**JAVASCRIPT**

**JavaScript:**

JavaScript is a client side scripting language which runs on only users browsers.

We can say that HTML is for content and CSS is used for presentation and now we have JavaScript is for adding interactivity to the web content.

**Types of JavaScript Inclusion:**

JavaScript is already included in all standard browsers.

There are 2 ways to JavaScript in the document.

Internal Js

External Js

**JavaScript variables:**

**Var:**

Var declares a variable that is function-scoped or globally scoped if declared outside a function.

Variables declared with var can be re-declared and updated.

**Let:**

Let declares a variable that is block scoped , meaning it is only accessible within the block ({}) where it is defined.

Variables declared with let can be updated but not re-declared in the same scoped.

**Const:**

Const declares a block-scoped variables whose value cannot be reassigned after initialization.

It must be initialized at the time of declaration.

**VSCODE:**

// string functions

// length property returns the length of the string.

// let text = "aihan";

// alert(text.length);

//for extracting parts of string, we can use 3 methods,

// slice, substring and substr.

//slice(start,end)

//returns a part of a string from start to before end.

//it doesn't modify the original string.

let str = "javaScript";

console.log(str.slice(0, 4)); // "java"

console.log(str.slice(4)); // "Script"

console.log(str.slice(-6)); // "Script"

//substring(start,end)

//substring returns a part of the string between start and before end.

//It's similar to slice but doesn't support negative values.

console.log(str.substring(0, 4)); // "java"

console.log(str.substring(4)); // "Script"

//if start>end, it swaps them

console.log(str.substring(4,0)); //same as substring(0,4);

//substr(start,length)

//returns a part of the string, starting from start and taking length characters.

//start: index to start

//length: number of characters to return

console.log(str.substr(0,4)); //Java

console.log(str.substr(4,6)); //Script

//string replacement

// The replace() replaces one part with another in the string.

let text = "Hi there How are you";

var newtext = text.replace("How","Who");

alert(newtext); //who are you?

//concat() joins two or more strings

var text1 = "Hi there ";

var text2 = "How are you?";

var newtext = text1.concat("Aihan, ",text2);

console.log(newtext);

//toUpperCase and toLowerCase to change the string cases

var text1 = "  Hi there!!"

var text2 = text1.toUpperCase();

console.log(text2);

//trim() to trim the whitespaces at the ends.

text2 = text1.trim();

console.log(text2);

//charAt() returns the character at the specified index in a string.

//charCodeAt() returns the unique code of the character.

text1 = "Hi there";

text2 = text1.charAt(0);

console.log(text2);

var text3 = text1.charCodeAt(0); //H

console.log(text3); //72

text = "meow"

console.log(text);

**QUESTIONS:**

You are given a string:

Let str = “ JavaScript is Awesome! ”;

Perform:

1. Trim the spaces from both ends of the string
2. Convert the trimmed string to lowercase
3. Convert the trimmed string to uppercase
4. Find the length of the trimmed string
5. Extract the word, “JavaScript” using:
6. Substring(start,end);
7. Slice(start,end);
8. Substr(start,length);
9. Replace the word, “Awesome” with “Powerful”

(Expected method: replace())

1. Concatenate the result with, “Let’s Code!”
2. Find the character at index 5
3. Find the ASCII code of the character at index 5.

let str = "   JavaScript is Awesome!   ";

// 1. Trim the spaces from both ends of the string

let trimmedStr = str.trim();

console.log(trimmedStr); // "JavaScript is Awesome!"

// 2. Convert the trimmed string to lowercase

console.log(trimmedStr.toLowerCase());// "javascript is awesome!"

// 3. Convert the trimmed string to uppercase

console.log(trimmedStr.toUpperCase());//"JAVASCRIPT IS AWESOME!"

// 4. Find the length of the trimmed string

console.log(trimmedStr.length); // 24

// 5. Extract the word, “JavaScript” using:

// a. Substring(start,end);

console.log(trimmedStr.substring(0, 10)); // "JavaScript"

// b. Slice(start,end);

console.log(trimmedStr.slice(0, 10)); // "JavaScript"

// c. substr(start,length);

console.log(trimmedStr.substr(0, 10)); // "JavaScript"

// 6. Replace the word, “Awesome” with “Powerful”

let  result = trimmedStr.replace("Awesome", "Powerful")

console.log(result); // "JavaScript is Powerful!"

// 7. Concatenate the result with, “Let’s Code!”

result = result.concat(" Let's Code!");

console.log(result); // "JavaScript is Powerful! Let's Code!"

// 8. Find the character at index 5

console.log(result.charAt(5)); // "c"

// 9. Find the ASCII code of the character at index 5

console.log(result.charCodeAt(5)); // 99 (ASCII code for 'c')

**Arithemetic Operations:**

//basic arithmetic operations

var a=5,b=10;

console.log("a: " + a);

console.log("b: " + b);

var sum=a+b;

console.log("Sum: " + sum);

var difference=a-b;

console.log("Difference: " + difference);

var product=a\*b;

console.log("Product: " + product);

var quotient=a/b;

console.log("Quotient: " + quotient);

var remainder=a%b;

console.log("Remainder: " + remainder);

// JavaScript eval() method

// It is used to evaluate JavaScript codes/expressions

var x=10;

var y=20;

var q = eval("x \* y + 2 + 1");

console.log("Result of eval: " + q);

// Boolean/logical operations

// basic logical operations: equality, Greater / less than, combined operations

console.log("Boolean/Logical Operations:");

console.log("a: " + a);

console.log("b: " + b);

var a =5,b=10,c=5;

var result = (a == b);

console.log("a == b: " + result);

result = (a != b);

console.log("a != b: " + result);

var result = (a > b);

console.log("a > b: " + result);

var result = (a < b);

console.log("a < b: " + result);

var result = (a >= b);

console.log("a >= b: " + result);

var result = (a <= b);

console.log("a <= b: " + result);

//conditional statements

var a=5, b=10;

if(a<b)

{

    console.log(a+" is less than "+b);

}

else if(a>b)

{

    console.log(a+" is greater than "+b);

}

else

{

    console.log(a+" is equal to "+b);

}

//switch statement

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";

        break;

    default:

        day = "Unknown day";

        break;

}

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

**Questions:**

// 1. Write a program to check if a number is odd or even.

// 2. Check whether a number is positive, negative or zero.

// 3. Given marks, print grade using the rules:

//     90 - 100 : A

//     80 - 89 : B

//     70 - 79 : C

//     60 - 69 : D

//     Below 60 : F

// 4. Write a program to find the largest of three numbers.

// 5. Check is a person is :

//     1. Child (0-12 years)

//     2. Teenager (13-19 years)

//     3. Adult (20 and above)

// 1. Write a program to check if a number is odd or even.

let num = Number(prompt("Enter a number to check odd/even:"));

if (num % 2 === 0) {

    alert(num + " is even.");

}

else {

    alert(num + " is odd.");

}

// 2. Check whether a number is positive, negative or zero.

let value = Number(prompt("Enter a number to check if positive/even/zero:"));

if (value > 0) {

    alert(`${value} is positive.`);

}

else if (value < 0) {

    alert(`${value} is negative.`);

}

else {

    alert("The number is zero.");

}

// 3. Given marks, print grade using the rules:

let marks = Number(prompt("Enter your marks:"));

let grade;

switch (true) {

    case (marks >= 90 && marks <= 100):

        grade = "A";

        break;

    case (marks >= 80 && marks < 90):

        grade = "B";

        break;

    case (marks >= 70 && marks < 80):

        grade = "C";

        break;

    case (marks >= 60 && marks < 70):

        grade = "D";

        break;

    case (marks < 60):

        grade = "F";

    default:

        grade = "Invalid marks";

        break;

}

alert(`Your grade is: ${grade}`);

// 4. Write a program to find the largest of three numbers.

let num1 = Number(prompt("Enter first number:"));

let num2 = Number(prompt("Enter second number:"));

let num3 = Number(prompt("Enter third number:"));

switch (true)

{

    case (num1 >= num2 && num1 >= num3):

        alert(`${num1} is the largest number.`);

        break;

    case (num2 >= num1 && num2 >= num3):

        alert(`${num2} is the largest number.`);

        break;

    case (num3 >= num1 && num3 >= num2):

        alert(`${num3} is the largest number.`);

        break;

    default:

        alert("All numbers are equal.");

        break;

}

// 5. Check is a person is :

//     1. Child (0-12 years)

//     2. Teenager (13-19 years)

//     3. Adult (20 and above)

let age = Number(prompt("Enter your age:"));

switch (true)

{

    case (age >= 0 && age <= 12):

        alert("You are a Child.");

        break;

    case (age >= 13 && age <= 19):

        alert("You are a Teenager.");

        break;

    case (age >= 20):

        alert("You are an Adult.");

        break;

    default:

        alert("Invalid age entered.");

        break;

}

// 6. Write a calculator program using switch that performs +,-,\*,/ operations based on operator value.

let numA = Number(prompt("Enter first number:"));

let numB = Number(prompt("Enter second number:"));

let operator = prompt("Enter an operator (+, -, \*, /):");

let result;

switch (operator)

{

    case '+':

        result = numA + numB;

        alert(`The result of ${numA} + ${numB} is: ${result}`);

        break;

    case '-':

        result = numA - numB;

        alert(`The result of ${numA} - ${numB} is: ${result}`);

        break;

    case '\*':

        result = numA \* numB;

        alert(`The result of ${numA} \* ${numB} is: ${result}`);

        break;

    case '/':

        if (numB !== 0) {

            result = numA / numB;

            alert(`The result of ${numA} / ${numB} is: ${result}`);

        }

        else {

            alert("Cannot divide by zero.");

            result = null;

        }

        break;

    default:

        alert("Invalid operator.");

        break;

}

// 7. Given a color, print the traffic signal meaning:

//     1. Red - Stop

//     2. Yellow - Slow Down

//     3. Green - Go

let color = prompt("Enter a traffic signal color (Red, Yellow, Green):").toLowerCase();

switch (color)

{

    case 'red':

        alert("Stop");

        break;

    case 'yellow':

        alert("Slow Down");

        break;

    case 'green':

        alert("Go");

        break;

    default:

        alert("Invalid color entered.");

        break;

}

// 8. Given a month Number(1-12), print the number of days of that month.

let month = Number(prompt("Enter a month number (1-12):"));

switch (month)

{

    case 1: // January

    case 3: // March

    case 5: // May

    case 7: // July

    case 8: // August

    case 10: // October

    case 12: // December

        alert(`The month ${month} has 31 days.`);

        break;

    case 4: // April

    case 6: // June

    case 9: // September

    case 11: // November

        alert(`The month ${month} has 30 days.`);

        break;

    case 2: // February

        let year = Number(prompt("Enter the year to check for leap year:"));

        if ((year % 4 === 0 && year % 100 !== 0) || (year % 400 === 0)) {

            days = 29;

            alert(`The month ${month} in the year ${year} has 29 days.`);

        }

        else {

            alert(`The month ${month} in the year ${year} has 28 days.`);

        }

        break;

    default:

        alert("Invalid month number.");

        days = null;

        break;

}

// 9. Given a letter, use switch to check if it's a vowel or consonant

let letter = prompt("Enter a letter:").toLowerCase();

switch (letter)

{

    case 'a':

    case 'e':

    case 'i':

    case 'o':

    case 'u':

        alert(`${letter} is a vowel.`);

        break;

    default:

        if (letter.length === 1 && letter.match(/[a-z]/i))

        {

            alert(`${letter} is a consonant.`);

        } else {

            alert("Invalid input. Please enter a single letter.");

        }

        break;

}

-------------------------------------END OF QUESTIONS-----------------------------------------

Looping statements:

Basic while and for loop statements

While loop

Repeating the same block of code over and over

In while, declaration, assignment, condition and increment is done in separate lines

// For loop:

// In for loop, declaration, assignmentm condition and increment is done in a single line

for(let i = 0; i < 5; i++)

{

    console.log(i);

}

// JavaScript Arrays:

// They are list of any type of data

// Each item in the array has an index

let myarray = ['Milk','bread','butter'];

console.log(myarray[0]);

myarray[0] = 'orange';

console.log(myarray[0]);

// length to find the number of elements

// push() to insert the data/elements and pop() to delete the last element

console.log(myarray.length);

myarray.push('egg');

console.log(myarray);

myarray.pop();

console.log(myarray);

// Array traversal using for  loop

for(i=0;i<myarray.length;i++)

{

    console.log(myarray[i]);

}

let myarray1 = ['apple','orange','banana'];

let myarray2 = myarray1.concat('grapes');

console.log(myarray2);

**QUESTIONS**

// 1. print numbers from 1 to 10 using a for loop

for(let i=1; i <= 10; i++) {

    console.log(i);

}

// 2. print even numbers from 20 to 50 using a for loop

for(i=20;i<=50;i+=2)

{

    console.log(i);

}

// 3. Given an array of fruits, use a for loop to print each fruit

//     myarray = ['Apple','Orange','Banana'];

let myarray = ['Apple', 'Orange', 'Banana'];

for(i=0; i < myarray.length; i++)

{

    console.log(myarray[i]);

}

// 4. Write a while loop to print numbers from 10 to 1 in reverse order.

i=10;

while(i >= 1)

{

    console.log(i);

    i--;

}

// 5. Keep asking for input until the user enters 'exit'.

while(true)

{

    let input = prompt("Would you like to exit?");

    if(input.toLowerCase() === 'exit')

    {

        alert("Exiting...");

        break;

    }

}

// 6. numbers = [3,7,1,9,5];

//     Print the first and the last numbers in the Array

let numbers = [3,7,1,9,5];

console.log(`First number: ${numbers[0]}`);

console.log(`Last number: ${numbers[numbers.length - 1]}`);

//     Add the number 11 to the end of the Array.

numbers.push(11);

console.log(`New Array(numbers): ${numbers}`);

//     Remove the last element from the array

numbers.pop();

console.log(`Updated array(numbers): ${numbers}`);

//     print all numbers greater than 5 using a for loop

let numarr = [];

for(i=0; i < numbers.length; i++) {

    if(numbers[i] > 5)

    {

        numarr.push(numbers[i]);

    }

}

console.log(`Numbers greater than 5: ${numarr}`);

//     print the length of the array

console.log(`Length of the array(numbers): ${numbers.length}`);

**// Javascript functions**

// Reusable blocks of code that carry out a specific task

// Functions can be passed arguments to UserActivation.

// Function may return a value to the variable it was called.

function add(a, b)

{

  return a + b;

}

let result = add(5, 10);

console.log(result); // Output: 15

// javascript functions

// Reusable blocks of code that carry out a specific task

// Functions can be passed arguments to UserActivation.

// Function may return a value to the variable it was called.

function add(a, b)

{

  return a + b;

}

let result = add(5, 10);

console.log(result); // Output: 15

// Write a function called isEven that takes a number and returns true if it is even, else false.

function isEven(num)

{

    return num%2==0? true : false;

}

let num = Number(prompt("Enter a number to check if it is even or odd:"));

let val = isEven(num);

alert(val); // Output: true or false based on the input number

// Write a function called square that takes a number and returns true if it's a square.

function square(num)

{

    return num\*num;

}

num = Number(prompt("Enter a number to get the square:"));

val = square(num);

alert(val);

// Write a function called getMax that takes 2 numbers and returns the larger one.

function getMax(a, b)

{

    return a > b ? a : b;

}

let num1= Number(prompt("Enter first number:"));

let num2= Number(prompt("Enter second number:"));

let max = getMax(num1, num2);

alert(`The larger number is: ${max}`);

// Write a function called toFahrenheit that takes Celcius temperature and converts it to fahrenheit.

function toFahrenheit(celsius) {

    return (celsius \* 9/5) + 32;

}

let celsius = Number(prompt("Enter temperature in Celsius:"));

let fahrenheit = toFahrenheit(celsius);

alert(`Temperature in Fahrenheit: ${fahrenheit}`);

**JavaScript Objects**

// collection of variables and functions

// object can be stored in a variable

var student={

    name: "Samuel",

    age: 23,

    talk:function(){

        alert("Hello, all");

    }

}

alert(student.name);

alert(student.age);

student.talk();

let val = 2.3

let num = Math.round(val);

alert(num);

**JavaScript arrow functions:**

// JavaScript arrow functions:

// Allows us to create functions in a more clear way

let add=(a,b)=> a+b;

// Allows us to create functions in a more clear way

let larger=(a,b)=> a>b ? a : b;

let num1 = Number(prompt("Enter first number:"));

let num2 = Number(prompt("Enter second number:"));

console.log(`The larger number is: ${larger(num1, num2)}`);

// What is JSON?

// JavaScript Object Notation is a format fro transfering data in a machine and in human readable way.

// JSON is simply text which is rendered bty browser in a more preserntable way .

// {

//     "name":"Aihan",

//     "age":30,

//     "address":{

//         "district":"Trivandrum",

//         "location":"Technopark"

//     }

// }

// Creating JSON

// JSON can be created using a method called stringify() from the JSON class.

let student = {

    name:"Aihan",

    age:5,

    class:"First",

    location:"Kollam"

};;

let jsonString = JSON.stringify(student);

console.log(jsonString);

jsonString = JSON.parse(jsonString);

console.log(jsonString);

Asynchronous JavaScript:

Our code runs tasks in the background like fetching data, or waiting without stopping the rest of the program.

Synchronous JavaScript:

Executes line by line. Each line waits for the previous one to finish.

Asynchronous:

Some tasks run in the background – They don’t block the next lines.

**Local Storage:**

Local storage is a part of web storage api that allows websites to store key-value pairs in a web browser.

The data saved in local storage remains even after the browser is closed and reopens(unless cleared manually)

It can usually store around 5MB of data per domain.

**To set data:** localstorage.setItem(“key”,”value”);

**To get data:** localstorage.getItem(“key”);

**To remove data:** localstorage.removeItem(“key”);

**To clear all data: localstorage.clear();**

**I need a clinic website called, "NandaWyn Healthcare" website with html pages , "Home", "About Us", "Contact Us"**