

Web Technologies (ICDT6004) – Lecture 8

Database Connection in PHP

Aims of lecture

- At the end of today's lecture students should be able to
 - Connect to a mysql database using php
 - Retrieve, Insert, update and delete data from a mysql database using php

MySQL

- MySQL is a database system that can be used for the web
- MySQL is ideal for both small and large applications
- MySQL uses standard SQL
- Comes with the easyphp that was installed in previous lecture

MySQL Installation and Use

- Demo in class.

PHP with MySQL

- PHP can be used to connect to and manipulate databases.
- In this module, MySQL will be used.
- PHP 5 and later can work with a MySQL database using:
 - **MySQLi extension** (the "i" stands for improved)
 - **PDO (PHP Data Objects)**

Open a connection - MySQLi (Procedural)

- First step to be able to access data in a MySQL database is creation of a connection

```
<?php
$servername = "localhost";
$username = "root";           //username of user
$password = "";               //password of above user
$db = "web_project";

// Create connection
$conn = mysqli_connect($servername, $username, $password, $db);

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

Open a connection - PDO Code

```
<?php
$servername = "localhost";
$username = "root";           //username of user
$password = "";               //password of above user

try {
    //here the name of the database needs to be specified
    $conn = new PDO("mysql:host=$servername;dbname=web_project", $username,
    $password);
    // set the PDO error mode to exception
    $conn->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);
    echo "Connected successfully";
}
catch(PDOException $e)
{
    echo "Connection failed: " . $e->getMessage();
}
?>
```

Close a connection

- `mysqli_close($conn);`
- OR
- `$conn = null;`

Creating a table(1)

```
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "web_project";

// Create connection
$conn = mysqli_connect($servername, $username, $password, $dbname);
// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}

$sql = "CREATE TABLE `users` (
  `username` varchar(25) NOT NULL,
  `full_name` varchar(50) NOT NULL,
  `email` varchar(50) NOT NULL,
  `password` varchar(15) NOT NULL,
  `gender` varchar(10) NOT NULL,
  `dob` date NOT NULL,
  `country` varchar(20) NOT NULL,
  `occupation` varchar(50) NOT NULL,
)";
```

Creating a table(2)

```
if (mysqli_query($conn, $sql)) {  
    echo "Table users created successfully";  
} else {  
    echo "Error creating table: " .  
mysqli_error($conn);  
}  
  
mysqli_close($conn);  
?>
```

Creating a table - PDO(1)

```
<?php
$servername = "localhost";
$username = "root";    //username of user
$password = "";        //password of above user

try {
    $conn = new PDO("mysql:host=$servername;dbname=web_project", $username, $password);
    $conn->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);

    $sql = "CREATE TABLE `users` (
        `username` varchar(25) NOT NULL,
        `full_name` varchar(50) NOT NULL,
        `email` varchar(50) NOT NULL,
        `password` varchar(15) NOT NULL,
        `gender` varchar(10) NOT NULL,
        `dob` date NOT NULL,
        `country` varchar(20) NOT NULL,
        `occupation` varchar(50) NOT NULL,
    )";
```

Creating a table - PDO(2)

```
// use exec() because no results are returned
$conn->exec($sql);
echo "Table users created successfully";
}
catch(PDOException $e)
{
    echo $sql . "<br>" . $e->getMessage();
}

$conn = null;
?>
```

Select data (Mysqli)

```
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "web_project";

// Create connection
$conn = mysqli_connect($servername, $username, $password, $dbname);
// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}

$sql = "SELECT username, fullname, email FROM users";
$result = mysqli_query($conn, $sql);

if (mysqli_num_rows($result) > 0) {
    // output data of each row
    while($row = mysqli_fetch_assoc($result)) {
        echo "username: " . $row["username"]. " - Name: " . $row["fullname"]. " - Email: " . $row["email"]. "<br>";
    }
} else {
    echo "0 results";
}

mysqli_close($conn);
?>
```

Parametrization

- The code for connecting to the database is repeated on various pages.
- Can be saved as dbconnect.php and used on the different pages.
- Included into the php page by using the following code:
 - `include("dbconnect.php");`
- Advantages?

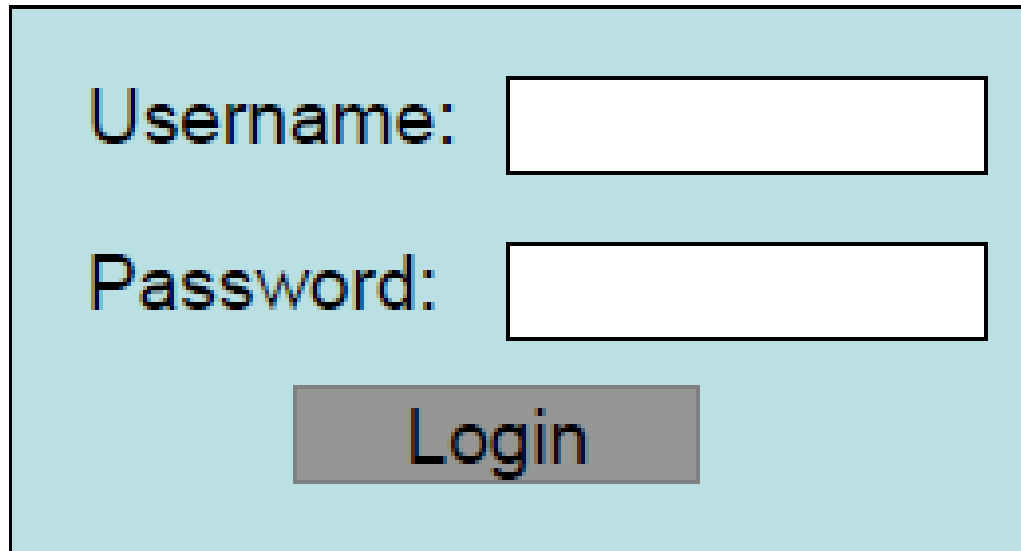
Parametrization – connectdb.php

```
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "web_project";

// Create connection
$conn = mysqli_connect($servername, $username, $password,
$dbname);

// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}
?>
```

Example 1: login.html



A login form with a light blue background. It contains two labels, "Username:" and "Password:", each followed by a white input field with a black border. Below the input fields is a gray button with the text "Login".

Username:

Password:

Login

login.html

Login.html

- Consider the login.html page given above, when the page is submitted all information is submitted to checklogin.php.
- `<form name="frmlogin" method="post" action="checklogin.php">`
- The username and password captured on the login.html page is checked against saved values in the database and user is redirected to secondpage.php if all is ok.
- Write the code for login.html and checklogin.php

Checklogin.php(incomplete)

```
<?php
```

```
//missing code to capture username and password from previous page
```

```
//missing code to connect to mysql database and select database  
'registered_users'
```

```
$sql = "Select * from login where username='$username' and  
password='$pwd'";
```

```
//missing code to run query and catch any possible errors
```

```
if (mysqli_num_rows($result) > 0) {  
header("Location:secondpage.php");  
}
```

```
//missing code to close connection
```

```
?>
```

Inserting data

```
<?php
```

```
include("dbconnect.php");
```

```
INSERT INTO `users` (`username`, `full_name`, `email`, `password`, `gender`, `dob`, `country`,  
`occupation`, `type`) VALUES
```

```
('newuser', 'test user', 'testuser@uom.ac.mu', 'testuser', 'female', '2018-02-04', 'Mauritius',  
'student', 'bronze');
```

```
$sql = "INSERT INTO users (username, fullname, email, password, gender, dob, country,  
occupation) VALUES ('John', 'Doe', 'john@example.com', 'johndoe', 'male', '2018-02-04',  
'Mauritius', 'student')";
```

```
//VALUES ('$_POST[txtusername]',...);
```

```
if (mysqli_query($conn, $sql)) {
```

```
    echo "New record created successfully";
```

```
} else {
```

```
    echo "Error: " . $sql . "<br>" . mysqli_error($conn);
```

```
}
```

```
mysqli_close($conn);
```

```
?>
```

Inserting multiple data

```
<?php
include("dbconnect.php");

$sql = "INSERT INTO users (username, fullname, email, password, gender, dob,
country, occupation) VALUES ('John', 'Doe', 'john@example.com', 'johndoe', 'male', '
2018-02-04', 'Mauritius', 'student')";

$sql .= "INSERT INTO users (username, fullname, email, password, gender, dob,
country, occupation) VALUES ('John1', 'Doe1', 'john1@example.com', 'johndoe1',
'male', ' 2018-02-04', 'Mauritius', 'student1')";

$sql .= "INSERT INTO users (username, fullname, email, password, gender, dob,
country, occupation) VALUES ('John2', 'Doe2', 'john2@example.com', 'johndoe2',
'male', ' 2018-02-04', 'Mauritius', 'student2')";

if (mysqli_multi_query($conn, $sql)) {
    echo "New records created successfully";
} else {
    echo "Error: " . $sql . "<br>" . mysqli_error($conn);}
mysqli_close($conn);
?>
```

Updating data

```
//code to connect to the database
```

```
$sql = "UPDATE users SET email='john1doe@example.com'
WHERE username='john1'";
```

```
if (mysqli_query($conn, $sql)) {
    echo "Record updated successfully";
} else {
    echo "Error updating record: " . mysqli_error($conn);
}
```

```
mysqli_close($conn);
?>
```

Code to delete a field

- ```
include("dbconnect.php");
// sql to delete a record
$sql = "DELETE FROM users WHERE
username='john2'";

if (mysqli_query($conn, $sql)) {
 echo "Record deleted successfully";
} else {
 echo "Error deleting record: " . mysqli_error($conn);
}

mysqli_close($conn);
?>
```

# References

- My previous lecture notes
- [Http://www.w3schools.com](http://www.w3schools.com)
- <http://www.html5rocks.com>

Questions?