

## MySQL Programming

**Course Duration: 30 Hours**

### Module 1: Select

Select query is used to fetch the data from the MySQL database. Database stores data for later retrieval. The purpose of MySQL select is to return from the database tables, one or more rows that match a given criteria.

### Module 2: Where

We can use a conditional clause called the WHERE clause to filter out the results. Using this where clause, we can specify a selection criteria to select the required records from a table. The where clause works like an if condition in any programming language. This clause is used to compare the given value with the field value available in MySQL table. If the given value from outside is equal to the given value in MySQL table, then it returns that row.

### Module 3: AND, OR

The WHERE condition in MySQL when used together with the AND logical operator, is only executed if ALL filter criteria specified are met.

The WHERE clause when used together with the OR operator, is only executed if any or the entire specified filter criteria is met.

### Module 4: Order By

MySQL Order By is used in conjunction with the Select query to sort data in an orderly manner. The MySQL Order By clause is used to sort the query result sets in either ascending or descending order. The Order By keyword sorts the records in ascending order by default. To sort records in descending order, use the DESC keyword.

### Module 5: Insert

INSERT INTO is used to store data in tables. The Insert command creates a new row in the table to store data. Application programs that run on top of the database usually supply the data.

### Module 6: Update

Update MySQL command is used to modify rows in a table. The update command can be used to update a single field or multiple fields at the same time. It can also be used to update a MySQL table with values from another table.

### Module 7: Delete

MySQL Delete command is used to delete rows that are no longer required from the database table. It deletes the whole row from the table and returns count of deleted rows. Delete command comes in handy to delete temporary or obsolete data from database. The delete query in MySQL can delete more than one row from a table in a single query. This proves to be advantageous when removing large numbers of rows from database table.

### Module 8: Min and Max

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

### Module 9: Count, Avg, Sum

The COUNT() function returns the number of rows that matches a specific criterion. The AVG() function returns the average value of a numeric column. The SUM() function returns the total sum of a numeric column.

## Module 10: Joins

Joins help retrieving data from two or more database tables. The tables are mutually related using primary and foreign keys.

## Module 11: Create DB

A database is used to store the collection of records in an organized form. It allows us to hold the data into tables, rows, columns, and indexes to find the relevant information frequently. We can access and manage the records through the database very easily. MySQL implements a database as a directory that stores all files in the form of a table. It allows us to create a database mainly in two ways, first is MySQL Command Line Client and second is MySQL Workbench.

## Module 12: Drop DB

The MySQL Drop user statement allows us to remove one or more user accounts and their privileges from the database server. If the account does not exist on the database server, it gives an error. If you want to use Drop User Statement, it is required to have global privileges of Create User statement or delete privileges for the MySQL system schema.

## Module 13: Create, Drop Table

A table is used to organize data in the form of rows and columns and used for both storing and displaying records in the structure format. It is similar to worksheets in the spreadsheet application. A table creation command requires three things, first Name of the Table. Second, Names of Fields. Third, Definition for each Field. MySQL uses a Drop Table statement to delete the existing table. This statement removes the complete data of a table along with the whole structure or definition permanently from the database.

## Module 14: Alter Table

MySQL Alter statement is used when you want to change the name of your table or any table field. It is also used to add or delete an existing column in a table. The Alter statement is always used with "ADD", "DROP" and "MODIFY" commands.

## Module 15: Constraints

The constraints in MySQL are used to specify the rule that allows or restricts what values/data will be stored in the table. They provide a suitable method to ensure data accuracy and integrity inside the table. It also helps to limit the type of data that will be inserted inside the table.

## Module 16: Unique

A Unique Key in MySQL is a single field or combination of fields that ensure all values going to be stored into the column will be unique. It means a column cannot store duplicate values. MySQL allows us to use more than one column with Unique Constraint in a table. It can accept null value, but MySQL allows only one null value per column.

## Module 17: Primary Key, Foreign Key

MySQL Primary key is a single or combination of the field, which is used to identify each record in a table uniquely. If the column contains primary key constraint, then it cannot be null or empty. The foreign key is used to link one or more than one table together. It is also known as the referencing key. A foreign key matches the primary key field of another table.

## Module 18: Auto Increment

Auto-increment is defined as a field that is mainly used to generate a unique number for each record being added to a table at any instance. In general terms, it is used for a primary key column because a primary key in SQL is supposed to be unique and not null. Thus, auto-increment makes it easy for the developers to automatically generate a unique number for all the records.

## Module 19: Dates

The date function allows us to handle dates effectively. While working with the database, the format of the date should be consistent while inserting data into the table. We have a variety of data types in SQL server that can be used as the date in our table. The most popular format of date is 'YYYY-MM-DD' and 'DD-MM-YYYY'.