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Batch: A

Experiment No:4

4) (a) Create one button on every click of button different colors should be applied.

Objective: To learn about concept and implementation of JAVASCRIPT

Theory:

What is Javascript. Why it is called Client side Scripting language Client side: JavaScript is a client-side language, which means it gets executed at the client side (i.e, user side). On contrary, PHP is a server-side scripting language, as it gets executed at server. Whenever you browse the web, all the HTML,CSS & JS files are fetched from the server & then executed/interpreted at your side by your browser. Scripting language: Since it is interpreted rather than compiled & are used to execute tasks one-by-one. More professionally, A scripting or script language is a programming language that supports scripts: programs written for a special run-time environment that automate the execution of tasks that could alternatively be executed one-by-one by a human operator. Scripting languages are often interpreted.

Explain Javascript functions used in above programs like with syntax and example:-

getElementById()

The getElementById() method returns an element with a specified value. The getElementById() method returns null if the element does not exist.

```
document.getElementById("demo").style.color  
= "red";
```

•innerHTML()

The innerHTML property sets or returns the HTML content (inner HTML) of an element.

```
let html  
= document.getElementById("myList").innerHTML;
```

•value()

The Object.values() method returns an array of a given object's own enumerable property values, in the same order as that provided by a for...in loop. (The only difference is that a for...in loop enumerates properties in the prototype chain as well.)

```
console.log(Object.values(object1))
```

•parseInt()

The parseInt() function parses a string argument and returns an integer of the specified radix (the base in mathematical numeral systems).

```
function roughScale(x, base) {  
  const parsed = parseInt(x, base);  
  if (isNaN(parsed)) { return 0; }  
  return parsed * 100;  
}
```

DOM

- It is an application programming interface.
- Dom represents a document as a hierarchical tree of nodes allowing dev to add, remove, and modify individual part of the page.
- Document node represents every document as a root. In this example only child of document node is html which is called as document element.
- Every piece of markup can be represented by a node in the tree: HTML elements are represented by element nodes, attributes are represented by attribute nodes, the document type is represented by a document type node, and comments are represented by comment nodes.
- In total, there are 12 node types, all of which inherit from a base type.
- DOM Level 1 describes an interface called Node that is to be implemented by all node types in the DOM.
- Every node has a `nodeType` property that indicates the type of node that it is. Node types are represented by one of the following 12 numeric constants on the Node type:
 - a. `Node.ELEMENT_NODE` (1)
 - b. `Node.ATTRIBUTE_NODE` (2)
 - c. `Node.TEXT_NODE` (3)
 - d. `Node.CDATA_SECTION_NODE` (4)
 - e. `Node.ENTITY_REFERENCE_NODE` (5)
 - f. `Node.ENTITY_NODE` (6)
 - g. `Node.PROCESSING_INSTRUCTION_NODE` (7)
 - h. `Node.COMMENT_NODE` (8)
 - i. `Node.DOCUMENT_NODE` (9)
 - j. `Node.DOCUMENT_TYPE_NODE` (10)
 - k. `Node.DOCUMENT_FRAGMENT_NODE` (11)
 - l. `Node.NOTATION_NODE` (12)

```
if (someNode.nodeType == Node.ELEMENT_NODE)
{
    alert("Node is an element."); //won't work in IE < 9
}
```

This example compares the `someNode.nodeType` to the `Node.ELEMENT_NODE` constant. If they're equal, it means `someNode` is actually an element. Unfortunately, since Internet Explorer 8 and earlier doesn't expose the `Node` type constructor, this code will cause an error. For cross-browser compatibility, it's best to compare the `nodeType` property against a numeric value, as in the following:

```
if (someNode.nodeType == 1)
```

```
        {
            alert("Node is an element."); //works in all browsers
```

```
}
```

Properties of note type

- Two properties, nodeName and nodeValue, give specific information about the node. The values of these properties are completely dependent on the node type.
- nodeName is always equal to the element's tag name, and nodeValue is always null.
- Each node has a childNodes property containing a NodeList. A NodeList is an array-like object used to store an ordered list of nodes that are accessible by position. Keep in mind that a NodeList is not an instance of Array even though its values can be accessed using bracket notation and the length property is present.
- Node Relationship child parent.

Conclusion:

Thus, we have successfully implemented the program.

Code:

```
<!DOCTYPE html>
<html>
    <head>
        <title>Background Color Changer</title>
    </head>
    <body>

        <div id="container" style="width: 100%; height: 100vh; display: flex; justify-content: center; align-items: center;">
            <button id="changeButton">Change Background Color</button>
        </div>

        <script>

            const colors = [
                'red',
                'green',
                'blue',
                'yellow',
                'purple',
                'orange',
                'pink'
            ];

            const container = document.getElementById('container');
            const changeButton = document.getElementById('changeButton');

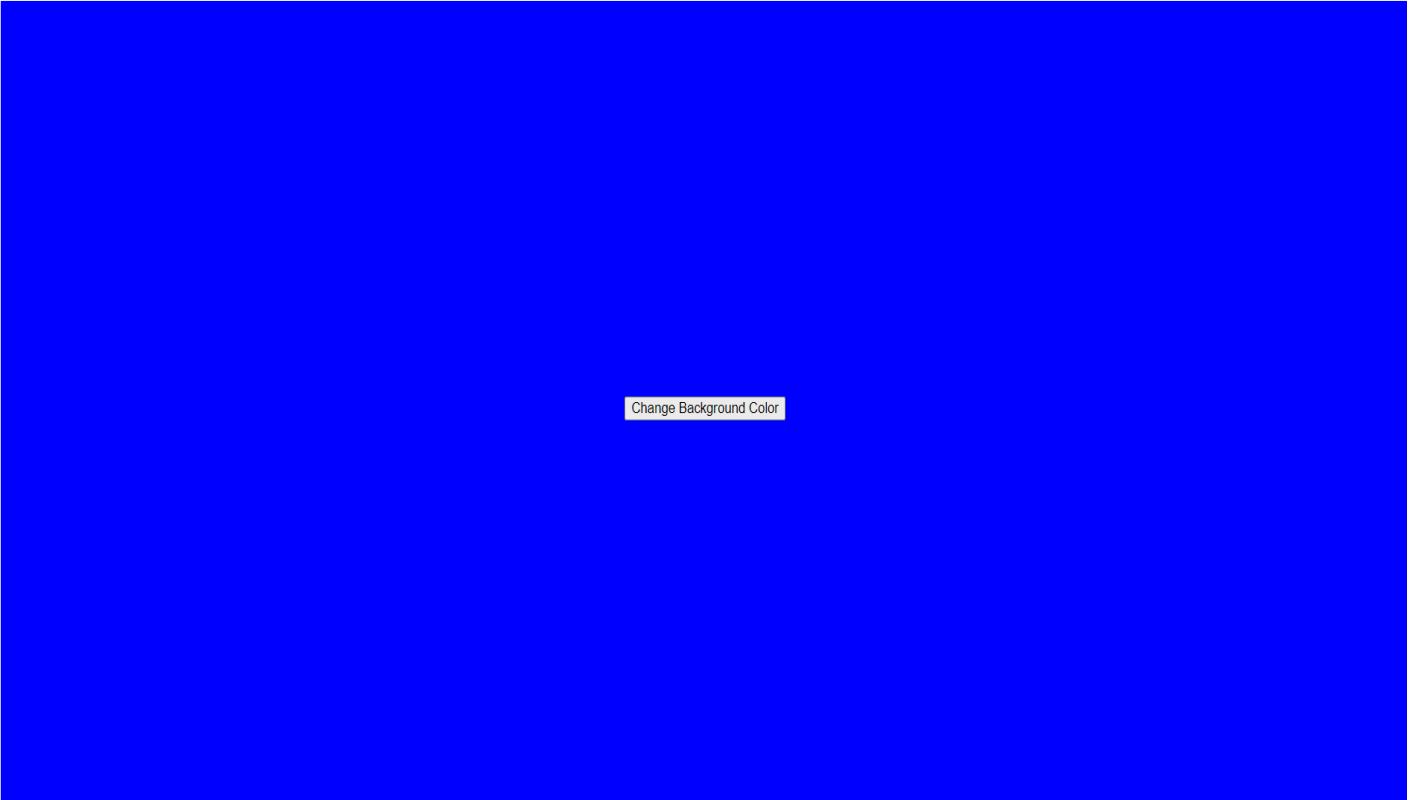
            let currentColorIndex = 0;

            function changeBackgroundColor() {
                currentColorIndex = (currentColorIndex + 1) % colors.length;
                container.style.backgroundColor = colors[currentColorIndex];
            }

            changeButton.addEventListener('click', changeBackgroundColor);
        </script>

    </body>
</html>
```

Output (Screenshots):



Change Background Color