Student Grade Portal with Authentication and State Management

Build a Student Grade Portal that explores the concepts of **Cookies**, **Session based authentication** and **Password hashing**.

Part 1: Database Setup

Open your Xampp. Start Apache and MySQL servers. Execute the following queries in the SQL tab of phpmyadmin.

Link to Query

Part 2: System Setup

1. Create a new folder inside the htdocs folder (located inside xampp folder).

2. Setup database connection in a new file named **db.php.**

   Link to connection setup code

Part 3: **Session Based Authentication**

1. Create **register.php**

2. Create a form with student_id, name, password

3. **Implement password hashing**

   password_hash($password, PASSWORD_BCRYPT)

4. Use **Prepared statements** to add student to database using **INSERT** query

5. Redirect to **login page** after success (Create **login.php**)

6. In **login.php** page create a form with student_id and password

7. When the submit button is clicked, check if a student with that student_id exists in the database using a **SELECT** query.

   Get the stored hashed password.

8. Use **password_verify()** to verify that user entered password matches the hashed password stored in the database

   password_verify($password, $storedhash)

9. If the password gets verified, start a PHP session for implementing session based state management.

   session_start()

10. Store $_SESSION['logged_in'] = true

11. Redirect to **dashboard page** (Create **dashboard.php**). This page contains **navigation links** to other pages and a **welcome message**.

Part 4: **Changing User Preference using Cookie**

1. In **dashboard.php**, check $_SESSION['logged_in']

2. Redirect to **login page (login.php)** if not logged in (session variable is not set).

3. Check $_COOKIE['theme'] .

4. Read cookie for theme $_COOKIE['theme'] . If not set, give the default value for the theme variable as "light mode".

5. Apply CSS based on theme. Eg: set the background color/font color of the body to black or white.

6. Add the Logout button. When Clicked, destroy the session (session_destroy()) and redirect to the **login page (login.php).**

7. Create a **preference.php** page with a simple form to select the theme.

   setcookie('theme', $value, time()+86400*30)

   Read with $_COOKIE['theme'] and apply the CSS immediately.

```php
<?php

require 'db.php';

try{
    if($_SERVER['REQUEST_METHOD']==="POST" && isset($_POST['add_student'])){

    $student_id = $_POST['student_id'];
    $name = $_POST['name'];
    $password = $_POST['password'];
    $hashedPassword = password_hash($password, PASSWORD_BCRYPT);


    $sql = "INSERT INTO students (student_id, full_name, password_hash) VALUES (?,?,?)";
    $stmt = $pdo->prepare($sql);
    $stmt->execute([$student_id,$name,$hashedPassword]);

    header("Refresh:2 url=login.php");
}
}catch(PDOException $e){
    die("Database error".$e->getMessage());
}

?>
```

```php
<?php

require 'db.php';

if($_SERVER['REQUEST_METHOD']==="POST" && isset($_POST['login'])){
    $name = $_POST['name'];
    $password = $_POST['password'];

    $sql = "SELECT * FROM students WHERE full_name=?";

    $stmt= $pdo->prepare($sql);
    $stmt->execute([$name]);
    $student = $stmt->fetch();

    if($student){

        $hashedPassword = $student['password_hash'];

        $isPasswordValid = password_verify($password, $hashedPassword);

        if($isPasswordValid){
            session_start();
            $_SESSION['logged_in']=true;
            $_SESSION['name']=$student['name'];


            header("Location:dashboard.php");

        }
        else{
            echo "Invalid password. Please Try Again!";
        }

    }else{
        echo "Invalid name";
    }


}

?>
```

```php
<?php
session_start();

$isUserLoggedIn = $_SESSION['logged_in'];
$name = $_SESSION['name'];

if(!$isUserLoggedIn){
    $message = "Please login first!";
    header('Refresh:2 url:login.php');
}
else{
    $message = "Welcome ".$name;
}

// Check cookie for theme preference
$theme = 'light-mode'; // default value
if (isset($_COOKIE['theme'])) {
    $theme = $_COOKIE['theme'];
}

if (isset($_POST['change_theme'])) {
    if($theme=='light-mode'){
        $new_theme = 'dark-mode';
    }else{
        $new_theme = 'light-mode';
    }
    setcookie('theme', $new_theme, time() + (86400 * 30), "/");
    $theme = $new_theme;
}
```

			id	student_id	full_name	password_hash
☐	🖉 Edit	ﮑ Copy ⊝ Delete	1	np0023	Ram Prasad	$2y$10$Something
☐	🖉 Edit	ﮑ Copy ⊝ Delete	2	np5678	Sita Kumari	$2y$10$pass
☐	🖉 Edit	ﮑ Copy ⊝ Delete	3	7	isha	$2y$10$.Yrcms8aVflk6HgQgSO5fORQCklbKiBCzXuMPTn6bwu...

↑ ☐ Check all   *With selected:* 🖉 Edit   ﮑ Copy   ⊝ Delete   🖥 Export

Result:

Welcome to Student Database!

Login

Name: [   ] Password: [   ] Login

GPU PWR   8 W
GPU TEMP   46 °C
Switch to Dark mode Mode 762 mV
GPU VOLTAGE   762 mV
GPU MEM CLK   1000 MHz
CPU UTIL   21 %

Welcome to Dashboard

Current Theme: Light Mode

Invalid password. Please Try Again!

Login

Name: [   ] Password: [   ] Login

GPU TEMP   45 °C
Switch to light-mode Mode.   749 mV
GPU VOLTAGE
GPU MEM CLK   2800 MHz
CPU UTIL   8 %

Welcome to Dashboard

Current Theme: Dark Mode