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FSD Assignment - 02

Aim: Develop a web application using javascript to implement sessions, cookies, DOM. Perform validations such as checking for emptiness, only numbers for phone number, special character requirement for password, regular expressions for certain format of the fields etc. Use the mySQL database.

Objectives:

1. To understand what form validation is.
2. To learn basic functioning of DOM objects.
3. To learn how to apply various techniques to implement it.

Theory:

~~1) To understand what form val.~~

1) Explain the role of regular expressions. Why are they suitable tool for validating data formats like a phone number or checking for the presence of specific characters in a password?

→ Regular expressions (regex) are powerful tools used to match and validate text patterns, making them especially suitable for checking data formats like phone numbers or passwords. They let you define clear, precise rules - such as specific sequences of digits, required character types, or special symbols - in a compact and flexible manner. This allows for quick and accurate verification that inputs meet exact criteria, helping prevent invalid or incorrectly formatted data. Additionally, regex can easily adapt to various format requirements and complexity levels, making them highly versatile for a wide range of validation tasks while remaining efficient and concise

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2> Explain the fundamental difference between a session and cookie in the context of web applications development How do they work together to maintain a users logg in state?

→ The fundamental difference between a session and a cookie is that a cookie stores data on the users browser, while a session stores data on the server. When a users logs in, the server creates a session to track the users state and sends a unique sessi ID to the browser as a cookie. On subsequent re the browser sends this cookie back to the server, allowing it to identify the session and keep the use logged in. Thus cookies hold the session ID on the client side, and sessions securely store user data o the server, working together to maintain a user log in state.

3> What is the purpose of performing both client side and server side validation? Describe a ~~scn~~ scenario where relying solely on client-side validation could lead to a security vulnerability.

→ Performing both client side and server side validation ensures better user experience and security. Client-side validation provides immediate feedback to users, making forms more user-friendly by catching errors before submissions. However, it can be easily bypassed since users control their browsers. Server side validation essential because it verifies the data on the server, ensuring it's safe and meets all rules before processing. For example,

relying only on client-side validation for a login form could allow an attacker to bypass checks by disabling javascript or manipulating requests, potentially leading to sql injection or unauthorized access.

4) Provide a simple example of how a javascript script can interact with the DOM to dynamically change the content of web page after a user action, such as a form submission.

→ HTML Setup

Create a form and a placeholder element to show the message.

html:-

```
<form id = "myForm">
  <input type = "text" ; id = "nameInput" placeholder = "Enter your name"/>
  <button type = "submit"> Submit </button>
</form>
<p id = "greeting"></p>
```

js:-

```
document.getElementById('myForm').addEventListener('submit',
function(e){
    e.preventDefault();
const name = document.getElement By Id ('name Input').
value;
document.getElement By Id ('greeting').textContent = 'Hello, ${name}!
';
});
```