**Module 6) JAVASCRIPT BASIC & DOM**

1. What is JavaScript. How to use it?

ANS.

JavaScript is essential for web development, allowing for the creation of interactive and dynamic web pages. It can be embedded directly in HTML or linked externally, and it offers tools for debugging and manipulating web content.

We have 3 way to use JS

* Inline JS
* External JS
* Internal JS

2. How many type of Variable in JavaScript?

ANS.

JavaScript has three variables write below.

* var : It can redefined or reassigned.
* let : it can only reassigned
* const: it can’t redefined or reassigned.

3. Define a Data Types in js?

ANS.

JavaScript has several basic data types divided into primitive types and objects:

* Primitive Types

Number

Represents both integer and floating-point numbers.

Example: 42, 3.14

BigInt

Represents integers with arbitrary precision.

Example: 123456789012345678901234567890n

String

Represents textual data.

Example: "Hello, World!"

Boolean

Represents logical values.

Example: true, false

Undefined

Represents a variable that has not been assigned a value.

Example: let x; // x is undefined

Null

Represents the intentional absence of any object value.

Example: let y = null;

* Object Types

Object

Represents a collection of properties (key-value pairs).

Example: { name: "Alice", age: 25 }

Array

Represents an ordered list of values.

Example: [1, 2, 3]

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

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

ANS.

**Undefined**: A variable is declared but not assigned a value. For example, let x; means x is undefined because it doesn't hold any value yet.

**Undeclared**: A variable is used without being declared anywhere in the code. For example, using x without let, var, or const creates an undeclared variable (if in non-strict mode) or throws an error (in strict mode)

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:

ANS.

<script>

    var John = "'There is no exercise better for the heart than reaching down and lifting people up.";

    var Motherteresa = John;

    console.log(Motherteresa);

</script>

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

ANS.

 var x = "10";

    var y = 10;

    console.log(typeof x);

    if(typeof x !== typeof y){

        x = parseFloat(x);

    }

    console.log(typeof x);

    console.log(x===y);

O/P: String

Number

True

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

ANS.

    function areaoftriangle(x,y) {

        console.log(0.5\*x\*y);

    }

    areaoftriangle(5,6);

O/P: 15

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

ANS.

let today = new Date();

    let xmas = new Date(today.getFullYear(),11,25);

    if (today.getMonth()== 11 && today.getDate()>25){

    xmas.setFullYear(today.getFullYear()+1)

    }

    console.log(xmas.getTime());

    console.log(today.getTime());

    let onday = 1000\*60\*60\*24;

    let diff1 = Math.ceil((xmas -today)/onday)

    console.log(` the diffrence between the next chrismas is ${diff1} calculating by variables` );

10. What is Condition Statement?

ANS.

A condition statement in JavaScript allows your code to make decisions based on certain conditions, leading to different execution paths. These statements evaluate expressions to determine whether they are true or false and execute specific blocks of code accordingly. Statements mention below.

* If statement.
* Else if statement.
* If…else statement.
* Else statement.
* Switch statement.

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

ANS.

 <div>

        <label for="">sidelength</label>

        <input type="number" id="value" />

        <button onclick="getresult()">Calculate</button>

        <p id="resultt"></p>

      </div>

 div {

        display: flex;

        justify-content: center;

        align-items: center;

        flex-direction: column;

        gap: 10px;

      }

  <script>

    function rectangleformula(length) {

      return 4 \* length;

    }

    function getresult() {

      let result = Number(document.getElementById("value").value);

      if (isNaN(result) || result <= 0) {

        // alert("please mention valid details");

        document.getElementById("resultt").innerText =

          "please mention valid details";

      } else {

        let calculation = rectangleformula(result);

        document.getElementById("resultt").innerText =

          "circumference:" + calculation ;

      }

    }

  </script>

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

ANS.

 <style>

        button{

            background-color:red;

            color: antiquewhite;

            height: 30px;

            border-radius: 5px;

            margin-top: 10px;

        }

    </style>

  </head>

  <body>

    <div>

        <label for="">Days to Year: </label>

        <input type="text" name="" id="dtoy" />

        <button onclick="daystoyear()">Calculate</button>

        <div> <span id="rdtoy"></span></div>

    </div>

    <div>

        <label for="">Year to days: </label>

        <input type="text" name="" id="ytod" />

        <button onclick=" yearstoday()">Calculate</button>

        <div><span id="rytod"></span></div>

    </div>

  </body>

  <script>

    // convert days into years

    function daystoyear() {

      var result =  document.getElementById("dtoy").value;

      var converttonumber = Number(result);

      if(!isNaN(converttonumber) && converttonumber>=0){

        var convertedyear = converttonumber/365;

      var formattedyear = convertedyear.toFixed(2);

      document.getElementById("rdtoy").innerHTML=`Converted Days to year is ${formattedyear}`

      } else{

        document.getElementById("rdtoy").innerHTML="Please type valid details"

      }

      document.getElementById("dtoy").value="";

    }

    function yearstoday() {

      var result =  document.getElementById("ytod").value;

      var converttonumber = Number(result);

      if(!isNaN(converttonumber) && converttonumber>=0){

        var convertedyear = converttonumber\*365;

      var formattedyear = convertedyear.toFixed(2);

      document.getElementById("rytod").innerHTML=`Converted Days to year is ${formattedyear}`

      } else{

        document.getElementById("rytod").innerHTML="Please type valid details"

      }

      document.getElementById("ytod").value="";

    }

  </script>

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

ANS.

<!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>

 <div><input type="number" id="temp"></div>

 <button onclick="FtoCconvertion()">Calculate</button>

 <p class="result" id="result"></p>

</body>

<script>

    // var temp = prompt("Please write some digits for convert F to C")

     function FtoCconvertion() {

         let result =document.getElementById("temp").value;

         let convertedresult = Number(result);

         if(!isNaN(convertedresult)){

            var finalresult = (convertedresult-32)\*(5/9);

            document.getElementById('result').innerHTML=` Your Fahrenheit to Celsius Temperature is ${finalresult}°C`;

         }else{

            document.getElementsByTagName("p").innerHTML="Please write in Digits"

         }

     }

</script>

</html>

Q.14

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

ANS.

TRUE.

Q.16 what is the result of the expression (true && 1 && "hello")?

ANS.

Hello

Q.17 what is the result of the expression true && false || false && true?

ANS.

False.

Q.18 what is a Loop and Switch Case in JavaScript define that?

ANS.

Loops: Loops in JavaScript allow you to execute a block of code repeatedly based on a condition or a range of values. They are useful for tasks that require repetition, such as iterating over arrays or generating sequences of numbers.

Switch Case: switch statement in JavaScript allows you to execute different code blocks based on the value of a variable or expression. It's a cleaner alternative to using multiple if...else if...else statements.

Q.19 what is the use of is Nan function?

ANS.

Is Nan means is not a number which means it compares the value if it is not a number then it gives true ,if it is number then it gives false and if value is in numeric string then it convert it to number and gives false value(if var a = isNAN(“6”) then it first convert string into number and gives false ).

Q.20 what is the difference between && and || in JavaScript?

ANS.

LOGICAL AND:

* Ensures that **all conditions** are true.
* Returns the first falsy value or the last value if none are falsy.
* If the first condition is false, subsequent conditions are not evaluated.

LOGICAL OR:

* Ensures that **at least one condition** is true.
* Returns the first truthy value or the last value if all are falsy.
* If the first condition is true, subsequent conditions are not evaluated.

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

ANS.

void Operator: The void operator in JavaScript evaluates the given expression and then returns undefined.

void(0): Specifically, void(0) evaluates the number 0 and returns undefined. This is often used because 0 is a simple, non-operation value.

Q.22 Check Number Is Positive or Negative in JavaScript?

ANS.

  var a = prompt("Please Enter number");

    if(a < 0){

        console.log("It is a Negetive number");

        document.write("It is a negetive number")

    }

    else{

        console.log("it is Positive number");

        document.write("It is positive number")

    }

Q.23 Find the Character Is Vowel or Not.

ANS.

function isVowel(char) {

var lowerChar = char.toLowerCase();

// Check if the character is a vowel using switch case

switch (lowerChar) {

case 'a':

case 'e':

case 'i':

case 'o':

case 'u':

return true;

default:

return false;

}

}

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

ANS.

<script>

    function checkNumber(number) {

    if (number > 0) {

        return `${number} is positive.`;

    } else if (number < 0) {

        return `${number} is negative.`;

    } else {

        return `${number} is zero.`;

    }

}

</script>

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

ANS.

let number = 19;

     let result =(number % 2 === 0)? "even":"odd";

     console.log(` the number  ${number} is ${result} number `);

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

ANS.

 let a = 10;

let b = 20;

let c = 15;

let max = (a > b) ? (a > c ? a : c) : (b > c ? b : c);

console.log(`The maximum number among ${a}, ${b}, and ${c} is ${max}.`);

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

ANS.

       let a = 10;

let b = 20;

let c = 15;

let maxAB = (a < b) ? a : b;

let max = (maxAB < c) ? maxAB : c;

console.log(`The maximum number among ${a}, ${b}, and ${c} is ${max}.`);

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

ANS.

   let a = 25;

   let b = 25;

   let c = 24;

   let largest;

   if(a>=b && a>=c) {

    largest = a;

   }

  else if(b>=a && b>=c) {

    largest = b;

   }

   else{

    largest = c;

   }

   console.log(largest);

Q.29 Write to show i. Monday to Sunday using switch case in JS? ii. Vowel or Consonant using switch case in JS?

ANS.

I.

<script>

const dayNumber = 3;

    let dayName;

    switch (dayNumber) {

      case 0:

        dayName = "Sunday";

        console.log("Relax, it's Sunday!");

        break;

      case 1:

        dayName = "Monday";

        console.log("Start the week with energy on Monday!");

        break;

      case 2:

        dayName = "Tuesday";

        console.log("It's Tuesday, keep the momentum going.");

        break;

      case 3:

        dayName = "Wednesday";

        console.log("Midweek on Wednesday.");

        break;

      case 4:

        dayName = "Thursday";

        console.log("Thursday, almost there!");

        break;

      case 5:

        dayName = "Friday";

        console.log("It's Friday, the weekend is near.");

        break;

      case 6:

        dayName = "Saturday";

        console.log("Enjoy your Saturday!");

        break;

      default:

        dayName = "Invalid day number";

        console.log("Invalid day number");

        break;

    }

    console.log("Today is " + dayName);

  </script>

II.

        function isVowel(char) {

    switch (true) {

        case (char === 'a' || char === 'A'):

        case (char === 'e' || char === 'E'):

        case (char === 'i' || char === 'I'):

        case (char === 'o' || char === 'O'):

        case (char === 'u' || char === 'U'):

            return true;

        default:

            return false;

    }

}

console.log(isVowel("i")) // o/p = true

Q.30 What are the looping structures in JavaScript? Any one Example?

ANS.

Javscript has 5 looping structure as mention below.

* For loop
* For of loop
* For in loop
* Do while loop
* While loop

For loop: The for loop is used to execute a block of code a specific number of times. It is useful when the number of iterations is known.

Syntax.

for (initialization; condition; increment) {

// Code to be executed

}

Q-31 Write a print 972 to 897 using for loop in JS?

ANS.

   for (let index =972 ; index >=897; index--) {

         console.log(index);

    }

Q-32 Write to print factorial of given number?

ANS.

 let number = prompt("Please give us a number")

    let fact=1;

    for(i = 1;i<=number;i++){

        fact \*= i;

        console.log(`the  factorial of ${number} is ${fact}`);

    }

Q-33 Write to print Fibonacci series up to given numbers?

ANS.

 <script>

    let a = 0;

    let b = 1;

    let c;

    for (i = 1; i <= 17; i++) {

      console.log(a);

      c = a + b;

      a = b;

      b = c;

    }

  </script>

Q.34 Write to print number in reverse order e.g.: number = 64728 ---> reverse =82746 in JS?

ANS.

let number = prompt(" Enter your number");

    if (isNaN(number)) {

      alert("please enter a numericvalue");

    }

    let numberstr = number.toString();

    console.log(`String conversion ${numberstr}`);

    let numberarry = numberstr.split("");

    console.log(`Arry representation ${numberarry}`);

    let reversearry = numberarry.reverse();

    console.log(`reverse the array ${reversearry}`);

    let arrytostr = reversearry.join("");

    console.log(`join arry to string ${arrytostr}`);

    let strtonum = parseInt(arrytostr,10);

    // console.log(`convert back to number ${strtonum}`);

    console.log(`Orignal number: ${number}`);

    console.log(`Reversed number:${strtonum}`);

  </script>

Q-35 Write a program make a summation of given number (E.g., 1523 Ans: - 11) in JS?

ANS.

  let number = prompt("please enter a number");

    let orignalNumber = Number(number)

    let sum = 0;

    while (number > 0) {

      let rem = number % 10;

      sum = sum + rem;

      number = parseInt(number / 10);

    }

    console.log(`The sum of ${orignalNumber}  is ${sum}`);

Q-36 Write a program you have to make a summation of first and last Digit. (E.g., 1234 Ans: -5) in JS?

ANS.

 let number = prompt("please enter number");

    let numberstr = number.toString();

    let firstNumber =parseInt( numberstr.charAt(0))

    let LastNumber = parseInt(numberstr.charAt(numberstr.length - 1))

    let sum = firstNumber + LastNumber;

    console.log(sum);

Q.37 Use console.log() and escape characters to print the following pattern in JS?

1 1 1 1 1

2 1 2 4 8

3 1 3 9 27

4 1 4 16 64

5 1 5 25 125

ANS.

<script>

    function printPattern() {

    const rows = 5;

    for (let i = 1; i <= rows; i++) {

        let output = `${i} 1 ${i} ${i \* i} ${i \* i \* i}`;

        if (i % 2 === 0) {

            output = ' ' + output;

        }

        console.log(output);

    }

}

printPattern();

Q.38 Use pattern in console.log in JS?

ANS

1

1 0

1 0 1

1 0 1 0

1 0 1 0 1

 function printPattern(rows) {

    for (let i = 1; i <= rows; i++) {

        let rowOutput = ''

        for (let j = 1; j <= i; j++) {

            rowOutput += (j % 2 !== 0 ? '1' : '0') + ' ';

        }

        console.log(rowOutput.trim());

    }

}

printPattern(5);



A

B C

D E F

G H I J

K L M N O

ANS.

 function printPattern(rows) {

    for (let i = 1; i <= rows; i++) {

        let rowOutput = '';

               for (let j = 1; j <= i; j++) {

            rowOutput += (j % 2 !== 0 ? '1' : '0') + ' ';

        }

        console.log(rowOutput.trim());

    }

}

printPattern(5);

3.

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

ANS.

let count = 1;

for (let i = 1; i <= 5; i++) {

  let row = '';

  for (let j = 1; j <= i; j++) {

    row += count + ' ';

    count++;  }

  console.log(row.trim());

}

4.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

ANS.

const rows = 5;

for (let i = 1; i <= rows; i++) {

  let row = '';

  for (let j = 1; j <= i; j++) {

    row += '\* ';

  }

  console.log(row.trim());

}

Q.39 Accept 3 numbers from user using while loop and check each numbers palindrome?

ANS.

<!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 isPalindrome(num) {

  const originalNum = num;

  let reversedNum = 0;

  while (num > 0) {

    const digit = num % 10;

    reversedNum = reversedNum \* 10 + digit;

    num = Math.floor(num / 10);

  }

  return originalNum === reversedNum;

}

let count = 0;

const numbers = [];

while (count < 3) {

  const input = prompt(`Enter number ${count + 1}:`);

  const number = parseInt(input);

  if (!isNaN(number)) {

    numbers.push(number);

    count++;

  } else {

    alert('Invalid input. Please enter a valid number.');

  }

}

numbers.forEach(number => {

  if (isPalindrome(number)) {

    console.log(`${number} is a palindrome.`);

  } else {

    console.log(`${number} is not a palindrome.`);

  }

});

</script>

</html>

* Create password field with show hide functionalities .

ANS.

<!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>

    <label for="">Enter Password:</label>

    <input type="password" placeholder="type your number" id="pass" /> <br />

    <input

      type="checkbox"

      onclick="password()"

      name=""

      id="show"

      value=""

    />show password

  </body>

  <script>

    function password() {

      let pass = document.getElementById("pass");

      if (pass.type == "password") {

        pass.type = "Text";

      } else {

        pass.type = "password";

      }

    }

  </script>

</html>

* Create basic math operation in JS .

ANS.

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

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

    <title>Document</title>

    <style>

      div {

        border: 2px solid black;

        width: 40%;

        margin-top: 10px;

        text-align: center;

      }

      button {

        height: 40px;

        width: 50px;

        margin: 10px;

      }

      input {

        margin-top: 10px;

      }

    </style>

  </head>

  <body>

    <div>

      <h3>Maths operation</h3>

      <label for="">Enter 1st Number:</label>

      <input type="text" id="finput" /> <br />

      <label for="">Enter 2nd Number:</label>

      <input type="text" name="" id="sinput" /> <br />

      <button onclick="calculator('add')">+</button>

      <button onclick="calculator('subtract')">-</button>

      <button onclick="calculator('divide')">/</button>

      <button onclick= "calculator('multiply')">\*</button>

      <p id="result"></p>

    </div>

  </body>

  <script>

    function calculator(operation) {

      let first = document.getElementById("finput").value;

      let second = document.getElementById("sinput").vaule;

      if (isNaN(first) || isNaN(second)) {

        alert("please enter Numbers");

        return;

      }

      let result;

      switch (operation) {

        case "add":

          result = first + second;

          break;

        case "subtract":

          result = first - second;

          break;

        case "multiply":

          result = first \* second;

          break;

        case "divide":

            if(second == 0){

                alert("value cant be zero")

                result ="error"

            }else{

                result = first / second;

            }

            break;

        default:

            result= "invalid operation"

          break;

      }

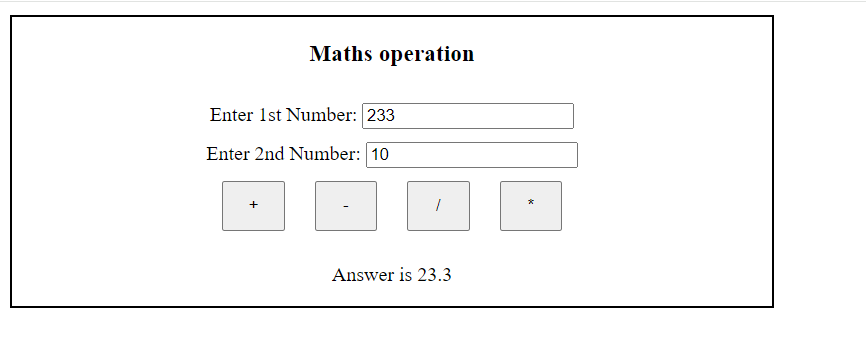
      document.getElementById("result").innerHTML=result;

    }

  </script>

</html>

OP:



* <!DOCTYPE html>
* <html lang="en">
* <head>
* <meta charset="UTF-8" />
* <meta name="viewport" content="width=device-width, initial-scale=1.0" />
* <title>Totalmarks</title>
* <style>
* input{
* margin-left: 50px;
* }
* </style>
* </head>
* <body>
* <fieldset style="width: 500px; height: 500px;;">
* <table align="center" >
* <B style="font-size: 20px;">Marksheet for Information Technology</B>
* <p style="text-align: center; font-size: 25px;">Enter Marks</p>
* <tr>
* <td><label for="">1.C Language</label></td>
* <td ><Input type="text" id="Clang"></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">2.C++ Language</label></td>
* <td ><Input type="text" id="Cpluslang" ></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">3.Database</label></td>
* <td ><Input type="text" id="Database"></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">4.HTML</label></td>
* <td ><Input id="html"></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">5.CSS</label></td>
* <td ><Input id="CSS"></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">6.php</label></td>
* <td ><Input id="php"></Input></td> <br>
* </tr>
* <tr>
* <td><label for="">7.Core Java</label></td>
* <td ><Input id="java"></Input></td> <br>
* </tr>
* <tr>
* <td><button onclick="result()">Result</button></td>
* </tr>
* <tr>
* <td><label for="">Total is: <span id="total"></span>/500</label></td>
* <td><label for="">  &nbsp;  &nbsp; &nbsp; &nbsp;  &nbsp; &nbsp; &nbsp;percentage is <span id="percentage">%</span></label></td>
* </tr>
* </table>
* </fieldset>
* </body>
* <script>
* function result() {

* let clang = document.getElementById("Clang").value;
* let cplus = document.getElementById("Cpluslang").value;
* let database = document.getElementById("Database").value;
* let html = document.getElementById("html").value;
* let css = document.getElementById("CSS").value;
* let php = document.getElementById("php").value;
* let java = document.getElementById("java").value;
* clang = Number(clang);
* cplus= Number(cplus);
* database = Number(database);
* html = Number(html);
* css = Number(css);
* php = Number(php);
* java = Number(java);
* if(isNaN(clang)|| isNaN(cplus) || isNaN(database) || isNaN(html) || isNaN(css) || isNaN(php) || isNaN(java)){
* alert("Please Type Number");
* return;
* }
* let total = clang + cplus + database + html + css + php + java;
* let totalMarks = 700;
* let percentage = (total/totalMarks)\*100;
* document.getElementById("total").innerHTML=total;
* document.getElementById("percentage").innerHTML=percentage;
* }
* </script>
* </html>

