PART A

(Part A: TO BE REFFERED BY STUDENTS)

Experiment No. 04

A.1 AIM:

Implement basic JavaScript operators, conditional statements, loops etc.

A.2 Pre requisite:

 Basic Knowledge of HTML and JavaScript

A.3 Outcome:

After successful completion of this experiment students will be able to:

1. Create formatted web pages/websites with attractive look and feel
2. Use various JavaScript features

A.4 Theory:

JavaScript is the programming language of the Web. All modern HTML pages are using JavaScript.

JavaScript is one of **3** languages all web developers **MUST** learn:

1. **HTML** to define the content of web pages
2. **CSS** to specify the layout of web pages
3. **JavaScript** to program the behavior of web pages

JavaScript operators

JavaScript operators are symbols that are used to perform operations on operands.

There are following types of operators in JavaScript.

1. Arithmetic Operators
2. Comparison (Relational) Operators
3. Bitwise Operators
4. Logical Operators

5. Assignment Operators
6. Special Operators

JavaScript Loops

The JavaScript loops are used to iterate the piece of code using for, while, do while or for-in loops. It makes the code compact. It is mostly used in array.

There are three types of loops in JavaScript.

1. **for loop**

```
for (initialization; condition; increment)
{
    code to be executed
}
```

2. **while loop**

```
while (condition)
{
    code to be executed
}
```

3. **do-while loop**

```
do{
    code to be executed
}while (condition);
```

A.5 Procedure/Task:

1. Write a JavaScript program to find the area of a triangle where lengths of the three of its sides are 5, 6, 7.

2. Write a JavaScript program to compute the sum of the two given integers. If the two values are same, then returns triple their sum.

3. Write a JavaScript function that reverse a number.

4. Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case.

5. Write a JavaScript conditional statement to find the largest of five numbers. Display an alert box to show the result.

6. Write a JavaScript program which compute, the average marks of the following students Then, this average is used to determine the corresponding grade.

Student Name	Marks
David	80
Vinoth	77
Divya	88
Ishitha	95
Thomas	68

The grades are computed as follows :

Range	Grade
<60	F
<70	D
<80	C
<90	B
<100	A

7. Write a JavaScript program to construct the following pattern, using a nested for loop.

```
*
* *
* * *
* * * *
* * * * *
```

PART B

(PART B: TO BE COMPLETED BY STUDENTS)

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Black board access available)

Roll No. :E009	Name: Dhrumil Burad
Class : B.tech CSBS	Batch : B1
Date of Experiment : 02-02-2023	Date/Time of Submission :09-02-2023
Grade :	

B.1 Code:

(Paste your Code here)

```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>practical 4 </title>
</head>

<body>
    <!-- TASK 1 -->
    <article>
        <h1>TASK 1</h1>
        <h3> JS code to find the area of the triangle </h3>
        <br>
        Side 1<input type="number" id="s1">
        Side 2 <input type="number" id="s2">
        Side 3 <input type="number" id="s3">
        <button onclick="area()">Submit</button>

        <p id="ar">The area of triangle is : </p>
    </article>
    <br>
    <!-- TASK 2 -->
```

```html
    <article>
        <H1>TASK 2</H1>
        <h3>JavaScript program to compute the sum of the two given integers. If
the two values are same, then returns
            triple their sum.</h3>
        Enter Number 1 <input type="number" id="n1">
        Enter Number 2 <input type="number" id="n2">
        <button onclick="t2sum()">SUBMIT</button>
        <p id="t2res">Result:</p>

    </article>

    <!-- TASK 3 -->
    <article>
        <H1>TASK 3</H1>
        <h3>JavaScript function that reverse a number. </h3>
        Enter the number you want to reverse <input type="number" id="t3n">
        <button onclick="reversenum()">SUBMIT</button>
        <p id="t3o">Reversed Number is: </p>
    </article>

    <!-- TASK 4 -->
    <article>
        <h1>TASK 4</h1>
        <h3>JavaScript function that accepts a string as a parameter and converts
the first letter of each word of the
            string in upper case.</h3>
        Enter the string <input type="text" id="t4t">
        <button onclick="t4func()">SUBMIT</button>
        <p id="t4op">String is :</p>
    </article>
    <!-- /*TASK 5*/ -->
    <article>
        <h1>TASK 5</h1>
        <h3>Write a JavaScript conditional statement to find the largest of five
numbers. Display an alert box to
            show the result.</h3>
        Enter number 1 <input type="number" id="t51"><br>
        Enter number 2 <input type="number" id="t52"><br>
        Enter number 3 <input type="number" id="t53"><br>
        Enter number 4 <input type="number" id="t54"><br>
```

```html
        Enter number 5 <input type="number" id="t55">
        <button onclick="t5func()">Submit</button>
        <p id="t5op">Maximum Number is: </p>

    </article>
    <!-- /*TASK 6*/ -->
    <article>
        <h1>TASK 6</h1>
        <h3>6. Write a JavaScript program which compute, the average marks of
students </h3>
        Enter marks of student 1 <input type="number" id="t61"><br>
        Enter marks of student 2 <input type="number" id="t62"><br>
        Enter marks of student 3 <input type="number" id="t63"><br>
        Enter marks of student 4 <input type="number" id="t64"><br>
        Enter marks of student 5 <input type="number" id="t65">
        <button onclick="t6func()">Submit</button>
        <p id="t6op">Average of the students is: </p>
        <p id="t6op2">Grade of the class is: </p>

    </article>
    <!-- /*TASK 7*/ -->
    <article>
        <h1>TASK 7</h1>
        <P>7. Write a JavaScript program to construct the following pattern,
using a nested for loop.</P>
        <button onclick="t7func()">Generate Pattern</button>
        <p id="t7op"></p>
    </article>
    <script>

        /*TASK 1*/
        function area() {
            let x = parseInt(document.getElementById("s1").value)
            let y = parseInt(document.getElementById("s2").value)
            let z = parseInt(document.getElementById("s3").value)
            console.log(x, y, z);

            let semip = (x + y + z) / 2;
            console.log(semip)
            let resar = Math.sqrt(semip * (semip - x) * (semip - y) * (semip -
z))
```

```javascript
        console.log(resar);
        document.getElementById('ar').innerHTML += resar
    }
    /*TASK 2*/
    function t2sum() {
        let x = parseInt(document.getElementById("n1").value)
        let y = parseInt(document.getElementById("n2").value)
        console.log(n1, n2)
        if (x === y) {
            let t2s = 3 * (x + y);
            console.log(t2s)
            document.getElementById("t2res").innerHTML += "As the numbers are
equal output will be 3 times thee sum: " + t2s
        }
        else {
            t2s = x + y;
            document.getElementById("t2res").innerHTML += "Sum of 2 integers:
" + t2s
        }
    }

    /*TASK 3*/
    //method 1
    /*  function reversenum() {
        //let x = parseInt(document.getElementById("t3n"))
        let x = document.getElementById("t3n").value
        x = x.split("")
        let newlist = []
        //[i]console.log(x)
        for (let i = 0; i <= x.length; i++) {

            newlist.push(x.pop())
            console.log(newlist)
        }
        x = newlist.join("");
        console.log(x);
        document.getElementById("t3o").innerHTML += x
      }*/
    //method 2
    function reversenum() {
        let x = document.getElementById("t3n").value
```

```javascript
        let reversed = 0;
        while (x > 0) {
            reversed = reversed * 10 + (x % 10);
            console.log(reversed)
            x = Math.floor(x / 10);
            console.log(x)
        }
        document.getElementById("t3o").innerHTML += reversed
    }


    /*TASK 4*/
    function t4func() {
        let x = document.getElementById("t4t").value;
        let newar = "";
        var i = 0;
        for (i = 0; i < x.length; i++) {

            if (x[i] == " ") {
                newar += x[i];
                newar += x[i + 1].toUpperCase();
                i = i + 1;
            }
            else if (i == 0) {
                let z = x[i].toUpperCase();
                newar += z;
            }
            else {
                newar += x[i];
            }
        }

        document.getElementById("t4op").innerHTML += newar
    }
    /*TASK 5*/
    function t5func() {
        let x1 = parseInt(document.getElementById("t51").value);
        let x2 = parseInt(document.getElementById("t52").value);
        let x3 = parseInt(document.getElementById("t53").value);
        let x4 = parseInt(document.getElementById("t54").value);
        let x5 = parseInt(document.getElementById("t55").value);
        let y = [x1, x2, x3, x4, x5];
```

```javascript
        let i = 0;
        let max = y[0];
        console.log(max)
        for (i = 0; i < y.length; i++) {
            if (max < y[i]) {
                max = y[i];
            }
        }
        document.getElementById("t5op").innerHTML += max
    }
    /*TASK 6*/
    function t6func() {
        let x1 = parseInt(document.getElementById("t61").value);
        let x2 = parseInt(document.getElementById("t62").value);
        let x3 = parseInt(document.getElementById("t63").value);
        let x4 = parseInt(document.getElementById("t64").value);
        let x5 = parseInt(document.getElementById("t65").value);
        let avg = (x1 + x2 + x3 + x4 + x5) / 5
        console.log(avg)
        if (avg < 60) {
            document.getElementById("t6op2").innerHTML += "F"
        }
        else if (60 < avg < 70) {
            document.getElementById("t6op2").innerHTML += "D"
        }
        else if (70 < avg < 80) {
            document.getElementById("t6op2").innerHTML += "C"
        }
        else if (80 < avg < 90) {
            document.getElementById("t6op2").innerHTML += "B"
        }
        else {
            document.getElementById("t6op2").innerHTML += "A"
        }
        document.getElementById("t6op").innerHTML += avg
    }
    /*TASK 7*/
    function t7func() {
        for (i = 0; i <= 5; i++) {
            for (j = 0; j < i; j++) {
                document.getElementById("t7op").innerHTML += "* "
```

```
                }
                document.getElementById("t7op").innerHTML += "<br>"
            }
        }
    </script>
</body>

</html>
```

B.2 Output

(Take screen shots of the output at run time and paste it here)

TASK 1

JS code to find the area of the triangle

Side 1 `5`   Side 2 `6`   Side 3 `7`   Submit

The area of triangle is : 14.696938456699069

TASK 2

JavaScript program to compute the sum of the two given integers. If the two values are same, then returns triple their sum.

Enter Number 1 `3`   Enter Number 2 `3`   SUBMIT

Result:As the numbers are equal output will be 3 times thee sum: 18
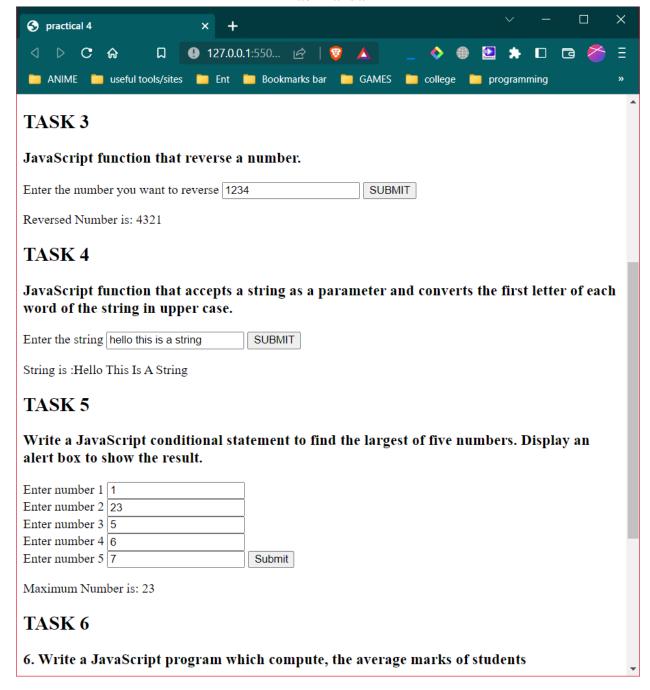
TASK 2

JavaScript program to compute the sum of the two given integers. If the two values are same, then returns triple their sum.

Enter Number 1 `4`   Enter Number 2 `5`   SUBMIT

Result:Sum of 2 integers: 9

TASK 3

JavaScript function that reverse a number.

Enter the number you want to reverse `1234` SUBMIT

Reversed Number is: 4321

TASK 4

JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case.

Enter the string `hello this is a string` SUBMIT

String is :Hello This Is A String

TASK 5

Write a JavaScript conditional statement to find the largest of five numbers. Display an alert box to show the result.

Enter number 1 `1`
Enter number 2 `23`
Enter number 3 `5`
Enter number 4 `6`
Enter number 5 `7` Submit

Maximum Number is: 23

TASK 6

6. Write a JavaScript program which compute, the average marks of students

TASK 6

6. Write a JavaScript program which compute, the average marks of students

Enter marks of student 1 `88`
Enter marks of student 2 `57`
Enter marks of student 3 `69`
Enter marks of student 4 `45`
Enter marks of student 5 `77`   Submit

Average of the students is: 67.2

Grade of the class is: D

TASK 7

7. Write a JavaScript program to construct the following pattern, using a nested for loop.

Generate Pattern

```
*
* *
* * *
* * * *
* * * * *
```

B.3 Conclusion:

(Students must write the conclusion as per the attainment of individual outcome listed above)

Implemented JavaScript to perform various tasks

B.3 Observations and Learning:

(Students must write their observations and learnings as per the attainment of individual outcome listed above)

Learnt about JavaScript and how to use JS to make a webpage interactive and how to perform various functions taking user input. Learnt about retrieving a value given by user and computing the value to give a desired output to the user.