

Rustamji Institute of Technology

BSF Academy, Tekanpur, Gwalior (M.P.)

Department of Computer Science & Engineering

Internet & Web Technology (IWT) – CS504

Assignment No. – 3

Last Date of Submission: 15 November 2024

1. Digital Clock using JavaScript

Objective: To display a real-time digital clock as soon as the HTML page loads.

HTML + JavaScript Code

```
<!DOCTYPE html >
<html >
<head >
  <title>Digital Clock</title >
</head >
<body onload="startClock()" style="text-align:center;font-size:2em;" >
  <h2 id="clock"></h2 >

  <script >
function startClock() {
  setInterval(() => {
    const t = new Date();
    document.getElementById("clock").innerHTML =
      t.toLocaleTimeString();
  }, 1000);
}
</script >
</body >
</html >
```

Explanation:

- `Date()` fetches current system time.
- `setInterval()` refreshes every second.

2. Email Validation using JavaScript

Objective: Ensure users cannot submit invalid email addresses.

JavaScript Code for Validation

```
function validateEmail(email) {  
    const pattern = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;  
    if (pattern.test(email)) {  
        alert("Valid Email Address!");  
    } else {  
        alert("Invalid Email Address!");  
    }  
}
```

Explanation:

- Uses **Regular Expressions (Regex)** to match valid email patterns.
 - `test()` method returns true if format is correct.
-

3. Advantages, Disadvantages, and Limitations of CSS

Advantages

- Separation of content and design.
- Easy to maintain and reusable.
- Reduces page load time.
- Device adaptability with responsive design.

Disadvantages

- Browser compatibility issues.
- No logical conditions or variables (in basic CSS).
- Complex for large designs.

Limitations:

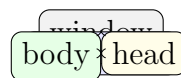
- Cannot provide dynamic behavior (requires JS).
 - No data processing or computation.
-

4. Window Object in JavaScript

Definition: The window object represents the browser's global context.

Property / Method	Description
alert(msg)	Displays alert dialog box.
confirm(msg)	Asks user for confirmation.
prompt(msg)	Input dialog box.
setTimeout(fn,ms)	Executes function after delay.
setInterval(fn,ms)	Repeats function every ms interval.

Diagram:



5. Background Properties of CSS

Property	Description
background-color	Defines background color.
background-image	Sets background image.
background-repeat	Controls image repetition.
background-position	Controls image alignment.
background-attachment	Fixes or scrolls background.

CSS Example

```
body {
  background-color: lightblue;
  background-image: url("bg.png");
  background-repeat: no-repeat;
  background-position: center;
}
```

6. Identifiers and Keywords in JavaScript

Identifiers: User-defined names for variables, functions, or objects. **Rules:**

- Must start with a letter, underscore, or \$.
- Cannot be a reserved keyword.

Keywords: Predefined words with special meaning.

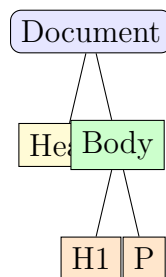
- var
 - let
 - const
 - if
 - for
 - return
 - break
 - function
-

7. Features of JavaScript

Feature	Description
Lightweight and Fast	Interpreted scripting language executed in browser.
Dynamic Typing	Variable types determined at runtime.
Event-Driven	Responds to user interactions easily.
Object-Based	Uses objects for storage and structure.
Cross-Platform	Works on all browsers and devices.

8. DOM and Document Object Features

Definition: The **Document Object Model (DOM)** represents the structure of an HTML document as a tree.



Method/Property	Description
<code>getElementById(id)</code>	Accesses element by ID.
<code>getElementsByName()</code>	Access elements by class.
<code>createElement()</code>	Creates new HTML node.
<code>appendChild()</code>	Adds element to DOM tree.
<code>write()</code>	Writes text to HTML document.

9. Math Object in JavaScript

Common Methods:

Method	Description	Example
Math.round(x)	Rounds to nearest integer	3.6 → 4
Math.floor(x)	Rounds downwards	3.9 → 3
Math.ceil(x)	Rounds upwards	3.1 → 4
Math.max(a,b,...)	Returns maximum value	2,5,7 → 7
Math.random()	Returns random 0–1	e.g., 0.473

10. CSS Selectors

Definition: Patterns used to target HTML elements for styling.

Selector Type	Syntax	Example
Element Selector	tag	p {color:red;}
Class Selector	.classname	.box {border:1px solid;}
ID Selector	#idname	#main {font-size:20px;}
Group Selector	h1,h2,h3	Applies to multiple tags.
Universal Selector	*	Selects all elements.

CSS Example

```
#mainTitle {
    color: navy;
    text-align: center;
}

p.intro {
    font-size: 18px;
    color: gray;
}
```

***** END OF ASSIGNMENT *****