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Assignment -3

Ques 1) What is Client-side Scripting? Explain the role of Javascript in Client-side Scripting.

⇒ In Web development, 'Client-side Scripting' refers to the practice of executing Scripts within a user's Web browser, as opposed to on the Web server. Here's a breakdown:

→ execution location:

Client-side Scripts are downloaded along with the HTML, CSS, and other Web Page assets and are then processed by the user's Web browser.

This means the code runs on the user's device.

→ Purpose:

It's primarily used to enhance the user interface and provide interactive experiences. → Common application include: Dynamic Content updates, Form Validation.



uses input before. Creating interactive elements. Manipulating the document Object Model to change the structure and appearance of a web page.

The Role of Javascript

Dominant language:

- Javascript is the most widely used Client-side Scripting language. Virtually all Modern web browsers support it.
- Key functions:
 - Interactivity: JavaScript allows developers to make Web Page responsive to user actions, such as mouse Clicks, Keyboard input, and touch gestures.
- DOM Manipulation: It enables the modification of the HTML Structure, CSS Styles, and Content of a web page dynamically.
- Asynchronous Operations:

JavaScript can perform tasks in the background without interrupting the user's experience, such as fetching data from a Server.
- Enhanced user Experience:

By handling tasks on the Client side, JavaScript can improve performance and reduce the need for constant communication with the Server.



In essence, Client-side Scripting with Javascript empowers Web Developers to Create dynamic, engaging, and user-friendly Web applications.

Ques 2) Write a Javascript Code snippet to validate an email address entered by a user in an HTML form.

```
→ <!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport"
        content="width=device-width, initial-scale=
        1.0">
    <title>Email Validation </title>
</head>
<body>
    <form id="emailForm">
        <label for="email">Enter your email.
        </label>
        <input type="email" id="email" name="email"
            required>
        <button type="submit">Submit </button>
        <p id="message" style="color:red;">
        </p>
    </form>
    <script>
        document.getElementById("emailForm").addEventListener("submit", function(event) {
```



Event: preventDefault(); //

prevent form Submission

Const emailInput = document.getElementById("email").value;

Const message = document.getElementById("message");

Const emailPattern =

/^[a-zA-Z0-9._]+@[a-zA-Z0-9.-]+[a-zA-Z]{2,}\$/;

if

emailPattern.test(emailInput) {

Message.style.color = "green";

Message.textContent = "Valid
email!";

} else {

Message.style.color = "red";

Message.textContent = "Invalid
email address!";

}

});

</script>

</body>

</html>



Ques.3 Define jQuery. What are the advantages of using jQuery in web development?

- jQuery is a fast, small and feature-rich JavaScript library. Essentially, it simplifies HTML Document Object Model (DOM) traversal and manipulation, event handling, animation and Ajax interactions. Here's a more detailed breakdown:
- jQuery is a JavaScript library designed to make it easier to write JavaScript. It abstracts many of the complexities of JavaScripts providing a simplified API for common tasks.
- It simplifies HTML Document Object Model (DOM) traversal and manipulation, event handling, animation and Ajax interactions.
- Advantages of using jQuery:
- ① Simplified DOM Manipulation
 - jQuery makes it much easier to select and modify HTML elements. Its concise syntax allows developers to perform complex DOM operations with fewer lines of code.



(ii) Cross-Browser Compatibility

→ one of jQuery's key strength is its ability to handle cross-browser inconsistencies. It normalizes JavaScript behaviour across different browsers, saving developers from writing browser-specific code.

(iii) Event Handling

→ jQuery simplifies event handling, making it easy to attach event listeners to HTML elements and respond to user interactions.

Ques → Write a jQuery code Snippet to select all the paragraphs() in a webpage and change their text color to blue.

```
> <!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport"
        content="width=device-width,
        initial-scale=1.0">
    <title> jQuery Paragraph Color Change
    </title>
    <script src="https://code.jquery.com/
        jquery-3.6.0.min.js"></script>
<script>
    $(document).ready(function () {
        $("p").css ("color", "blue");
    });

```



</script>

</head>

</body>

<p> This is the first paragraph. </p>

<p> This is the second Paragraph. </p>

<p> This is the third Paragraph. </p>

</body>

</html>

Ques(5). What are jQuery Selectors? Provide examples of at least three different types of jquery Selectors and explain their uses.

⇒) jquery Selectors are a powerful tool for selecting HTML elements on a webpage, allowing you to manipulate them with jquery methods. They are similar to CSS Selectors but offer additional functionality.

Types of jquery Selectors.

(i) Element Selectors.

⇒ These Selectors target HTML elements based on their tag name.

→ It is used for applying styles or actions to all elements of a specific type.



(ii) ID Selectors

- These Selectors target a single HTML element with a specific id attribute.
- ID Selectors are highly efficient for targeting unique elements on a page.

(iii) Class Selectors

- These Selectors target HTML elements with a specific class attribute.
- Class Selectors are useful for applying styles or actions to groups of selected elements.

~~que 6)~~ How do you handle errors in PHP when working with MySQL queries? Write a PHP code snippet to handle errors.

→ Handling errors in PHP when working with MySQL queries is crucial for robust and maintainable applications.

Common error Handling Techniques?

① Checking the Query Result.

→ After executing a query, you should always check if it was successful.



(ii) using mysqli_error()

→ If an query fails, mysqli_error()
return a String describing the error.

Code using MySQLi Object-oriented

```
$servername = "localhost";
```

```
$username = "root";
```

```
$password = "";
```

```
$dbname = "testdb";
```

```
$conn = new mysqli($servername,  
$username, $password, $dbname);
```

```
if ($conn->Connect_error) {
```

```
die("Connection failed");
```

```
$conn->Connect_error;
```

```
}
```

```
$sql = "SELECT * FROM users";
```

```
$result = $conn->query($sql);
```

```
if (!$result) {
```

```
die("Query failed");
```

```
$conn->error);
```

```
} else {
```

```
echo "Query executed successfully!"
```

```
}
```

```
$conn->Close();
```



Ques 7) Create an HTML form with fields for username and password , and write the PHP code to insert this data into a MySQL database.

⇒ Step 1: Create the HTML form (index.html)

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport"
        content="width=device-width,
        initial-scale=1.0">
    <title> User Registration </title>
</head>
<body>
    <h2> Register </h2>
    <form action="insert.php"
        method="post">
        <label for="username"> Username:<br/>
        <input type="text" id="Username"
            name="Username" required><br><br>
        <label for="password"> Password:<br/>
        <input type="password" id="Password"
            name="Password" required> Register<br/>
    </form>
</body>
</html>
```



→ Step 2: Create the PHP Script to handle form Submission (insert.php)

```
$ Server_name = "localhost";
$ Username = "root";
$ Password = "";
$ dbname = "testdb";

$conn = new mysqli ($Server_name,
$Username, $password, $dbname);

if ($conn->connect_error) {
    die ("Connection failed!");
}

$conn->Connect_error;

$user = $conn->real_escape_string($_POST
['username']);
$pass = password_hash($_POST['password'],
PASSWORD_BCRYPT);

$sql = "INSERT INTO User (username, password)
        VALUE ('$user', '$pass')";

if ($conn->query($sql) == TRUE)
{
    echo "Registration Successful!";
}
else
{
    echo "Error". $conn->error;
}

$conn->close();
```



⇒ STEP 3: Create the MySQL Table (User)

CREATE DATABASE testdb;
USE testdb;

CREATE TABLE users (
id INT AUTO_INCREMENT PRIMARY KEY,
username VARCHAR(50) NOT NULL UNIQUE,
password VARCHAR(255) NOT NULL);

Ques 8) Explain the MVC architecture, Describe the role of Model, View and Controller, in the MVC pattern.

⇒ The Model-view-Controller (MVC) architecture is a software design pattern widely used for developing user interfaces that divides an application into three interconnected logical components: the Model, the View, and the Controller. This separation of concern helps to improve code organization, maintainability and scalability.

→ Breakdown of each Component's role:

(i) Model

→ The Model represents the application's data and business logic.



→ It's responsible for managing data, interacting with database or other data sources, and enforcing business rules.

(ii) View

→ The view is responsible for presenting the data to the user.

→ It's the user interface component that displays the model's data.

(iii) Controller

→ The controller acts as an intermediary between the Model and the view.

→ It receives the user input, processes it, and updates the model accordingly.

Advantages of MVC

→ Each Component has a specific responsibility, making the code more organized and easier to maintain.

→ The Model and Controller can be reused in different parts of the application.

→ Changes to one Component are less likely to affect other Components.