Assignment 02

Aim:

Devlop a web application using javascript to implement sessions, cookies, DOM. perform validation such as checking for emptiness, only numbers for phone number special character requirment for password, regular expressions for certain format of the fields etc. use the mySQL database.

Objectives:

① to understand what from validation is

② to learn basic functioning of DOM objects

③ to learn how to apply various techniques to implement it.

theory:

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

ans.

Regular expressions (regex) are patterns used to match charact combinations in strings. they are highly useful for searching replacing and validating text i web applications.

they are suitable for data valid because they allow developers to define specific rules.

for eg, a 10 digit phone number (^[0-9]{10}$) or ensuring a password contains at least one uppercase letter, one number an one special character.

this makes regex a compact and powerful tool for enforcin input formats.

② Explain the fundamental differe between a session and a cooki in the context of web application development. how do they work together to maintain a user's logged-in state?

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i> cookies are small pieces of data stored on the client's brow often used to remember user preferences or identifiers.

ii> sessions are stored on the server and track user information (like login details) across multiple requests.

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when a user logs in, the server creates a session and stores its ID in a cookie.
each time the browser sends a request, the cookie is sent back, allowing the server to identify the user and maintain the logged in state.

③ What is the purpose of performing both client side and server side validation?
describe a scenario where relying soly on client slide validation could lid to a security vulnerablity.

ans.

i> client side validation improves user experience by quickly checking inputs before submmisson.

ii> server side validaton ensures the data integrity and security on the backend.

Scenario:

if a form only ~~uses~~ client side Java Script validation, a malicious user could disable Javascript in their browser or manipulate requests with developer tools, bypassing validation (eg. injection SQL code).
server side validation prevents such attacks.

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

ans.

eg - changing a message after clicking a button.

```
<!DOCTYPE html>
<html>
<body>
<p id="msg"> Before submission </p>
<button onclick = "changeMsg()">
  submit </button>
<script>
 function changeMsg() {
   document.getElementById("msg").
   innerHTML = " form submitted";
 }
 </script>
 </body>
 </html>
```

here, the DOM is manipulated by updating the <p> content dynamically.

⑤ give the steps for connectivity from front end using HTML, CSS JS to mySQL.

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① frontend (HTML/CSS/JS) : create a from to collect user inputs.

② AJAX / fetch API : send the data from frontend to the backend server asynchronously.

③ backend : receive the request and handle database logic.

④ database connectivity : use mySQL connectors or libraries to connect the backend with mySQL database

⑤ Query Execution : insert, update or fetch data as per requirement

⑥ Response : send confirmation or data back to the frontend for display.

FAQs.

① write 3 reasons why form validations are important.

ans.

i) security - prevents injection attacks (SQL, XSS)

ii) Accuracy - ensures only correct and expected data is submitted

iii) User Experience - provides immediate feedback and avoids errors.

② give an example of how to modify an attribute value using DOM.

ans.

```
<img id="myImage" src = "old.jpg"
<script>
  document.getElementById("myIm
  .setAttribute("src", "new.jpg");
</script>
```

this changes the image source from old.jpg to new.jpg.

③ What are the different features of Javascript?

ans.

i) lightweight and interpreted - runs directly in the browser without compilation.

ii) object oriented - supports objects and prototypes.

iii) event driven - executes action based on user interactions

iv) dynamic - no need to declare variable data types explicitly.

v) cross platform - runs on all major browsers and operating systems.

10

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CODE (INPUT) :

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8"
  <meta name="viewport"
  <title>Student Registrat
  <link rel="stylesheet" hr
</head>
<body>
  <div class="container">
    <h2>Student Registr
    <form id="regForm"
      <div class="form-
        <label for="use
        <input type="te
        <span id="use
      </div>
      <div class="form-
        <label for="em
        <input type="e
        <span id="em
      </div>
      <div class="form
        <label for="ph
        <input type="
        <span id="ph
      </div>
      <div class="for
        <label for="p
        <input type=
        <span id="p
```