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Batch: A

Experiment No:3

3)(b) Write a JavaScript code to perform arithmetic operation by taking values from users (Add,Sub, Mul,Div)(1. 4 Button, 2.Dropdown)

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 úsed 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 specifi c 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

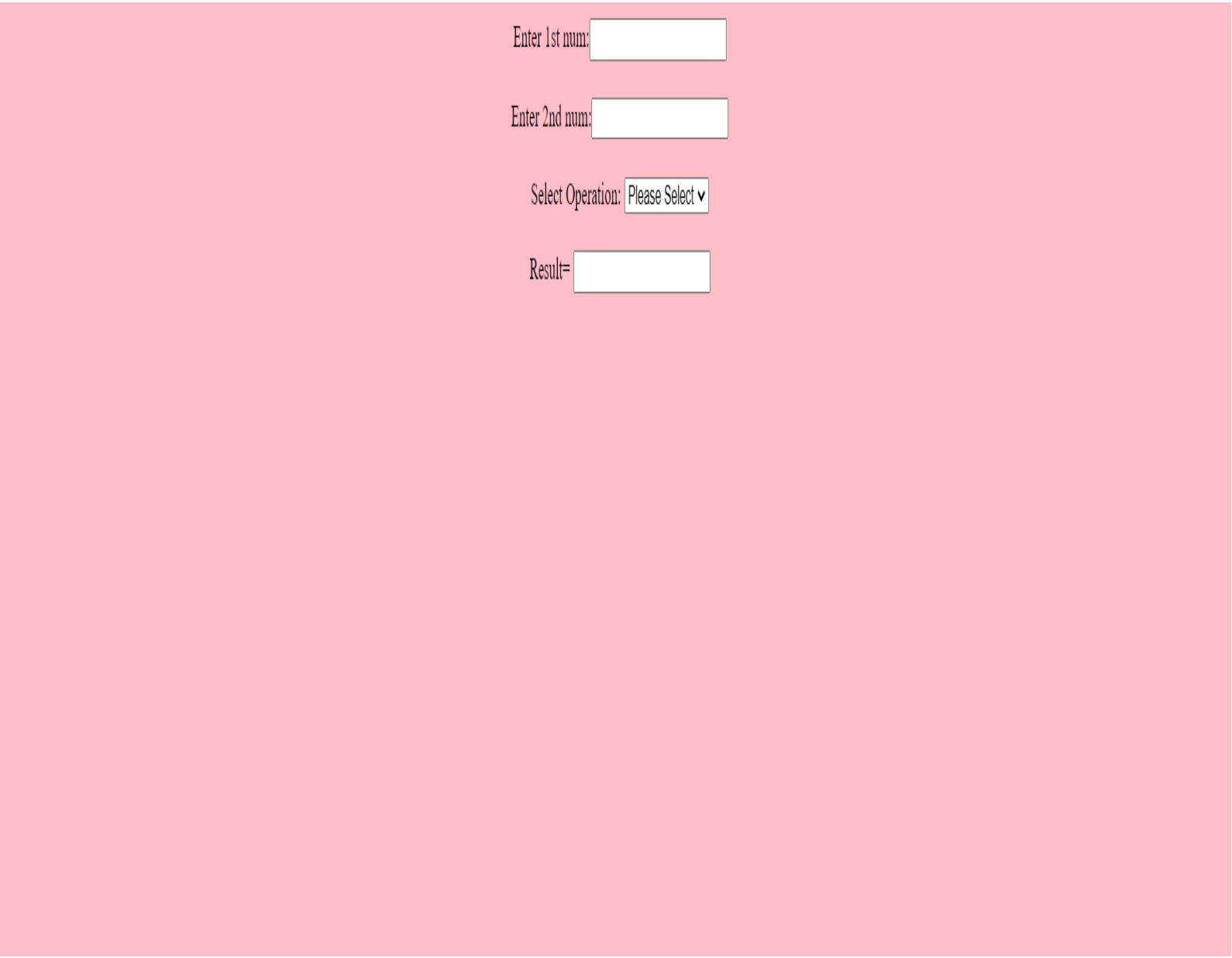
Conclusion:

Thus, we have successfully performed the given Arithmetic Operations(Add, subtract, Multiply, Div)

Code-1:

```
<html>
<head>
<script>
function calculate(meth)
{
var a=Number(document.cal.num1.value);
var b=Number(document.cal.num2.value);
switch(meth)
{
case "add": var c=a+b;
break;
case "sub": var c=a-b;
break;
case "mul": var c=a*b;
break;
case "div": var c=a/b;
break;

}
document.cal.res.value=c;
}
</script>
</head>

<body bgcolor=pink>

<form align=center name="cal">
Enter 1st num:<input type="text" name="num1"/><br><br>
Enter 2nd num:<input type="text" name="num2"/><br><br>
Select Operation:
<select name="PleaseSelect" onchange="calculate(this.value)">
<option>Please Select</option>

<option value="add">Addition</option>
<option value="sub">Subtraction</option>
<option value="mul">Multiplication</option>
<option value="div">Division</option>
</select>
<br><br>
Result= <input type="text" name="res"/>
</head>
</form>
</body>
</html>
```

Output (Screenshots):



Code-2:

```
<html>
<head>
<title>Multiplication Table</title>
<script>
var rows = prompt("How many rows for your multiplication table?");
var cols = prompt("How many columns for your multiplication table?");
if(rows == "" || rows == null)
rows = 10;
if(cols== "" || cols== null)
cols = 10;
createTable(rows, cols);
function createTable(rows, cols)
{
var j=1;
var output = "<table border='1' width='500' cellspacing='0'cellpadding='5'>";
for(i=1;i<=rows;i++)
{
output = output + "<tr>";
while(j<=cols)
{
output = output + "<td>" + i*j + "</td>";
j = j+1;
}
output = output + "</tr>";
j = 1;
}
output = output + "</table>";
document.write(output);
}
</script>
</head>
<body>
</body>
</html>
```

Output (Screenshots):

1	2	3	4	5
2	4	6	8	10
3	6	9	12	15