

You can only do so much with storing information in files. When you need to store large amounts of data, and perform intensive number crunching on that data. In this section, we'll discuss connecting PHP to a MySQL database and perform queries and retrieve data back from the database.

The first thing that we need to do before we can interact with any database, is to open up a connection to that database server. This is done by using the `mysqli_connect()` function, which returns a database handler, much like a file handler when dealing with files. The database handler is then used to select the active database to use.

PHP 5 and later can work with a MySQL database using:

- MySQLi extension (the "i" stands for improved)
- PDO (PHP Data Objects)

Earlier versions of PHP used the MySQL extension. However, this extension was deprecated in 2012. we can access data in the MySQL database, we need to be able to connect to the server:

How to connect MySQL in PHP.

Syntax: `mysqli_connect(servername,username,password,DatabaseName)`

`<?php`

```
// Create connection
$link = mysqli_connect("localhost", "root", "", "aligarh");

// Check connection
if (!$link)
{
    die("Connection failed: " . mysqli_connect_error());
}
echo "Connected successfully";

mysqli_close($link); ?>
```

Close the Connection from MySQL in PHP.

Syntax: `mysqli_close($Link)`

Insert Data into database of MySQL Using MySQLi in PHP.

After a database and a table have been created, we can start adding data in them. Here are some syntax rules to follow:

- The SQL query must be quoted in PHP
- String and date values inside the SQL query must be quoted □ Date format should be this format “yy-dd-mm”.
- Numeric values must not be quoted
- The word NULL must not be quoted

Function of MySQLi for database handling.

mysqli_connect() function is use to open a new connection to the MySQL server.

Syntax: \$ConnectionLink = **mysqli_connect** (HostName, UserName, Password, DatabaseName, Port, Socket)

mysqli_close function is use to close the connection from MySQL server.

Syntax: **mysqli_close** (\$connectionLink)

The **mysqli_connect_errno()** Client error message numbers are listed in the MySQL **errmsg.h** header file, server error message numbers are listed in **mysqld_error.h**. In the MySQL source distribution, you can find a complete list of error messages and error numbers in the file Docs/mysqld_error.txt.

Syntax: **mysqli_connect_errno** ()

The **mysqli_error()** function returns the last error description for the most recent function call, that can succeed or fail. A string that describes the error. An empty string if no error occurred.

Syntax: **mysqli_error** (\$connectionLink);

The **mysqli_query()** function is use to Perform queries against the database. Returns FALSE on failure. For successful SELECT, SHOW and DESCRIBE queries **mysqli_query()** will return a result object. For INSERT, UPDATE , DELETE and other successful queries **mysqli_query()** will return TRUE.

Syntax: \$Result = **mysqli_query** (\$ConnectionLink, \$Query);

The **mysqli_num_rows()** function is used to get the number of rows returned from a select query. It is generally used to check if data is present in the database or not. To use this function, it is mandatory to first set up the connection with the MySQL database.

Syntax: `$RowCount = mysqli_num_rows ($Result);`

The `mysqli_fetch_array()` function is used to fetch row arrays from a query result set. After the data is retrieved, this function moves to the next row in the record set. Each subsequent call to `mysqli_fetch_array()` returns the next row in the record set.

Syntax: `$Rows = mysqli_fetch_array ($ResultObject);`

What is CRUD OPERATION?

Within computer programming, the acronym CRUD stands for create, read, update and delete. Most applications have some form of CRUD functionality. In fact, every programmer has to deal with CRUD at some point. A CRUD application is one that utilizes forms to retrieve and return data from a database.

Example of add new record into database table.

The INSERT INTO statement is used to add new records to a MySQL table: before we created an empty table named "Students" with three columns: "Roll", "Name" and "Father Name". Now, let us fill the table with data.

```
<?php
```

```
    // first, here write connection code of MySQL
```

```
    $sql = "INSERT INTO Students (Roll, Name, FatherName) VALUES ( 11, 'Irfan', 'Imran')";
    if (mysqli_query($Link, $sql))
    {
        echo "Add New record created successfully in the table students";
    }
    else
    {
        echo "Error: " . $sql . "<br>" . mysqli_error($Link);
    }
    mysqli_close($Link);
```

```
?>
```

Select/Retrieve Data from database of MySQLi using by PHP.

Example of Display All Records.

First, we set up an SQL query that selects the **Roll**, **Name** and **FatherName** columns from the **Students** table. The next line of code runs the query and puts the resulting data into a variable called **\$result**. Then, the function `mysqli_num_rows()` checks if there are zero or more than zero rows returned.

If there are more than zero rows returned, the function `mysqli_fetch_array()` puts all the results into an array that we can loop through. The `while()` loop loops through the result set and outputs the data from the Roll, Name and FatherName columns.

The following example selects the Roll, Name and FatherName columns from the Students table and display all records on the web page:

```
<?php
```

```
    // first, here write connection code of MySQL
```

```
$sql = "SELECT Roll, Name, FatherName FROM Students";  
$result = mysqli_query($Link, $sql);
```

```
while ( ($row = mysqli_fetch_array($result) ) )  
{  
    echo "Roll Number: " . $row['Roll']. "<br>";  
    echo "Student Name: " . $row['Name']. "<br>";  
    echo "Father Name: ".$row['FatherName']. "<br><br>";
```

```
    }  
    mysqli_close($Link);
```

```
?>
```

Example of Display Single/Search Record using by PHP.

```
<?php
```

```
    // first, here write connection code of MySQL
```

```
$sql = "SELECT Roll, Name, FatherName FROM Students WHERE Roll=1";  
$result = mysqli_query($Link, $sql);
```

```
if ( ($row = mysqli_fetch_array($result) ) )  
{  
    echo "Roll Number: " . $row['Roll']. "<br>";  
    echo "Student Name: " . $row['Name']. "<br>";  
    echo "Father Name: ".$row['FatherName']. "<br><br>";  
} else  
{  
    echo "Record is not found ..... ";
```

```
}  
    mysqli_close($Link);  
?>
```

Example of Update Record using by PHP.

```
<?php  
  
    // first, here write connection code of MySQL  
  
    $sql = "UPDATE Students SET Name ='Salman Khan' WHERE Roll = 1";  
if ( mysqli_query($Link, $sql))  
    {  
        echo "Record Has been Updated successfully in the table Students";  
    }  
else  
    {  
        echo "Error: " . $sql . "<br>" . mysqli_error($Link);  
    }  
    mysqli_close($Link);  
?>
```

Example of Delete Record using by PHP.

```
<?php  
  
    // first, here write connection code of MySQL  
$sql = "DELETE FROM Students WHERE Roll = 1";    if  
( mysqli_query($Link, $sql) )  
    {  
        echo "Record Has been Deleted Successfully in the table Students";  
    }  
else  
    {  
        echo "Error: " . $sql . "<br>" . mysqli_error($Link);  
    }  
    mysqli_close($Link);  
  
?>
```

Exercise Theory

Questions.

- 1) What do you mean by CRUD.
- 2) Write five MySQLi function for use database handling with syntax. **Practical**

Questions.

- 1) Write code of PHP for use connect to the database name "**Education**".
- 2) You write a program to input **Roll, Name** and **Father Name** for add new record in the table "**Students**" of database "**Education**".
- 3) Write a program to input **Roll** number and delete record according to input roll number from table "**Students**" of database "**Education**".
- 4) Write a program to display student record according to specific input **Roll** number from table "**Students**" of database "**Education**".
- 5) Write a PHP program to Display All records from table **Students** of database name is "**Education**". Display all records are following form.

S.No	Roll	Name	Father Name
1	11	Muhammad Ali	Imran Khan
2	120	Farooq Ahmed	Usman Ahmed
3	7	Asif Ali	Rehan Ali

Objective and MCQ's

- 1) The _____ function is used fetch row arrays from a query result set.
 - a) mysqli_rows_num()
 - b) mysqli_fetch_array()
 - c) mysqli_close()
 - d) Nothing.
- 2) mySQLi extension is _____.
 - a) (the "i" stands for important)
 - b) (the "i" stand for ignore)
 - c) (the "i" stand for improved)
 - d) Nothing
- 3) The _____ function is use to Perform queries against the database.
 - a) mysqli_error()
 - b) mysqli_connect()
 - c) mysqli_query()
 - d) mysqli_open()
- 4) Write syntax is of mysqli_connect is _____.
 - a) mysqli_connect(username,password,hostname)

- b) `mysqli_connect(password,hostname,databasename)`
- c) `mysqli_connect(hostname,username,password)`
- d) `mysqli_connect(hostname,username,password,databasename)`