

Adding Role-Based Access Control

In the previous tutorials, users could register, log in, access protected pages and log out. In this tutorial, you will add roles to your user accounts and restrict access to pages based on those roles.

The system will support three roles:

```
admin
teacher
student
```

Add a Role Column to the Users Table

Open phpMyAdmin and select your `project_db` database.

Run the following SQL statement:

```
ALTER TABLE users
ADD role VARCHAR(20) NOT NULL DEFAULT 'student';
```

This creates a new field called `role` and automatically assigns the value `student` to any existing or future users.

Check the Updated Table

Run:

```
SELECT * FROM users;
```

You should now see a role column.

Example:

user_id	username	password	role
1	admin	\$2y\$10\$...	student
2	teacher	\$2y\$10\$...	student

Update Existing Users

Update the admin account:

```
UPDATE users
SET role = 'admin'
WHERE username = 'admin';
```

Update the teacher account:

```
UPDATE users
SET role = 'teacher'
WHERE username = 'teacher';
```

Run:

```
SELECT * FROM users;
```

Example:

user_id	username	role
1	admin	admin
2	teacher	teacher
3	testuser	student

	user_id	username	password	role
☐ Edit ☐ Copy ☐ Delete	1	admin	\$2y\$10\$rsxUoLNwmn/rSdRycD1efe1p56TNC2RLmYyQvlt84...	admin
☐ Edit ☐ Copy ☐ Delete	2	teacher	\$2y\$10\$.Z/p08yOHBi0HGdCnuBqyuPwmXPgBHLgBDuJK7EEuSs...	teacher
☐ Edit ☐ Copy ☐ Delete	3	testuser	\$2y\$10\$Qhb9miYevxo9AAVenO12ruVi71DpwR0b2iy9suZc9BG...	student

Store the User Role in the Session

Open:

```
login.php
```

Locate:

```
$_SESSION["user_id"] = $user["user_id"];  
$_SESSION["username"] = $user["username"];
```

Add:

```
$_SESSION["role"] = $user["role"];
```

The completed section should look like:

```
$_SESSION["user_id"] = $user["user_id"];  
$_SESSION["username"] = $user["username"];  
$_SESSION["role"] = $user["role"];  
  
header("Location: members.php");  
exit();
```

This stores the user's role when they log in.

Display the User Role

Open:

```
members.php
```

Add:

```
<p>Role:  
<?php echo $_SESSION["role"]; ?>  
</p>
```

Example:

```
<p>Welcome,  
<?php echo $_SESSION["username"]; ?>  
</p>  
  
<p>Role:  
<?php echo $_SESSION["role"]; ?>  
</p>
```

Save the file and log in.

Example result:

```
Welcome, admin  
  
Role: admin
```

Create an Admin Page

Create a new file called:

```
admin.php
```

Add the following code:

```
<?php  
  
session_start();  
  
if (!isset($_SESSION["user_id"])) {  
  
    header("Location: login.php");  
    exit();  
  
}  
  
if ($_SESSION["role"] != "admin") {
```

```
        die("Access denied.");

    }

?>

<!DOCTYPE html>
<html>
<head>
    <title>Admin Area</title>
</head>
<body>

<h1>Admin Area</h1>

<p>Welcome,
<?php echo $_SESSION["username"]; ?>
</p>

</body>
</html>
```

Save the file.

Test Admin Access

Log in as:

Visit:

The page should load successfully.

Test Non-Admin Access

Log out.

Log in as:

teacher

or

student

Visit:

http://localhost/admin.php

You should see:

Access denied.

Add an Admin Link

Open:

members.php

Add:

```
<?php if ($_SESSION["role"] == "admin") { ?>

<p>
    <a href="admin.php">Admin Area</a>
</p>

<?php } ?>
```

Example:

```
<p>
    <a href="logout.php">Logout</a>
</p>
```

```
<?php if ($_SESSION["role"] == "admin") { ?>

<p>
    <a href="admin.php">Admin Area</a>
</p>

<?php } ?>
```

Now only administrators will see the Admin Area link.

Complete SQL Commands

```
ALTER TABLE users
ADD role VARCHAR(20) NOT NULL DEFAULT 'student';

UPDATE users
SET role = 'admin'
WHERE username = 'admin';

UPDATE users
SET role = 'teacher'
WHERE username = 'teacher';

SELECT * FROM users;
```

Complete Role Storage Code

```
$_SESSION["user_id"] = $user["user_id"];
$_SESSION["username"] = $user["username"];
$_SESSION["role"] = $user["role"];

header("Location: members.php");
exit();
```

You now have a role-based access system that supports:

- Admin users
- Teacher users
- Student users

You can use the same technique to create protected pages for different user groups.

Next tutorial: **Creating a Navigation Menu Based on User Roles.**

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