

Experiment - 8

JavaScript Arrays

AIM:

Exercise on JavaScript arrays.

OBJECTIVE:

Write JavaScript code to implement sorting like reading an array of 'n' numbers and sorting them in ascending order.

THEORY:

JavaScript array is used to store multiple values in a single variable.

There are 3 ways to construct an array in JavaScript:

1. By array literal
2. By creating an instance of Array directly (using new keyword)
3. By using an Array constructor (using new keyword)

Creating an Array Literal:

Using an array literal is the easiest way to create a JavaScript Array.

Syntax:

```
var array_name = [value1, value2, ... valueN];
```

Example:

```
<script>
```

```
var cars = ["MAHINDRA", "TATA", "HYUNDAI"];
```

```
for (i = 0; i < cars.length; i++) {
```

```
    document.write(cars[i] + "<br>");
```

```
}
```

```
</script>
```

Creating an Array Directly (using new keyword):

We can create a JavaScript array directly as below.

Syntax:

```
var array_name = new Array();
```

Example:

```
<script>
```

```
var cars = new Array();
```

```
cars[0] = "MAHINDRA";
```

```
cars[1] = "TATA";
```

```
cars[2] = "HYUNDAI";
```

```
for (i = 0; i < cars.length; i++) {
```

```
    document.write(cars[i] + "<br>");
```

```
}
```

```
</script>
```

REQUIREMENTS:

1. Notepad or Visual Studio Code - To write HTML code.
2. Any web browser (Firefox, Google Chrome, Microsoft Edge, etc.) - To see the HTML pages (Output).
3. Personal Computer - To execute required software.

PRECAUTIONS:

A. Procedural precautions:

- Ensure that each and every HTML, JavaScript tag is closed properly.
- Ensure that JavaScript code is in <script> tag.
- Do not run the program before saving.
- Make sure that the file is saved with .html extension.
- Execute the program.

B. Safety precautions:

- Don't carry a water bottle at the workplace.
- Don't carry inflammables at the workplace.

PROCEDURE:

1. Open any text editor.
2. Create an HTML file.
3. Add elements to read the array and to sort.
4. Write the logic for sorting using iterative and conditional statements.
5. Save the HTML file.
6. Open the HTML page in a browser.
7. Test the results.
8. Resolve errors, if any, through debugging.

JavaScript Program to Implement Sorting:

```
<html>

<head>

<title>Array Sorting</title>

<script>

function sort() {

    for (var i = 0; i < arr.length; i++) {

        for (var j = 0; j < arr.length - i - 1; j++) {

            if (arr[j] > arr[j + 1]) {

                var temp = arr[j + 1];

                arr[j + 1] = arr[j];

                arr[j] = temp;

            }

        }

    }

}
```

```
    }  
}  
    document.getElementById("p2").innerHTML = "Array After Sorting: " + arr;  
}  
  
</script>  
  
</head>  
  
<body>  
  
<h2>Array of Elements Sorting in Ascending Order</h2>  
  
<p id="p1"></p>  
  
<p id="p2"></p>  
  
<script>  
  
var arr = [21, 42, 12, 30, 54, 110, 61, 82];  
  
document.getElementById("p1").innerHTML = "Array: " + arr;  
  
</script>  
  
<button type="button" onclick="sort()">Sort</button>  
  
</body>  
  
</html>
```