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TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

School of Computer Engineering and Technology
Academic Year: 2023-2024 Sem V

Fullstack Development

Lab Assignment : 04

Title: Aim: Write server-side script in PHP to perform form validation and create database application using PHP and MySQL to perform insert, update, delete and search operations.

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Aim: Write server-side script in PHP to perform form validation and create database application using PHP and MySQL to perform insert, update, delete and search operations.

Objectives:

1. To understand Server-side Scripting.
2. To learn database connectivity using PHP-MySQL.
3. To perform insert, update, delete and search operations on database.

Theory:

1. **PHP Architecture.**
   Client Request: A user sends a request to the webserver, asking for a PHP file or a resource that requires PHP processing.

   Web Server Processing: The webserver (like Apache or Nginx) receives the request. If it's a PHP file, the server recognizes it as needing PHP processing.

   PHP Interpreter: The web server forwards the PHP file to the PHP interpreter. The interpreter reads and processes the PHP code, executing it line by line.

   Database and External Resources: PHP can interact with databases, files, or external APIs. It can query databases like MySQL, PostgreSQL, or others to retrieve or modify data.

   Dynamic Content Generation: PHP generates dynamic content, such as HTML, based on the logic and data processing. It can also manage sessions, cookies, and other user-specific information.

Response to Client: Once PHP finishes processing, it generates HTML, CSS, JavaScript, or other content to be sent back to the web server.

Server Response: The web server then sends the generated content as a response to the user's request.

2. **Steps for Database connectivity in PHP.**
   Choose the Database: Determine the type of database you want to connect to (e.g., MySQL, PostgreSQL, SQLite).

   Database Credentials: Collect the necessary information: hostname or IP address, username, password, and database name.

   Select the PHP Extension: Decide between MySQLi or PDO for database connection. Ensure the selected extension is enabled in PHP configuration.

   Establish Connection: Use PHP functions like mysqli_connect() or PDO's new PDO() to establish a connection to the database server by passing the required credentials.

   Check Connection: Verify if the connection was successful using conditional statements and error handling mechanisms (if-else or try-catch blocks).

   Execute Queries: Once connected, execute SQL queries using PHP functions (mysqli_query() or PDO's query()) to interact with the database—retrieve, insert, update, or delete data.

Handle Errors: Implement error handling to manage database connection failures or query execution errors. Display meaningful messages for debugging purposes.

Close Connection (Optional): When done with database operations, close the connection using mysqli_close() (for MySQLi) or all.

FAQ:

1. What are the advantages of Server-side Scripting?

   Ans - Dynamic Content Generation: Server-side scripting enables the creation of dynamic web pages that respond to user inputs or database interactions in real-time. This allows for personalized and interactive content delivery.

   Enhanced Security: As server-side scripts execute on the server rather than the user's browser, it minimizes the exposure of sensitive code and data, significantly reducing the risk of security breaches or data leaks.

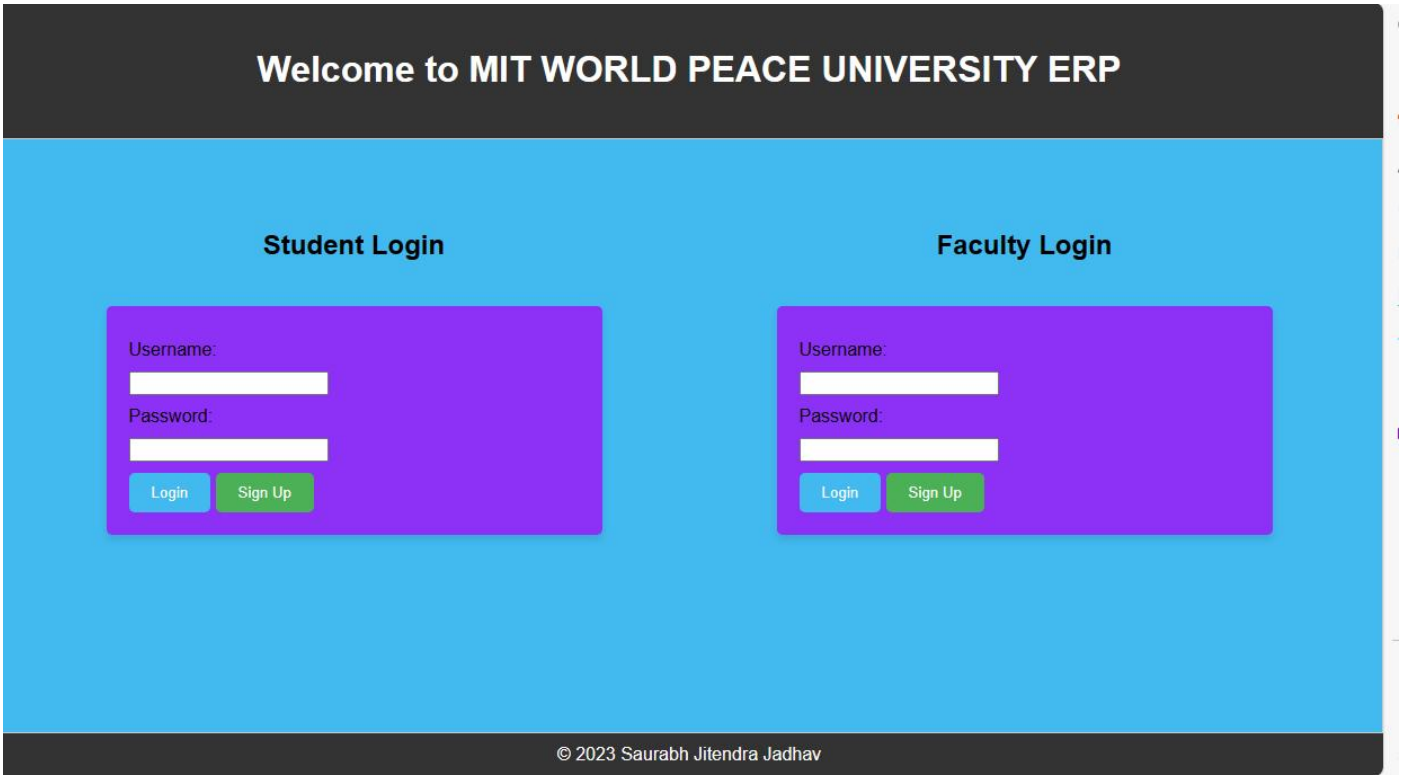
   Database Interaction: Server-side scripting languages seamlessly interact with databases, facilitating efficient data retrieval, storage, and manipulation. This capability is essential for dynamic websites reliant on managing and displaying various types of information.

2. What is XAMPP and phpMyAdmin?
   Ans - XAMPP is a cross-platform software package that includes Apache, MySQL, PHP, and Perl, creating a local server environment for web development. It provides a convenient way to set up and manage a web server on your computer.

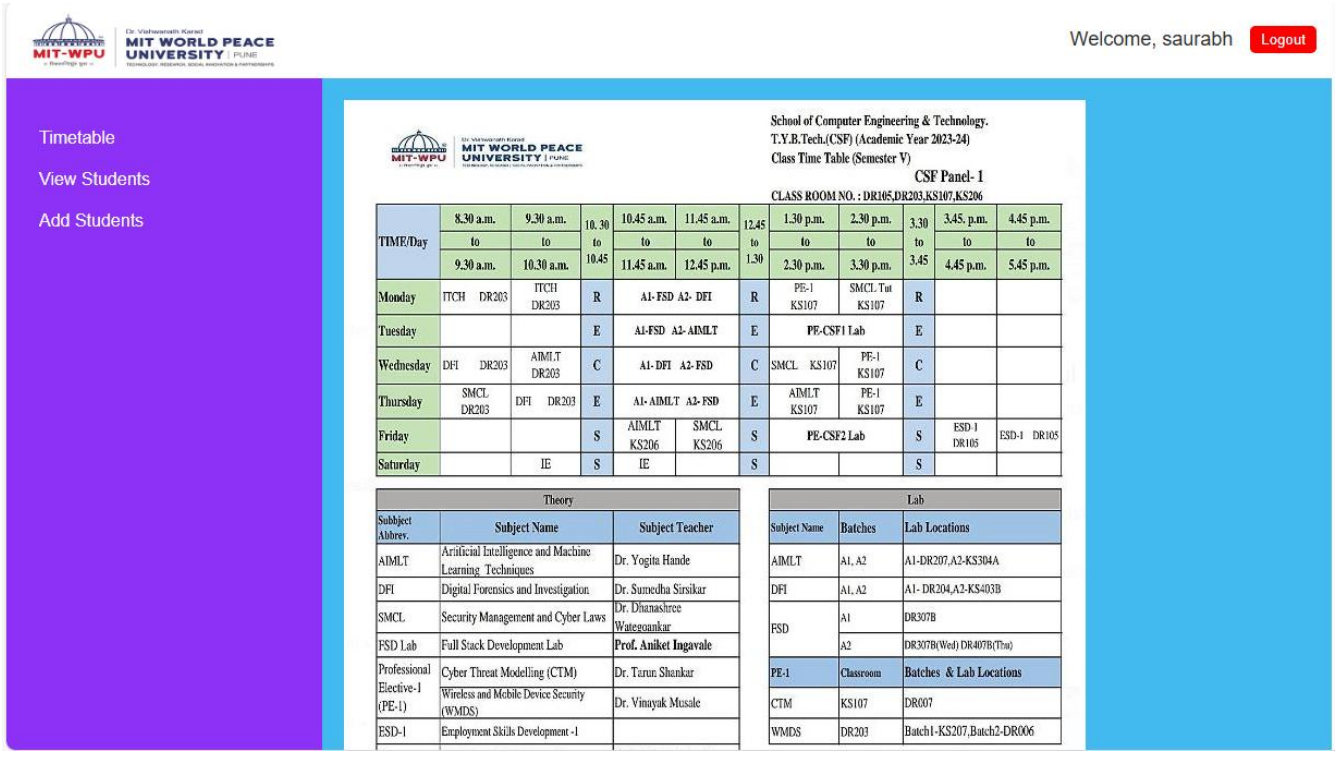
phpMyAdmin is a web-based application used to manage MySQL databases through a graphical interface. It allows users to perform various tasks such as database creation, querying, modification, and management using a browser, simplifying database administration for developers.

3. What are the two ways to connect to a database in PHP?
   Ans - MySQLi (MySQL Improved): This extension provides both a procedural and an object-oriented interface, offering enhanced features compared to the older MySQL extension. It supports prepared statements, transactions, and other functionalities.
   PDO (PHP Data Objects): PDO is a database access layer providing a consistent interface for various databases, including MySQL, PostgreSQL, SQLite, and more. It offers flexibility and security features like prepared statements, making it easier to switch between different databases without altering the code significantly.

Implementation:-



Faculty Dashboard:-



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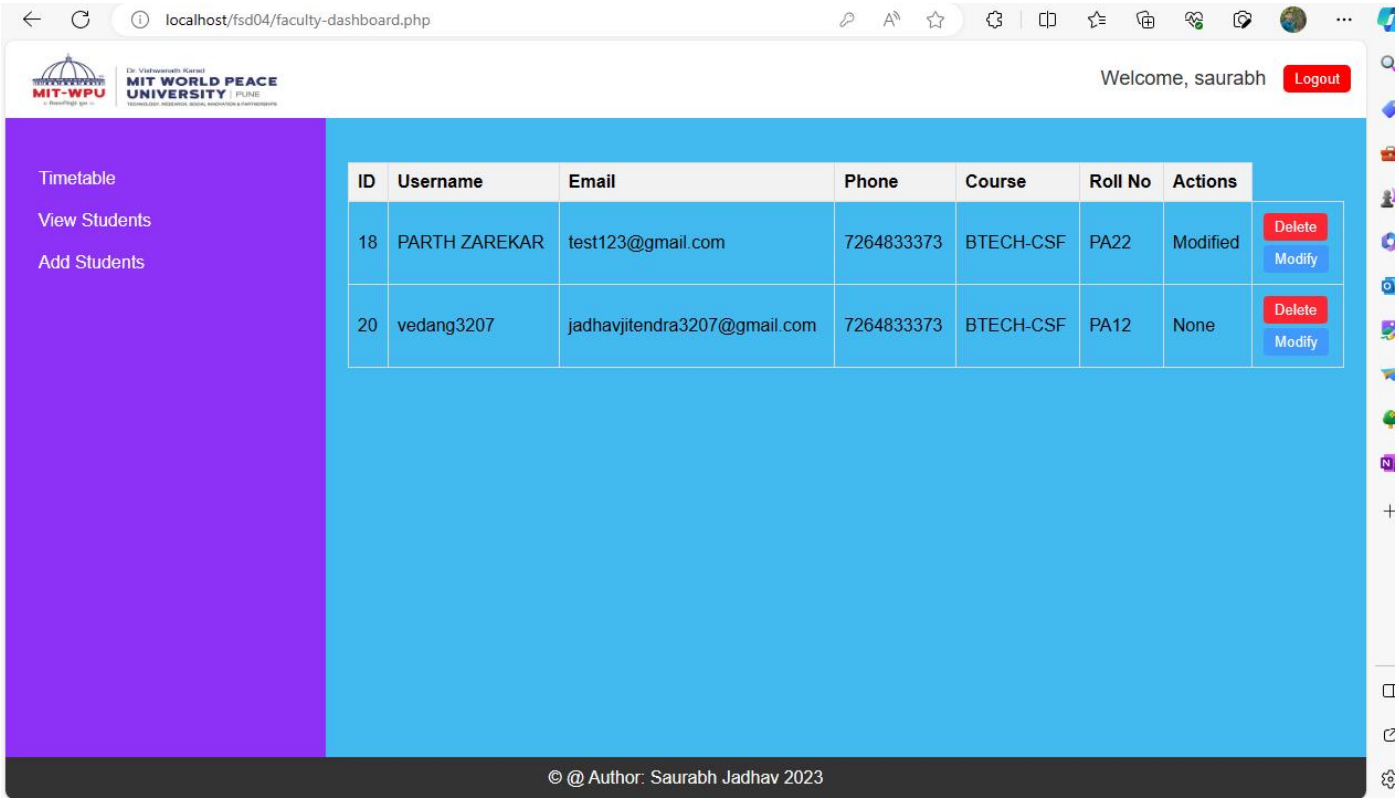

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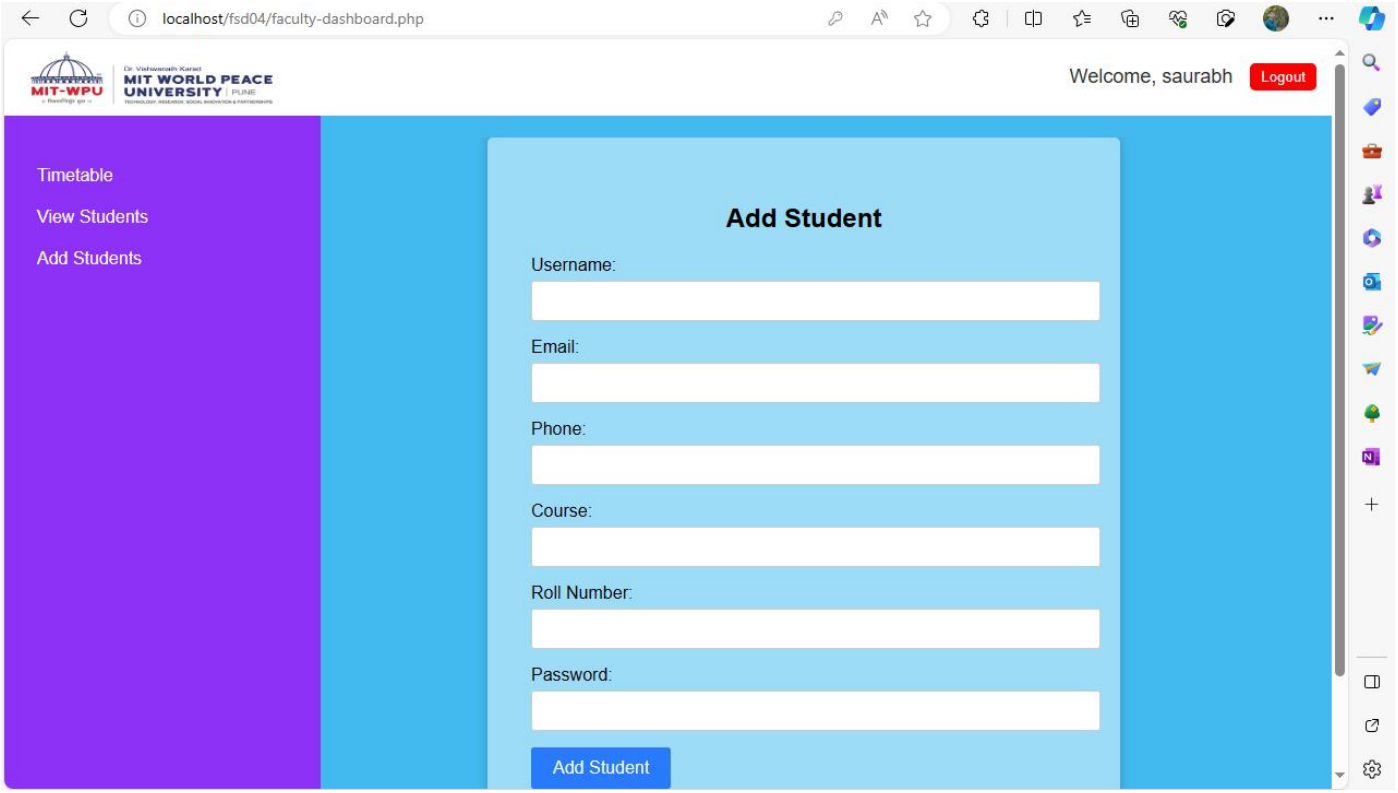
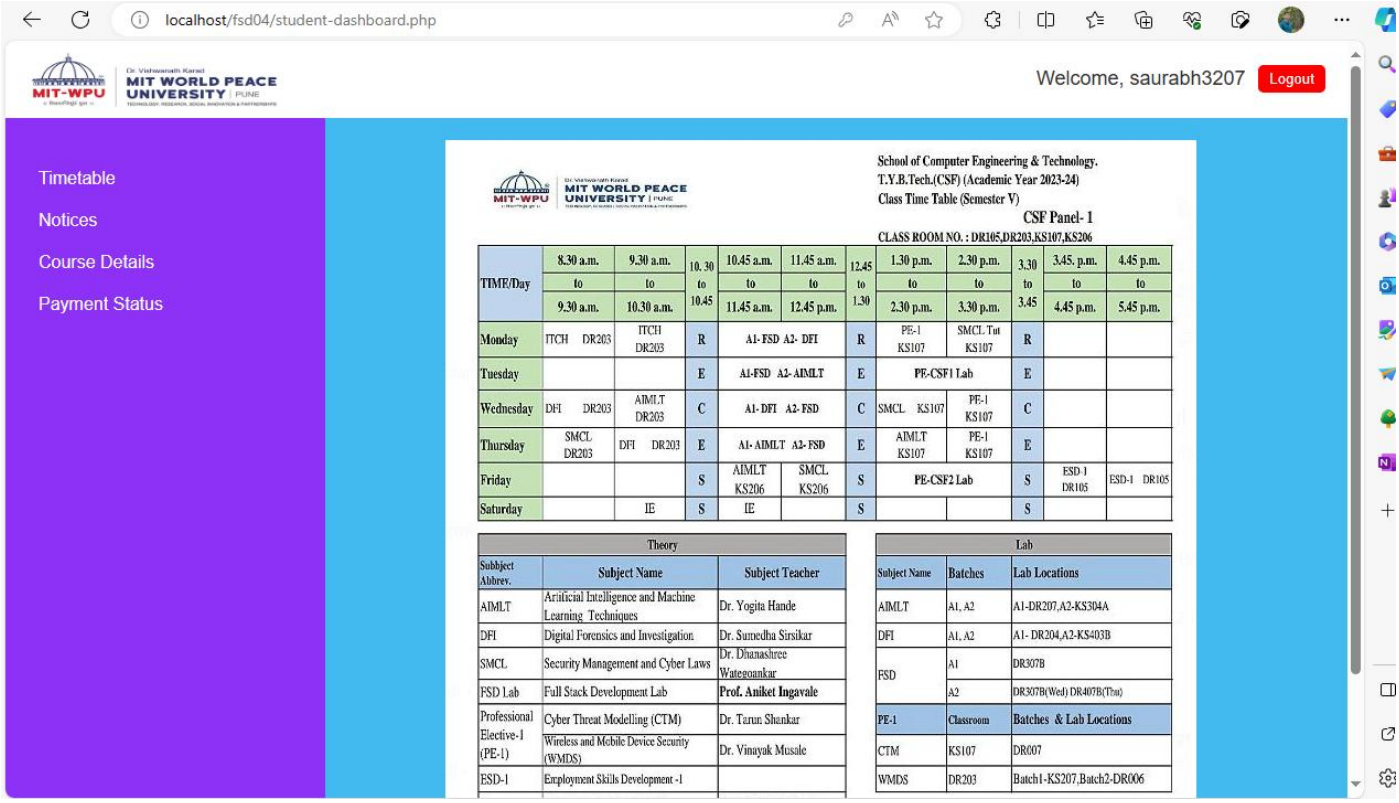
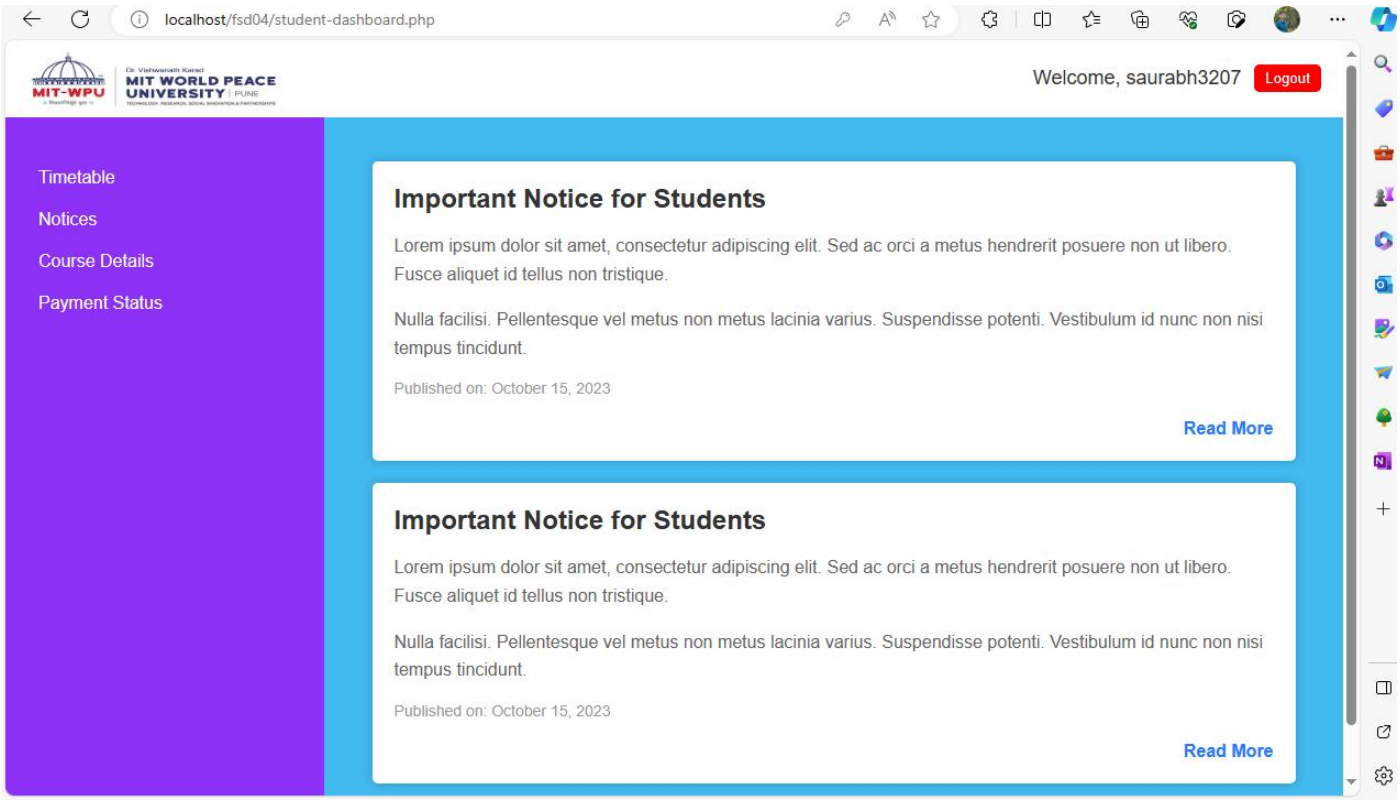


Student Dashboard:-



Notice Section:-



Conclusion:- Thus We learnt and implemented PHP Language.