Values and Datatypes

//Question- 1. create a javascript file, using javascript comments, List all the datatypes of Javascript, and specify an example for each of them.

// ANSWER:-

// 1. String

let str = "First Javascript program";

console.log(typeof(str))

// 2. Number

// (i) integer

let num1 = 4

console.log(typeof(num1))

// (ii). Floating value

let num2 = 4.25

console.log(typeof(num2))

// (iii)Infinity

let num3 = Number.POSITIVE\_INFINITY

console.log(typeof(num3))

let num4 = Number.NEGATIVE\_INFINITY

console.log(typeof(num4))

// (iv) NOT a Number

let nan = undefined

nan = Number(nan);

console.log(nan)

// 3. BigInt

let x = BigInt("123456789012345678901234567890");

console.log(typeof(x))

let y = 1234n

console.log(typeof(y))

// 4. Booleans

let a = true;

let b = false;

console.log(typeof(a))

console.log(typeof(b))

// 5. Undefined

let z;

console.log(z);

// 6. Null

let n = null

console.log(n)

// 7. Symbol

let sym = Symbol("Hello Symbol");

console.log(typeof(sym))

// 8. (i) Objects

const person = {firstName:"monu", lastName:"kumar"};

console.log(typeof(person))

// Array object(ii)

const cars = ["Saab", "Volvo", "BMW"];

console.log(typeof(cars))

// Question-2: Create an array of 10 products that you have recently purchased or viewed on an e-commerce site.

let arr = ["Mobile","Laptop","Bag","Trimmer","Mouse","Keyboard","Neckband","Laptop Battery","Mouse Pad","Headphone"];

console.log(arr);

// Question:3. Create an object of a student registry of 5 students whose key is the registration number and the value is the student name. Registration number starts from 1 and continues.

// Ans:

let obj = {

    1: "Monu",

    2: "Sonu",

    3: "Rohit",

    4: "Rajan",

    5: "Rinki",

};

console.log(obj);

Variables and typeof

//QUESTION- 1. Specify an example for all the datatypes in Javascript, store the values in a variable, and verify the type of value stored.

// Ans-1:

// 1. String

let str = "First Javascript program";

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// 2. Number

// (i) integer

let num1 = 4

console.log(typeof(num1))

// (ii). Floating value

let num2 = 4.25

console.log(typeof(num2))

// (iii)Infinity

let num3 = Number.POSITIVE\_INFINITY

console.log(typeof(num3))

let num4 = Number.NEGATIVE\_INFINITY

console.log(typeof(num4))

// (iv) NOT a Number

let nan = NAN;

console.log(typeof(nan));

// 3. BigInt

let x = BigInt("123456789012345678901234567890");

console.log(typeof(x))

let y = 1234n

console.log(typeof(y))

// 4. Booleans

let a = true;

let b = false;

console.log(typeof(a))

console.log(typeof(b))

// 5. Undefined

let z;

console.log(z);

// 6. Null

let n = null

console.log(n)

// 7. Symbol

let sym = Symbol("Hello Symbol");

console.log(typeof(sym))

// 8. Objects

// (i) Object

const person = {firstName:"monu", lastName:"kumar"};

console.log(typeof(person))

// Array(ii)

const cars = ["Saab", "Volvo", "BMW"];

console.log(typeof(cars))

// Questions-2: Create 2 valid variables and 2 invalid variables and print them onto the console. Comment the results and error messages.

// Ans:2

// VALID VARIABLE

let str = "This is string";

console.log(str)    // OUTPUT: This is string

// INVALID STRING

let const = "Mohan";

console.log(const)   // OUTPUT :- SyntaxError: Unexpected token 'const'

let 1num = 25;

console,log(1num);   //OUTPUT :- SyntaxError: invalid or unexpected token

**OPERATORS**

//                       Operators

// 1. Write a program that prints the multiplication table in the textbook format of any number specified.

// Ans:1

let num = 2;

console.log(`${num} X 1 = ${num \* 1}`);

console.log(`${num} X 2 = ${num \* 2}`);

console.log(`${num} X 3 = ${num \* 3}`);

console.log(`${num} X 4 = ${num \* 4}`);

console.log(`${num} X 5 = ${num \* 5}`);

console.log(`${num} X 6 = ${num \* 6}`);

console.log(`${num} X 7 = ${num \* 7}`);

console.log(`${num} X 8 = ${num \* 8}`);

console.log(`${num} X 9 = ${num \* 9}`);

console.log(`${num} X 10 = ${num \* 10}`);

// OUTPUT:

// 2 X 1 = 2

// 2 X 1 = 4

// 2 X 1 = 6

// 2 X 1 = 8

// 2 X 1 = 10

// 2 X 1 = 12

// 2 X 1 = 14

// 2 X 1 = 16

// 2 X 1 = 18

// 2 X 1 = 20

//QUESTION:- 2. Write a program to perform all the arithmetic operations[except increment and decrement operators] of javascript of any two numbers stored in the variables num1 and num2. Also, print the results to the console.

// Ans:2-

let num1 = 8;

let num2 = 3;

// ADDITION

console.log(`The addition of num1 and num2 is: ${num1 + num2}`)

// Subtraction

console.log(`The subtraction of num1 and num2 is : ${num1 - num2}`)

// Multiplication

console.log(`The multiplication of num1 and num2 is : ${num1 \* num2}`)

// Division

console.log(`The division of num1 and num2 is: ${num1 / num2}`)

// Modulus (%) returns the remainder

console.log(`The modulo operation of num1 and num2 is : ${num1 % num2}`)

// Exponentiation (\*\*) raise the power

console.log(`The exponential of num1 and num2 is : ${num1 \*\* num2}`)

// OUTPUT:

// The addition of num1 and num2 is : 11

// The subtration of num1 and num2 is : 5

// The multiplication of num1 and num2 is : 24

// The division of num1 and num2 is : 2.6666666666666665

// The modulo operation of num1 and num2 is : 2

// The exponential of num1 and num2 is : 512

// QUESTION:-3. Write a program to find out the perimeter of a rectangle. Print the results to the console.

// Ans:3

let length = 5;

let width = 6;

perimeter = 2 \* (length \* width)

console.log(`The perimeter of rectangle is : `,perimeter)

// OUTPUT:  The perimeter of rectangle is :  60

// 4. Write a program to demonstrate the results of comparison operators. Note that both the truth and false condition for each operator must be specified.

// Ans:4-

// Equal

let num1 = 5;

let num2 = 6;

console.log(num1 == num2)  // OUTPUT: false

let num3 = 6;

let num4 = 6;

console.log(num3 == num4)  // OUTPUT: true

// Not Equal

let num5 = 9;

let num6 = 9;

console.log(num5 != num6)  // OUTPUT: false

let num7 = 3;

let num8 = 2;

console.log(num7 != num8)  // OUTPUT: true

// Strictly Equal

let num9 = 9;

let num10 = 9;

console.log(num9 === num10)  // OUTPUT: true

let num11 = 3;

let num12 = 2;

console.log(num11 === num12)  // OUTPUT: false

// Strictly Not Equal

let num13 = 9;

let num14 = 9;

console.log(num13 !== num14)  // OUTPUT: false

let num15 = 3;

let num16 = 2;

console.log(num15 !== num16)  // OUTPUT: true

// Greater then

let num17 = 20;

let num18 = 9;

console.log(num17 > num18)  // OUTPUT: true

let num19 = 3;

let num20 = 21;

console.log(num19 > num20)  // OUTPUT: false

// Greater than or Equal to

let num21 = 20;

let num22 = 9;

console.log(num21 >= num22)  // OUTPUT: true

let num23 = 3;

let num24 = 21;

console.log(num23 >= num24)  // OUTPUT: false

// Less then

let num25 = 2;

let num26 = 9;

console.log(num25 < num26)  // OUTPUT: true

let num27 = 30;

let num28 = 21;

console.log(num27 < num28)  // OUTPUT: false

// Less than or Equal to

let num29 = 2;

let num30 = 9;

console.log(num29 <= num30)  // OUTPUT: true

let num31 = 30;

let num32 = 21;

console.log(num31 <= num32)  // OUTPUT: false

**Conditions, If, If-else, if-else-if**

**QUESTION 1:-**

// QUESTION:-1. Write a program of traffic control that accepts the traffic light displayed and prints the message. If the traffic light is red print the vehicles must stop.

// Ans:1

let trafficLight = "red";

if(trafficLight == "red"){

    console.log("Vehicles must stop.")

}

else if(trafficLight == "orange"){

    console.log("Vehicles must wait. The signal is changing to red or green.")

}

else if(trafficLight == "green"){

    console.log("Vehicles may proceed with caution.")

}

else{

    console.log("Invalid traffic light.")

}

// OUTPUT:-  Vehicles must stop.

**Question : 2 –**

// Question:2- Write a program to print the largest of 2 numbers.

// Ans:2

let num1 = 75;

let num2 = 63;

if( num1 > num2){

    console.log(`${num1} is greater than ${num2} .`);

}

else{

    console.log(`${num2} is greater than ${num1} .`);

}

// OUTPUT:- 75 is greater than 63 .

**QUESTION 3: -**

// Question:3. Write a program that takes a number as input and outputs "Fizz" if it is divisible by 3, "Buzz" if it is divisible by 5, and "FizzBuzz" if it is divisible by both 3 and 5. Note that any number can be passed and not restricted to the numbers divisible by 3 or 5.

// Ans:3-

// let num = parseInt(prompt("Enter a number : "))

let num = 15;

if(num % 3 == 0 && num % 3 == 0){

    console.log("FizzBuzz");

}

else if(num % 3 == 0){

    console.log("Fizz");

}

else if(num % 5 == 0){

    console.log("Buzz");

}

else{

    console.log("Invalid input");

}

// OUTPUT:- FizzBuzz

**Switch Case**

**Question :1**

//Question:- 1. Write a program that takes in a day of the week (e.g., Monday, Tuesday, etc.) and outputs the number of days until the weekend.

// Ans:1

const days = "Monday";

let daysUntilWeekend;

switch(days){

    case "Monday":

        console.log ("There are 5 days until the weekend.");

        break;

    case "Tuesday":

        console.log ("There are 4 days until the weekend.");

        break;

    case "Wednesday":

        console.log ("There are 3 days until the weekend.");

        break;

    case "Thursday":

        console.log ("There are 2 days until the weekend.");

        break;

    case "Friday":

        console.log ("There are 1 days until the weekend.");

        break;

    case "Saturday":

    case "Sunday":

        console.log ("There are 0 days until the weekend.");

        break;

    default:

        daysUntilWeekend ="Invalid day";

        break;

}

**Question:2-**

// Question:2. Write a program that takes in a number between 1 and 12 and outputs the corresponding month of the year.

// Ans:2

let monthNumber = 5;

switch(monthNumber) {

case 1:

    console.log("January");

    break;

case 2:

    console.log("February");

    break;

case 3:

    console.log("March");

    break;

case 4:

    console.log("April");

    break;

case 5:

    console.log("May");

    break;

case 6:

    console.log("June");

    break;

case 7:

    console.log("July");

    break;

case 8:

    console.log("August");

    break;

case 9:

    console.log("September");

    break;

case 10:

    console.log("October");

    break;

case 11:

    console.log("November");

    break;

case 12:

    console.log("December");

    break;

default:

    console.log ("Invalid month number.");

}

// OUTPUT:- May

**Ternary Conditions**

**Question :1**

// Question:1. Write a program that takes in a number and outputs whether it is positive, negative, or zero.

// Ans:1-

let num = 5;

num == 0

? console.log ("Number is zero")

: num > 0

? console.log ("Number is positive")

: console.log ("Number is negative");

// OUTPUT:- Number is positive

// Question:2. Create a program that takes in two numbers and prints the larger one.

// Ans:2

let num1 = 10;

let num2 = 15;

num1 == num2

? console.log (`Both the number are equal`)

: num1 > num2

? console.log (`The larger number among the two numbers is ${num1} `)

: console.log (`The larger number among the two numbers is ${num2} `)

// OUTPUT:- The larger number among the two numbers is 15

**Loops**

**Question:1**

// Question:1. Write a program that generates the multiplication table in the textbook format for a given number.

// Ans:1

let number = 3;

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

    console.log(`${number} X ${i} = ${number \* i} `)

}

// OUTPUT:-

// 3 X 1 = 3

// 3 X 2 = 6

// 3 X 3 = 9

// 3 X 4 = 12

// 3 X 5 = 15

// 3 X 6 = 18

// 3 X 7 = 21

// 3 X 8 = 24

// 3 X 9 = 27

// 3 X 10 = 30

**Question:2-**

// Question:2- Write a program that prints all the positive even numbers till the number specified.

// Ans:2

let number = 20;

for (i = 1; i<=number; i++) {

if (i % 2 == 0) {

    console.log(i);

}

}

// OUTPUT:-

// 2

// 4

// 6

// 8

// 10

// 12

// 14

// 16

// 18

// 20