU_DETAILS
ADD ADDRESS VARCHAR2(20);**



DROP: It is used to delete both the table, record stored in the table and database

Syntax

DROP TABLE TABLE_NAME ;

Example

DROP TABLE EMPLOYEE;

- DROP

DROP database *database_name*;



TRUNCATE: It is used to delete all the rows from the table and free the space containing the table

Syntax:

TRUNCATE TABLE table_name;

Example:

TRUNCATE TABLE EMPLOYEE;

UPDATE: This command is used to update or modify the value of a column in the table.

Syntax:

UPDATE table_name

SET [column_name1= value1,...column_nameN = valueN]

[WHERE CONDITION]

For example:

UPDATE students

SET User_Name = 'virat'

WHERE Student_Id = '3'



DELETE: It is used to remove one or more row from a table.

Syntax:

DELETE FROM table_name [WHERE condition];

For example:

**DELETE FROM java
WHERE Author="virat";**

MySQL count() Function

The MySQL count() function is used to return the count of an expression. It is used when you need to count some records of your table.

```
SELECT COUNT (aggregate_expression) FROM table_name [WHERE conditions];
```

```
SELECT COUNT(ProductID)  
FROM Products;
```



MySQL sum() function

- The MySQL sum() function is used to return the total summed value of an expression.
- **SELECT SUM(aggregate_expression) FROM tables [WHERE conditions];**

```
SELECT SUM(Quantity)  
FROM OrderDetails;
```



MySQL avg() function

- The MySQL avg() function is used to return the average value of an expression.
- **SELECT AVG(aggregate_expression) FROM tables [WHERE conditions];**

```
SELECT AVG(Price)  
FROM Products;
```



MySQL min() function

The MIN() function returns the smallest value of the selected column.

```
SELECT MIN(Price)  
FROM Products;
```



MySQL max() function

The MAX() function returns the largest value of the selected column

```
SELECT MAX(Price)  
FROM Products;
```



MySQL first() function

The MySQL first function is used to return the first value of the selected column. Here, we use limit clause to select first record or more.

- **SELECT column_name FROM table_name LIMIT 1;**



MySQL last() function

- MySQL last function is used to return the last value of the selected column.
- **SELECT column_name FROM table_name ORDER BY column_name DESC LIMIT 1;**



MySQL AND Condition



- The MySQL AND condition is used with SELECT, INSERT, UPDATE or DELETE statements to test two or more conditions in an individual query.
- **WHERE** condition1 AND condition2 ... AND condition_n;

```
SELECT * FROM Customers  
WHERE Country = 'Germany'  
AND City = 'Berlin'
```

MySQL LIKE condition

It allows wildcards to be used in the WHERE clause of a SELECT, INSERT, U or DELETE statement. This allows you to perform pattern matching.

```
SELECT * FROM Customers  
WHERE city LIKE 'L_nd__';
```

```
SELECT customer_name FROM customers WHERE last_name LIKE 'Sm%';
```

```
SELECT customer_name FROM customers WHERE last_name LIKE '%it%';
```

```
SELECT supplier_name FROM suppliers WHERE supplier_name LIKE 'Sm_th';
```



MySQL ORDER BY Clause



- The MySQL ORDER BY Clause is used to sort the records in ascending or descending order.

SELECT expressions

FROM tables

[**WHERE** conditions]

ORDER BY expression [**ASC** | **DESC**];

**SELECT * FROM Products
ORDER BY Price DESC;**

MySQL ORDER BY: without using ASC/DESC attribute



- **SELECT * FROM officers WHERE address = 'Lucknow' ORDER BY officer_name;**



Create table using python

```
import pymysql  
db = pymysql.connect(host="localhost", user="root", password="", database="db1")  
c = db.cursor()  
sql="CREATE TABLE student(std_name varchar(40),dept varchar(20),admno int);"  
c.execute(sql)  
db.commit()  
db.close()
```



Insert datas in python

```
import pymysql  
db = pymysql.connect(host="localhost", user="root", password="", database="db1")  
c = db.cursor()  
sql="INSERT INTO student VALUES ('virat',23,'9161'),('sruthy',23,'9162');"  
c.execute(sql)  
db.commit()  
db.close()
```



fetch datas from table in python

```
import pymysql  
db = pymysql.connect(host="localhost", user="root", password="", database="db1")  
c = db.cursor()  
sql="select * from student"  
c.execute(sql)  
results=c.fetchall()  
print(results)  
db.commit()  
db.close()
```

THANK YOU



AN ISO 9001:2015 CERTIFIED COMPANY

CHINNAKADA , KOLLAM