Module (JAVASCRIPT BASIC & DOM) – 4

(Basic logic Question)

1) What is JavaScript. How to use it?

→ JavaScript is a scripting language used to develop web pages.
→ Developed in Netscape, JS allows developers to create a dynamic and interactive web page to interact with visitors and execute complex actions.
→ It also enables users to load content into a document without reloading the entire page.

2) How many type of Variable in JavaScript?

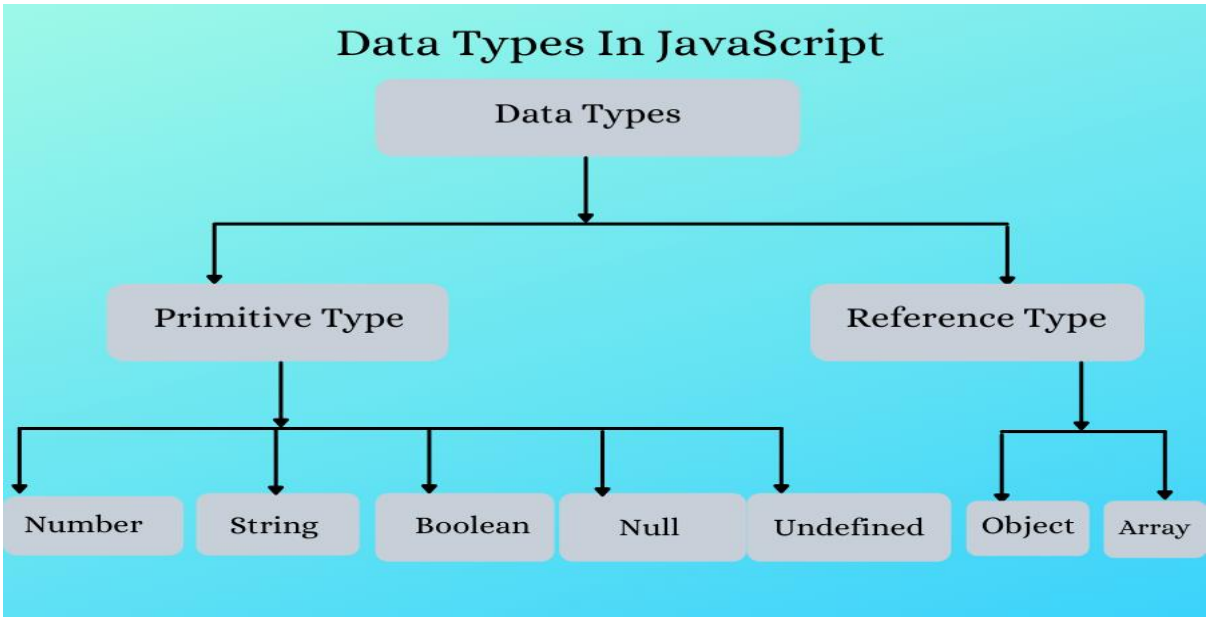
→ There are two types of variable in javascript :

A) Local variable

B) Global variable

3) Define a Data Types in js?

→ Data types in JavaScript define the data type that a variable can store.
→ JavaScript includes primitive and non-primitive data types.
→ The primitive data types in JavaScript include string, number, boolean, undefined, null, and symbol.
→ The non-primitive data type includes the object.
EX:-

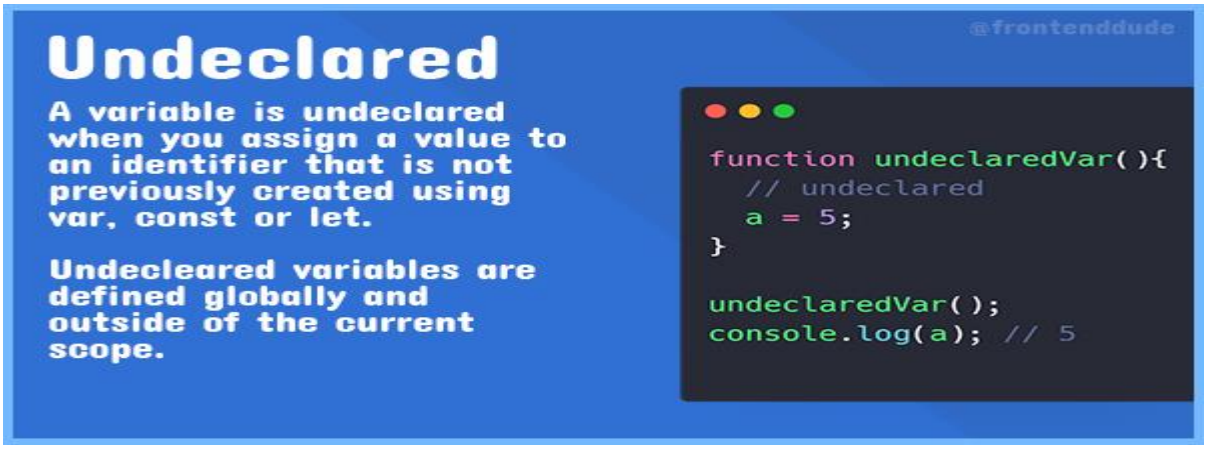


4) Write a mul Function Which will Work Properly When invoked With Following Syntax.

→
```
function mul(num1){
       function mul1(num2){
            function mul2(num3){
                  return num1*num2*num3;
            }; // end of mul2()
            return mul2;
      }; // end of mul1()
      return mul1;
} // end of mul()
```

5) What the deference between undefined and undeclare in JavaScript?

→ Undeclared variables are those that have not been declared or defined in the current scope, while undefined variables are those that have been declared but not given a value.
EX:-



6) Using console.log() print out the following statement: The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another. Using console.log() print out the following quote by Mother Teresa:

→

7) Check if typeof '10' is exactly equal to 10. If not make it exactly equal?

→

❖ INPUT:-

<!DOCTYPE html>

<html> <body>

<h1>JavaScript Operators</h1>

<h2>The typeof Operator</h2>

The typeof operator returns the type of a variable or an expression:

```
<script>
document.getElementById("demo").innerHTML =
"'jayraj' is " + typeof "jayraj" + "<br><br>" +
"('jayraj' + 'jayraj') is " + typeof ("jayraj" + "jayraj") + "<br><br>" +
"3.14 is " + typeof 3.14 + "<br><br>" +
"33 is " + typeof (33 + 66) + "<br><br>" +
"(33 + 66) is " + typeof 33 + "<br><br>" +
"NaN is " + typeof NaN + "<br><br>" +
"true is " + typeof true + "<br><br>" +
"false is " + typeof false + "<br><br>" +
"1234n is " + typeof 1234n + "<br><br>" +
"Symbol() is " + typeof Symbol() + "<br><br>" +
"x is " + typeof x;
</script>
 </body>  </html>
```

❖ OUTPUT :-

★ JavaScript Operators.
★ The typeof Operator.
★ The typeof operator returns the type of a variable or an expression:

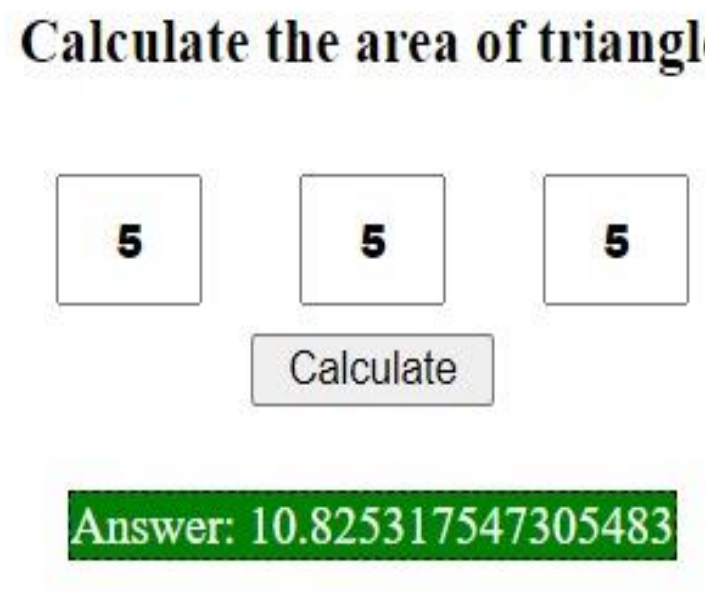
– 'jayraj' is string
– ('jayraj' + 'jayraj') is string
– 3.14 is number
– 33 is number
– (33 + 66) is number
– NaN is number
– true is boolean
– false is boolean
– 1234n is bigint
– Symbol() is symbol
– x is undefined

8) Write a JavaScript Program to find the area of a triangle?

```
❖ <html>
❖ <head>
❖ <title> Area of triangle </title>
❖ <style>
★ Body {
  display: flex;
  flex-direction: column;
  align-items: center;
  gap: 15px;
  }
★ Div {
  display: flex;
  gap: 2rem;
  place-content: center;
  }
★ Input {
  width:30px;
  padding: 15px;
  font-weight: 800;
  text-align: center;
  }
★ Button {
  width: 15px;
  }
★ #ans {
  border: 1px dashed black;
  background-color: green;
  color: white;
  }
❖ </style>
❖ </head>
❖ <body>
❖ </body>
★ <h3> Calculate the area of triangle </h3>
★ <div>
★ <input type="text" id="a"> <input type="text" id="b
★ <input type="text" id="c"> </div>
★ <button onclick="cal()">Calculate</button>
★ <p id="ans"></p>
❖ <script>
★ cal = () => { const a =
```

★ parseInt(document.getElementById("a").value); const b =
★ parseInt(document.getElementById("b").value); const c =
★ parseInt(document.getElementById("c").value); const sp =
★ (a+b+c)/2; const area = Math.sqrt(sp*((sp-a)*(sp-b)*(sp
★ c))); document.getElementById("ans").innerHTML =
★ "Answer:"+area; }
❖ </script>
❖ </html>

– OUTPUT :-



9) Write a JavaScript program to calculate days left until next Christmas?

→ INPUT :-

❖ <!DOCTYPE html>
❖ <html lang="en">
❖ <head>
❖ <meta charset="UTF-8">
❖ <meta name="viewport" content="width=device-width, initial-scale=1.0">
❖ <title>Document</title>
❖ </head>
❖ <body>
❖
❖ </body>
❖ <script>
★ today=new Date();
★ var cmas=new Date(today.getFullYear(), 11, 25);
★ if (today.getMonth()==11 && today.getDate()>25)

```
★ {
★ cmas.setFullYear(cmas.getFullYear()+1);
★ }
★ var one_day=1000*60*60*24;
★ document.write("<br> <br> <br> <br> <br> <br>  ");
★ document.write("Output:- <br><br><br>")
★ document.write(Math.ceil((cmas.getTime()-today.getTime())/(one_day))+
★ " days left until Christmas!");
❖ </script>
❖ </html>
```

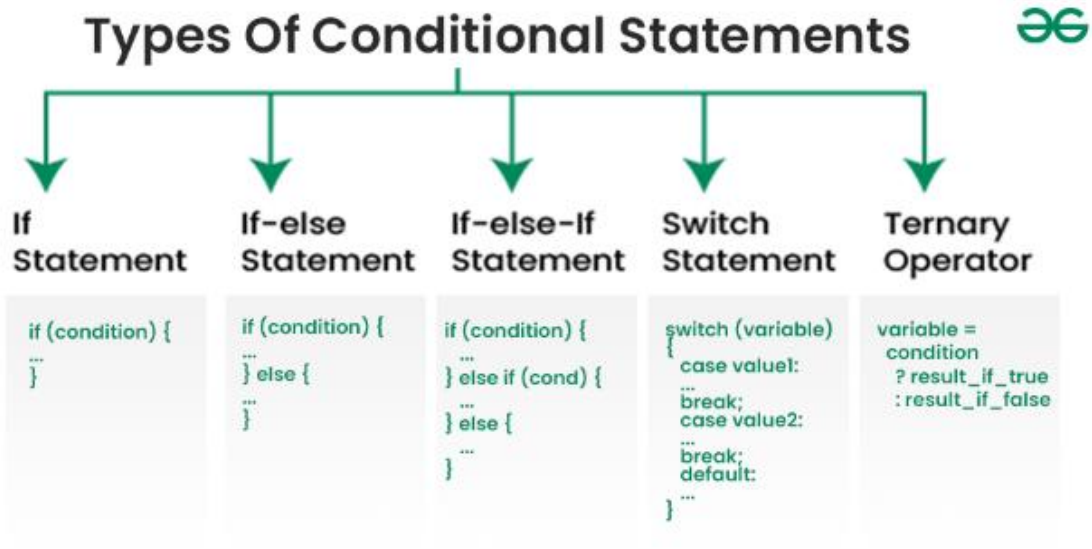
→ OUTPUT :-

Output:-

209days left until Christmas!

10) What is Condition Statement?

→ Conditional statements are those statements where a hypothesis is followed by a conclusion.
→ It is also known as an " If-then" statement.
→ If the hypothesis is true and the conclusion is false, then the conditional statement is false.
→ Likewise, if the hypothesis is false the whole statement is false.
  ❖ EX:-



11) Find circumference of Rectangle formula : C = 4 * a ?

→ INPUT :-

- ❖ <!DOCTYPE html>
- ❖ <html lang="en">
- ❖ <head>
- ❖ <meta charset="UTF-8">
- ❖ <meta name="viewport" content="width=device-width, initial-scale=1.0">
- ❖ <title>Document</title>
- ❖ </head>
- ❖ <body>
- ❖ </body>
- ❖ <script>
- ★ function findArea(width, height) {
  return width * height;
  }
- ★ function findPerimeter(width, height) {
  return 2 * (width + height);
  }
- ★ var width = 5;
- ★ var height = 10;
- ★ var area = findArea(width, height);
- ★ var perimeter = findPerimeter(width, height);
- ★ document.write("

 Output :-");
- ★ document.write("

 Area of rectangle: " + area);

★ document.write("

 Perimeter of rectangle: " + perimeter);
❖ </script>
❖ </html>

➢ Output :-

Output :-

Area of rectangle: 50

Perimeter of rectangle: 30

12) WAP to convert years into days and days into years?

→ Input :-

❖ <!DOCTYPE html>
❖ <html lang="en">
❖ <head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
❖ <title>Document</title>
❖ </head>
❖ <body>
❖
❖ </body>
❖ <script>
★ function getAge(date_1, date_2) {
★ var date2_UTC = new Date(Date.UTC(date_2.getUTCFullYear(), date_2.getUTCMonth(), date_2.getUTCDate()));
★ var date1_UTC = new Date(Date.UTC(date_1.getUTCFullYear(), date_1.getUTCMonth(), date_1.getUTCDate()));

★ var year, month, day;
★ var days = date2_UTC.getDate() - date1_UTC.getDate();
➢ if (days < 0) {

```
date2_UTC.setMonth(date2_UTC.getMonth() - 1);
days += DaysInMonth(date2_UTC);
}
var months = date2_UTC.getMonth() - date1_UTC.getMonth();
if (months < 0) {
date2_UTC.setFullYear(date2_UTC.getFullYear() - 1);
months += 12;
}
var years = date2_UTC.getFullYear() - date1_UTC.getFullYear();
if (years > 1) year = " years";
else year = " year";
if (months > 1) month = " months";
else month = " month";
if (days > 1) day = " days";
else day = " day";
document.write("<br><br><br><br>Output :- <br><br><br><br>")
return years + year + ", <br><br> " + months + month + ", <br><br> " +
        days + day + "";
}
function DaysInMonth(date2_UTC) {
   var monthStart = new Date(date2_UTC.getFullYear(),
date2_UTC.getMonth(), 1);

 var monthEnd = new Date(date2_UTC.getFullYear(),
        date2_UTC.getMonth() + 1, 1);

  var monthLength = (monthEnd - monthStart) / (1000 * 60 * 60 * 24);
   return monthLength;
}
document.write(getAge(new Date(1978, 11, 22), new Date()))
</script>
</html>
```

- Output :-

Output :-

45 years,

5 months,

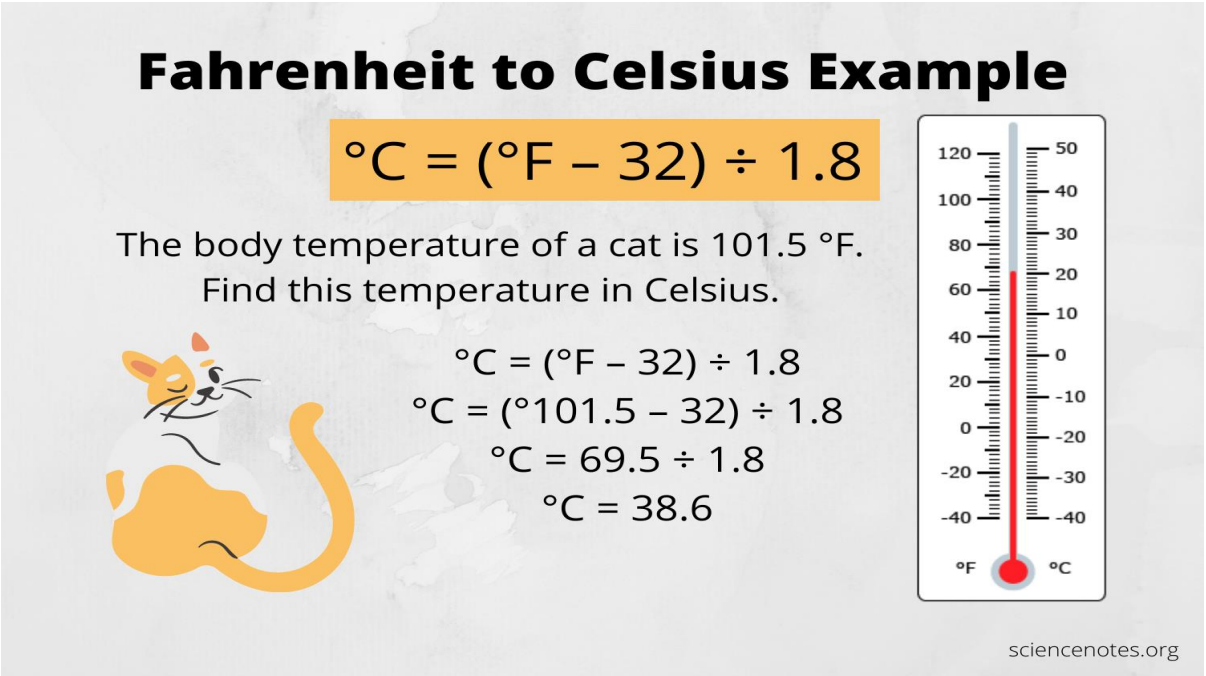
9 days

13) Convert temperature Fahrenheit to Celsius? (Conditional logic Question)

→ To convert Fahrenheit to Celsius, subtract 32 from the Fahrenheit temperature and then multiply the result by 5/9.

→ let fahrenheit = 285; let celsius = (fahrenheit - 32) * 5/9; console. log(celsius); The answer is approximately 140.56 degrees Celsius.

➢ EX :-



14) Write a JavaScript exercise to get the extension of a filename.?

→ Input :-

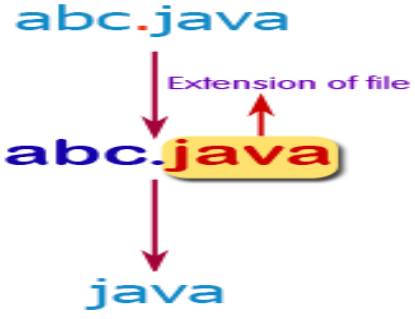
```
<!DOCTYPE html>
<html lang="en">
<head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-
        scale=1.0">
        <link rel="stylesheet" href="">
 <title>Document</title>
</head>
<body>
   <p id="one"></p>
   <p id="two"></p>
</body>
<script>
   document.write("<br><br><br> &#xf30b;      Output
        <br><br><br>")
  filename = "system.php"
   document.write("&#xf35a;   " +
        filename.split('.').pop() + "<br><br>");
 filename = "abc.js"
   document.write( "&#xf35a;   " +
filename.split('.').pop());
</script>
</html>
```

➢ Output : -

□ Output

□ php

□ js



15) What is the result of the expression (5 > 3 && 2 < 4)?

→ The result is true, because both conditions are true.

16) What is the result of the expression (true && 1 && "hello")?

→ The result is "hello", because all the operands are truthy, and the "&&" operator returns the last truthy operand.

17) What is the result of the expression true && false || false && true?

→ A coworker and I have tried to work this out and the closest thing we could come up with is that the statement is being evaluated by order of precedence.

→ According to the MDN Operator Precedence logical-and has a higher precidence over logical-or, suggesting that the condition is evaluated as if false && true were a single statement, which then moves on to determine the boolean condition of false || true which is then true. Written out, this would be:- (false && true) || true

18) What is a Loop and Switch Case in JavaScript define that ?

→ -> JavaScript switch <-

❖ <!DOCTYPE html>

❖ <html>

❖ <body>

```
<h2>JavaScript switch</h2>
<p id="demo"></p>
```

❖ <script>

```
let day;
switch (new Date().getDay()) {
  case 0:
   day = "Sunday";
   break;
  case 1:
   day = "Monday";
    break;
  case 2:
    day = "Tuesday";
    break;
  case 3:
    day = "Wednesday";
```

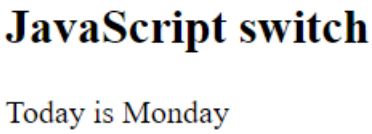
```
    break;
  case 4:
    day = "Thursday";
    break;
  case 5:
    day = "Friday";
    break;
  case  6:
    day = "Saturday";
}
document.getElementById("demo").innerHTML = "Today is " + day;
```

❖ </script>

❖ </body>

❖ </html>

★ Out put:-



19) What is the use of is Nan function?

→ isNaN() returns true if a number is Not-a-Number.

→ In other words: isNaN() converts the value to a number before testing it.

EX:-

★ INPUT :-

❖ <!DOCTYPE html>

- <html>
- <body>
  <h1 style="margin-left:200px;margin-top:200px;">JavaScript Global Methods</h1>
  <h2 style="margin-left:220px;">The isNaN() Method</h2>
  isNaN() returns true if a value is NaN:

- <script>
  let result =
  "Is 123 NaN? " + isNaN(123) + "
" +
  "Is -1.23 NaN? " + isNaN(-1.23) + "
" +
  "Is 5-2 NaN? " + isNaN(5-2) + "
" +
  "Is 0 NaN? " + isNaN(0)+ "
"+
  "Is '123' NaN? " + isNaN('123') + "
" +
  "Is 'Hello' NaN? " + isNaN('Hello') + "
" +
  "Is '2005/12/12' NaN? " + isNaN('2005/12/12');
  document.getElementById("demo").innerHTML = result;

- </script>
- </body>
- </html>
  - ★ Output:--

JavaScript Global Methods

The isNaN() Method

isNaN() returns true if a value is NaN:

Is 123 NaN? false
Is -1.23 NaN? false
Is 5-2 NaN? false
Is 0 NaN? false
Is '123' NaN? false
Is 'Hello' NaN? true
Is '2005/12/12' NaN? true

20) What is the difference between && and || in JavaScript?

→ If the expression on the left of && is falsy, it will immediately return false without checking the expression on the right.
→ If the expression on the left of || is truthy, it will immediately return true without checking the expression on the right.
→ (This is called “short circuiting”.)

21) What is the use of Void (0)?

→ The void operator evaluates an expression and returns undefined .
→ By running void(0) in the URL JavaScript code, nothing is evaluated or returned.

❖ Input:--

```
❖ <!DOCTYPE html>
❖ <html lang="en">
❖ <head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width,
  initial-scale=1.0">
        <title>GeeksforGeeks</title>
        <style>
            h1 {
                color: green;
            }
        </style>
❖ </head>

❖ <body>
        <h1>GeeksforGeeks</h1>
        <h3>without JavaScript:void(0)</h3>
        <a href="#" ondblclick="alert('Welcome to Geeks for
  Geeks')">
            Double click on me
        </a>
        <a href="#" ondblclick="geeks()">
            Double click on me
        </a>
        <script>
            function geeks() {
```

```
                document.getElementById("gfg").innerHTML =
                'Welcome to GeeksforGeeks';
            }
        </script>
        <p id="gfg"></p>
    </body>
    </html>
```

★ Ourput:-

22) Check Number Is Positive or Negative in JavaScript?

→ Input:-

```
<!DOCTYPE html>
<html>
<body>
<h2>JavaScript Math</h2>
<p>Math.sign() retuns whether a number is negative, positive or zero:</p>
<p id="demo"></p>
<script>
document.getElementById("demo").innerHTML = Math.sign(3);
</script>
</body>
</html>
```

★ Output :-

JavaScript Math

Math.sign() retuns whether a number is negative, positive or zero:

1

23) Find the Character Is Vowel or Not ?

→ INPUT:-

- <!DOCTYPE html>
- <html lang="en">
- <head>

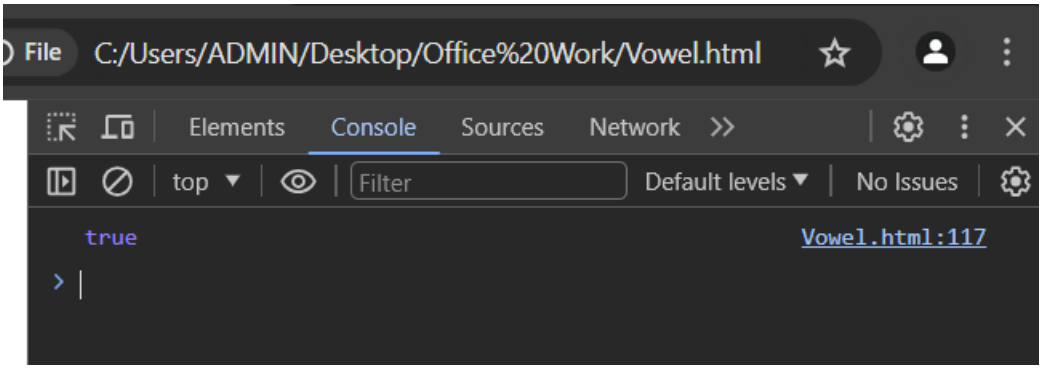
```
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
<title>Document</title>
```

- </head>
- <body>
- </body>
- <script>

```
let input = 'a';
if (
  input === 'a' || input === 'A' ||
  input === 'e' || input === 'E' ||
  input === 'i' || input === 'I' ||
  input === 'o' || input === 'O' ||
  input === 'u' || input === 'U'
) {
  console.log(true);
} else {
  console.log(false);
}
```

- </script>
- </html>

★ Output :-



24) Write to check whether a number is negative, positive or zero?

→ Using Math.
→ abs() method to determine if a number is positive, negative, or zero.
→ The Math. abs() method returns the absolute value of a number, which is its magnitude without regard to its sign.
→ We can then compare the result with the original number to determine its sign.

★ Input :-

❖ <!DOCTYPE html>
❖ <html lang="en">
❖ <head>

```
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width,
    initial-scale=1.0">
<title>Document</title>
```

❖ </head>
❖ <body>

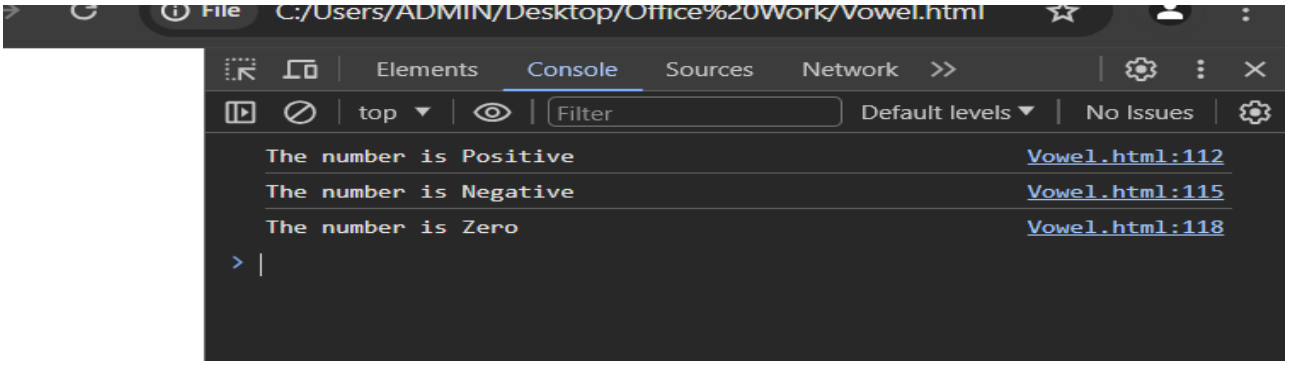
❖ </body>
❖ <script>

```
function numberChecking(num) {
 switch (Math.sign(num)) {
   case 1:
     console.log("The number is Positive");
     break;
   case -1:
     console.log("The number is Negative");
     break;
   default:
```

```
            console.log("The number is Zero");
        }
    }
    numberChecking(12);
    // Output: Positive
    numberChecking(-1);
    // Output: Negative
    numberChecking(0);
    // Output: Zero
```

- </script>
- </html>

★ Output :-



25) Write to find number is even or odd using ternary operator in JS?

→ Input :-

- <!DOCTYPE html>
- <html lang="en">
- <head>

```
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width,
    initial-scale=1.0">
        <title>Document</title>
```

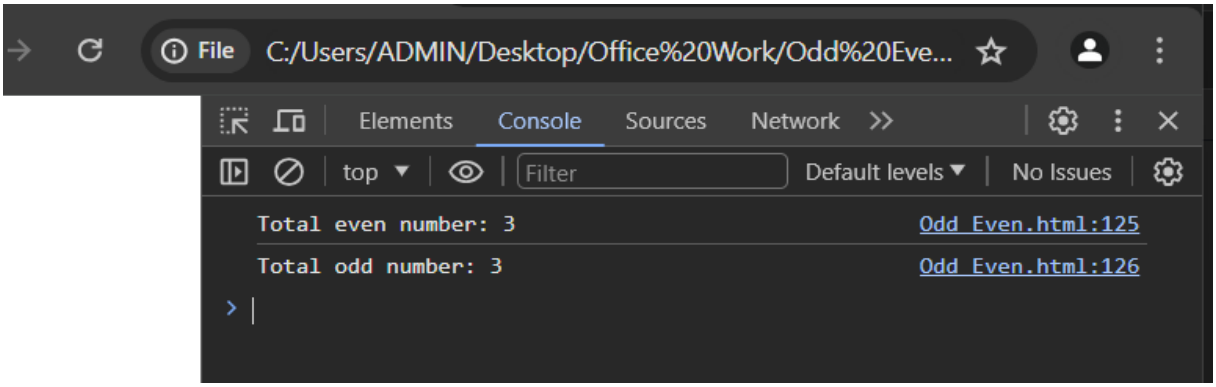
- </head>
- <body>
- </body>
- <script>

```
        let array = [1, 2, 3, 4, 5, 6];
        let oddNum = 0;
        let evenNum = 0;
         for (let index = 0; index < array.length; index++) {
```

```
        if (array[index] % 2 == 0) {
            evenNum++;
        }
        else {
            oddNum++;
        }
    }
    console.log("Total even number: " + evenNum);
    console.log("Total odd number: " + oddNum);
```

- </script>
- </html>

★ Output :-



26) Write find maximum number among 3 numbers using ternary operator in JS?

→ Input :-

- <!DOCTYPE html>
- <html lang="en">
- <head>

```
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width,
    initial-scale=1.0">
        <title>Document</title>
```

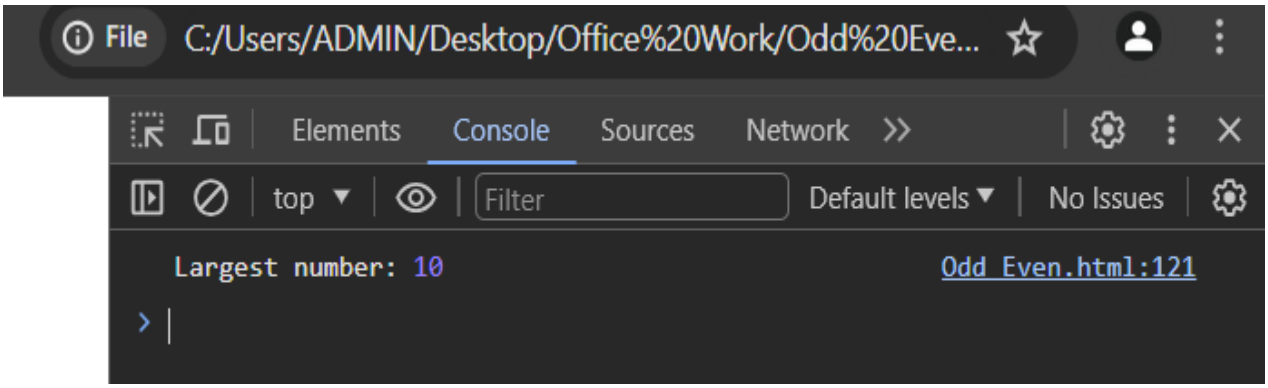
- </head>
- <body>
- </body>
- <script>

```
        function findLargest(num1, num2, num3) {
    if (num1 >= num2 && num1 >= num3) {
    return num1;
```

```
} else if (num2 >= num1 && num2 >= num3) {
return num2;
} else {
return num3;
}
}
const largestNumber = findLargest(10, 5, 8);
console.log("Largest number:", largestNumber);
```

- </script>
- </html>

★ output :-



27) Write to find minimum number among 3 numbers using ternary operator in JS?

→ let num1 = 12;
→ let num2 = 7;
→ let num3 = 18;
→ // Third number let smallest; // Variable to store the smallest number // Employing conditional statements to compare the numbers and find.
→ the smallest if (num1 < num2 && num1 < num3) { smallest = num1; } else if (num2 < num1 && num2 < num3)
→ Input:-

- <!DOCTYPE html>
- <html lang="en">
- <head>

```
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
```

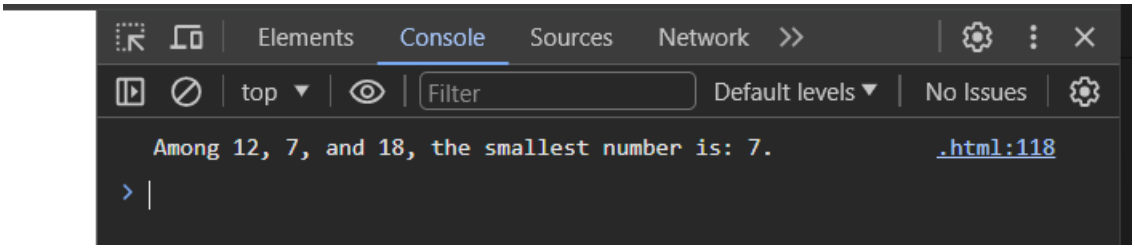
- </head>

- <body>
- </body>
- <script>

```
let num1 = 12;
let num2 = 7;
let num3 = 18;
let smallest;
if (num1 < num2 && num1 < num3) {
  smallest = num1;
} else if (num2 < num1 && num2 < num3) {
  smallest = num2;
} else {
  smallest = num3;
}
console.log("Among " + num1 + ", " + num2 + ", and " + num3 + ",
the smallest number is: " + smallest + ".");
```

- </script>
- </html>

★ Output:-



28) Write to find the largest of three numbers in JS?

→ let num1 = 42;
→ let num2 = 78;
→ let num3 = 55;
→ let largest; // To hold the largest number // Using conditional statements to compare the numbers and determine.
→ The largest if (num1 > num2 && num1 > num3) { largest = num1; } else if (num2 > num1 && num2 > num3).
→ Input :-

- <!DOCTYPE html>
- <html lang="en">
- <head>

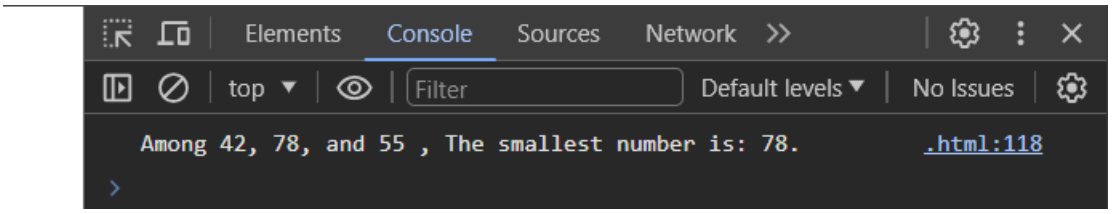
```
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
<title>Document</title>
```

❖ </head>
❖ <body>
❖ </body>
❖ <script>

```
let num1 = 42;
let num2 = 78;
let num3 = 55;
let smallest;
if (num1 > num2 && num1 > num3) {
  smallest = num1;
} else if (num2 > num1 && num2 > num3) {
  smallest = num2;
} else {
  smallest = num3;
}
console.log("Among " + num1 + ", " + num2 + ", and " + num3 + ",
The smallest number is: " + smallest + ".");
```

❖ </script>
❖ </html>

★ Output :-



29) Write to show:
(i) Monday to Sunday using switch case in JS?

→ Input :-

❖ <!DOCTYPE html>
❖ <html lang="en">
❖ <head>

```
<meta charset="UTF-8">

<meta name="viewport" content="width=device-
width, initial-scale=1.0">

<title>Document</title>
```

❖ </head>
❖ <body>

```
<p>Enter a number : </p>

  <input type="text" id="numberDay">

<button id="button">OK</button>
```

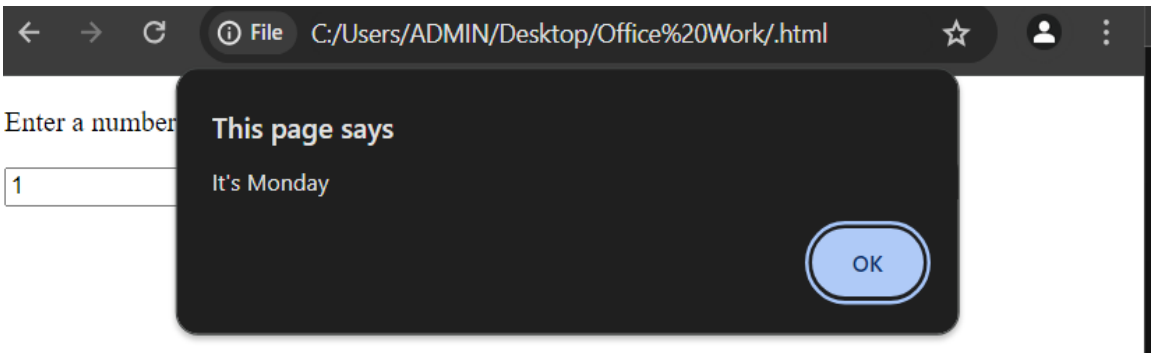
- </body>
- <script>

```
  let clickButton =
document.getElementById("button");
clickButton.addEventListener("click", function
weekDay() {

 let day =
Number(document.getElementById("numberDay").v
alue);

  switch (day) {

case 0:

  alert("It's Sunday!")

  break;

 case 1:

  alert("It's Monday");

  break;

 case 2:

  alert("It's Tuesday");

  break;

 case 3:

  alert("It's Wednesday");

  break;

 case 4:

  alert("It's Thursday");
```

```
            break;
        case 5:
            alert("It's Friday");
            break;
        case 6:
            alert("It's Saturday");
            break;
    }
})
```

- </script>
- </html>

★ Output :-



(ii) Vowel or Consonant using switch case in JS?

→ Input :-

- <!DOCTYPE html>
- <html lang="en">
- <head>

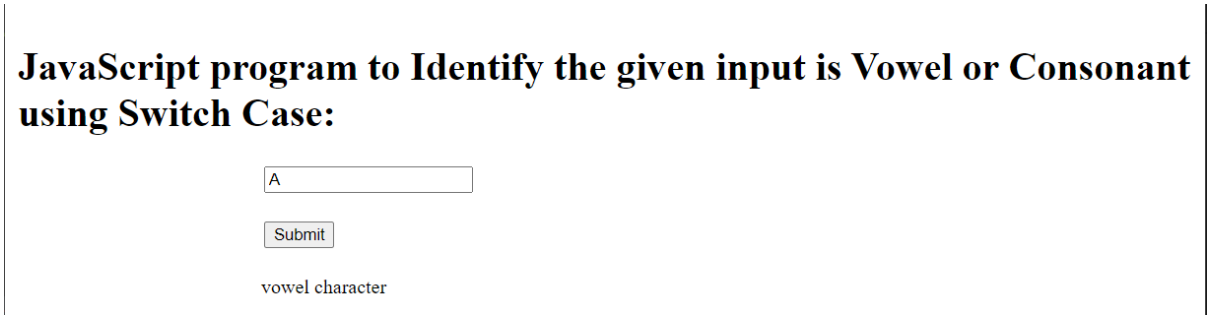
```
        <meta charset="UTF-8">
```

```
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>vowel</title>
</head>
<body>
    <table>
      <tr>
        <td> <input type="text" name="a" id="first"
placeholder="Enter character" /> </td>
      </tr>
      <tr>
        <td> <button onclick="vowel()">Submit</button> </td>
      </tr>
    </table>
    <div id="num"></div>
</body>

<script type="text/javascript">
    function vowel() {
      var ch;
      ch = document.getElementById("first").value;
      switch (ch) {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
          document.getElementById("num").innerHTML = "vowel
character";
          break;
        default: document.getElementById("num").innerHTML =
"Not an vowel";
          break;
      }
    }
</script>
```

★ </html>

★ Output :-

➢ Vowel character :-



➢ Not an vowel :-