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Assignment - 3

- i) what is client-side scripting? explain the role of JavaScript in client-side scripting.
- client side scripting refers to scripts that are executed in the user's browser rather than on the web server. These scripts enhance the interactivity and responsiveness of a website by processing data and controlling the user interface without needing to communicate with the server frequently.
- how client side scripting works :-
- Browser requests the web page :- The client (Browser) sends an HTTP request to the server.
 - Server sends HTML, CSS and JavaScript. The server responds by sending HTML, CSS and JavaScript files.
 - Browser executes scripts locally :- The browser processes and renders the HTML, applies CSS for styling and executes JavaScript for interactivity.
- Role of JavaScript in client side scripting:-
- i) manipulating the DOM:-
- Dynamically update HTML content, structure and attributes



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- modify CSS styles and class properties.

ii] Handling user events: - informally, for example, when a user interacts with a button or link, the browser triggers an event.

- detect and respond to user actions such as click, mouse movements, keystrokes etc.

iii] form validations:

- validate user input before submission to prevent invalid or malicious data.

iv] Asynchronous communication (AJAX):

- communicates with the server without reloading the page.

v] Dynamic content and Animations:

- create animations and interactive elements.

vi] Browser storage and cookies:

- store data in local storage or session storage for faster access.



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Q-2] Write a JavaScript code snippet to validate an email address entered by a user in a HTML form.

→

```
<script>
function validateEmail() {
    var email = document.getElementById("email").value;
    var emailPattern = /^[a-zA-Z0-9._]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,4}$/;
    if (emailPattern.test(email)) {
        alert("Valid Email Address!");
        return true;
    } else {
        document.getElementById("error_message").innerHTML =
            "Invalid email address. Please try again!";
        return false;
    }
}
```



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3] what is JQuery? what are the advantages of using JQuery in web Development?

→ JQuery is a fast, light weight and feature rich javascript library designed to simplify HTML document manipulation, event handling, animations and AJAX interactions. It enables developers to achieve more functionality with less code improving efficiency in web development.

Advantages of JQuery in web Development.

i] Simplified syntax.

ii] Cross - Browser compatibility.

iii] Rich UI / UX enhancement.

iv] AJAX support.

v] saves time and effort.

vi] extensible plugin library.

vii] easy DOM manipulation.

viii] Event handling simplified.

ix] Form validation and submission.

x] Chaining for efficiency.



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Q-4] what are Jquery code snippet to select all the paragraph (*<p>*) in a web page and change their text color to blue.

→ <script>

```
$(document).ready(function() {  
    $(" # change color etc").click  
        (function() {  
            $("p").css ("color", "blue");  
        });  
});
```

</script>

Q-5] what are Jquery selectors? Provide examples of at least 3 different types of Jquery selectors and explain their uses.

→ Jquery selectors are used to select and manipulate HTML elements based on their attributes, ID's, classes, types and other criteria. They allow developers to traverse and interact with DOM efficiently.

Types of Jquery Selectors

i) ID selector (# id)

- select an elements Based on its unique id attribute

→ To apply styles or manipulate a specific element.

- Best used when the element has a unique identifier.

ii) class selector (.class)

- Select all elements with a given class name.

→ To target multiple elements with the same classes.

- Useful for applying styles or behaviors to groups of elements.

iii) tag / element selector (element)

- Select all elements of a specified HTML tag.

- To apply actions or styles to all occurrences of a particular element.

- Ideal for mass manipulation of common element like (div), (p) or (a).



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Q-67

How do you handle errors in PHP when working with MySQL queries? Write PHP code snippet to handle errors.

→ When working with MySQL queries in PHP, error handling is essential to catch and respond to unexpected issues such as connection failures, query syntax errors.

Common ways to handle errors:

- i) Using mysql_error() with procedural style.
- ii) Using mysql_error() or mysqli_error() and with object oriented style.
- iii) Using try-catch with PDO (Recommended for newer applications)

→ Code Snippet:

```
<?php  
$host = "localhost";  
$user = "root";  
$password = "";  
$database = "mydb";  
  
$conn = mysql_connect($host, $user, $password,  
                      $database);
```



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```
if (! $conn) {
    die ("connection failed : ".mysql_connect_error());
}

$sql = "SELECT * FROM users";
$result = mysql_query ($conn, $sql);

if (!$result) {
    die ("Error executing query : ".mysql_error($conn));
} else {
    echo "Query executed successfully!";
}

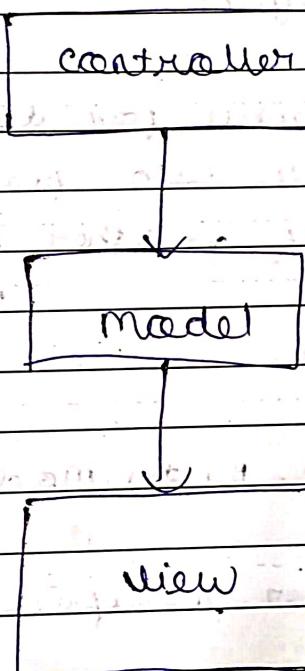
mysql_close ($conn);
```

Q-7] Explain the MVC architecture. Describe the role of model, view and controller in the MVC pattern.

→ MVC (Model-View-Controller) is a design pattern used in software development to separate concern, making applications more organized, scalable, and easier to maintain. It divides the application into three interconnected components:

- Model - manages data and business logic.
- View - Handles the presentation and UI.
- controller - Processes user request and updates the Model and View.

→ Diagram of MVC pattern.



i) model (Data layer)

→ The model represent the data, logic and rules of the application. It directly communicates with the database, fetches data and processes it according to business rules.



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• Key responsibilities.

- i] Retrieve and manipulate data from the database
- ii] Apply Business logic and rules.
- iii] Notify the view of any data changes.

2] View (Presentation layer)

→ The view is responsible for displaying data to the user. It receives data from the model and renders it into HTML or other format.

• Key responsibilities:

- i] Render data provided by the model.
- ii] Display UI and user interfaces
- iii] Avoid containing Business logic.

3] controller (Application logic).

→ The controller act as a mediator between the model and the view. It receives user input, processes it interacts with the model and determines the appropriate view to display.



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- Key Responsibilities:
 - i] Handle user input and request.
 - ii] communicate with the model to retrieve/update data.
 - iii] select and load the appropriate view.
- Q-8] create a HTML form with fields for username and password and write the PHP code to insert the data into MySQL database.

↳ SQL script :-

```
CREATE DATABASE user_db;
```

```
use user_db;
```

```
CREATE TABLE users (  
    id INT(11) AUTO_INCREMENT PRIMARY KEY,  
    username VARCHAR(50) NOT NULL,  
    password VARCHAR(255) NOT NULL  
) ;
```

↳ HTML code;

```
<!DOCTYPE html>  
<html>  
<head>
```



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```
< title> register user </title>
< style>
body { font-family: Arial, sans-serif; }
.container { width: 300px; margin: 10px auto; }
input, button { width: 100%; padding: 10px; margin-top: 10px; }
</style>
<head>
<body>
<div class = "container">
<h2> Register user </h2>
<form action = "insert.php" method = "POST">
<input type = "text" name = "username"
placeholder = "Enter Username" required>
<input type = "password" name = "password"
placeholder = "Enter Password" required>
<button type = "submit"> Register </button>
</form>
</div>
</body>
</html>
```



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• PHP code :-

<?php

```
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "user_db";
```

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

```
if ($conn -> connect_error) {
    die ("connection failed: ". $conn -> connect_error);
}
```

```
if ($_SERVER ["REQUEST-METHOD"] == "POST") {
    $username = $_POST ['username'];
    $password = password_hash($_POST ['password'],
        PASSWORD_DEFAULT);
}
```

```
$sql = "INSERT INTO users (username, password)
        . VALUES ('$_', '$')";
```

```
if ($stmt -> execute ()) {
    echo "new user registered successfully";
}
```

```
else {
    echo "Error: " . $stmt -> error;
}
}
```



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\$ start → close();

\$ conn → close();

?>