**Values and Datatypes**

1. **Create a javascript file,using javascript comments, List all the datatypes of Javascript, and specify an examples for each of them.**

**Ans:-**

/\*\*

 \* 1. String: "I am happy to join PW skills FSWD Course"

 \*

 \* 2. Number:-

 \*

 \* i) Integer: 9

 \* ii)Floating value: 10.2

 \* iii)Infinity: Number.POSITIVE\_INFINITY, Number.NEGATIVE\_INFINITY

 \* iv)Not a Number: NaN

 \*

 \* 3. BigInt: 1024n

 \*

 \* 4. Boolean: true, false

 \*

 \* 5. Undefined: undefined

 \*

 \* 6. Null: null

 \*

 \* 7. Symbol: symbol('PW Skills')

 \*

 \* 8. Objects:-

 \*

 \* i) Array: [1, 2, "PW"]

 \* ii)Object: {name: "PW Skills", course: "FSWD"}

 \*/

1. **Create an array of 10 products that you have recently purchased or viewed on an e-commerce site.**

**Ans:-**

[

    "iPhone",

    "Macbook Pro",

    "Flower Pot",

    "Water Bottle",

    "Mac Studio mini",

    "Watch",

    "Tennis Ball",

    "Mouse Pad",

    "Keyboard",

    "Lens"

];

1. **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:-**

{

    1: "Mithun",

    2: "Alka",

    3: "Anurag",

    4: "Prabir",

    5: "Shivam",

};

**Variables and typeof**

1. **Specify an example for al the datatypes in Javascript, store the values in the variable, and verify the type of value stored.**

**Ans:-**

// 1. String

*let* var1 = "I am happy to join PW Skills FSWD Course";

console.log(typeof var1);

// 2. Number:-

// i) Integer:

*let* var2 = 9;

console.log(typeof var2);

// ii) Floating value:

*let* var3 = 10.2;

console.log(typeof var3);

// iii) Infinity:

*let* var4 = *Number*.POSITIVE\_INFINITY;

console.log(typeof var4);

*let* var5 = *Number*.NEGATIVE\_INFINITY;

console.log(typeof var5);

// iv) Not a Number:

*let* var6 = Nan;

console.log(typeof var6);

// 3. BigInt:

*let* var7 = 1024*n*;

console.log(typeof var7);

// 4. Boolean:

*let* var8 = true;

console.log(typeof var8);

// 5. Undefined:

*let* var9 = undefined;

console.log(typeof var9);

// 6. Null:

*let* var10 = null;

console.log(var10);

// 7. Symbol:

*let* var11 = Symbol("PW Skills");

console.log(typeof var11);

// 8. Objects:-

// i) Array:

*let* var12 = [1, 2, "PW"];

console.log(typeof var12);

// ii) Object:

*let* var13 = {name: "PW Skills", course: "FSWD"};

console.log(typeof var13);

1. **Create 2 valid variables and 2 invalid variables and print them onto the console. Comment the results and error messages.**

**Ans:-**

// Valid  variables

*let* name = "PW Skills";

console.log(name);  // OUTPUT: PW Skills

*let* iAmHappy = true;

console.log(iAmHappy);  // OUTPUT: true

// Invalid variables

*let* 1name = "PW Skills";

console.log(1name); // OUTPUT: SyntaxError: Invalid or unexpected token

*let* *var* = 13;

console.log(var);   // OUTPUT: SyntaxError: Unexpected token 'var'

**Operators**

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

**Ans:-**

*let* number = 7;

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

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

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

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

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

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

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

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

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

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

1. **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 result to the console.**

**Ans:-**

*let* num1 = 10;

*let* num2 = 8;

// Addition (+): Adds two values together.

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

// Subtraction (-): Subtracts one value from another.

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

// Multiplication (\*): Multiplies two values together.

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

// Division (/): Divides one value by another.

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

// Modulus (%): Returns the remainder of a division operation.

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

// Exponentiation (\*\*): raises to the power of

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

1. **Write a program to find out the perimeter of a rectangle. Print the results to the console.**

**Ans:-**

*let* length = 10;

*let* width = 20;

*let* perimeterOfRectangle = 2 \* (length + width);

console.log(`The perimeter of the rectangle with length: ${length} and width: ${width} is ${perimeterOfRectangle}`);

1. **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:-**

// Equal

*let* num1 = 12;

*let* num2 = 12;

console.log(num1 == num2);  //true

*let* num3 = 12;

*let* num4 = 10;

console.log(num3 == num4);  //false

// Not Equal

*let* num11 = 12;

*let* num12 = 12;

console.log(num11 != num12);  //false

*let* num13 = 12;

*let* num14 = 10;

console.log(num13 != num14);  //true

// Strictly Equal

*let* num21 = 12;

*let* num22 = 12;

console.log(num21 === num22);   //true

*let* num23 = 12;

*let* num24 = "12";

console.log(num23 === num24);   //false

// Strictly Not Equal

*let* num31 = 12;

*let* num32 = 12;

console.log(num31 !== num32);   //false

*let* num33 = 12;

*let* num34 = "12";

console.log(num33 !== num34);   //true

// Greater Than

*let* num41 = 13;

*let* num42 = 12;

console.log(num41 > num42);   //true

*let* num43 = 10;

*let* num44 = 12;

console.log(num43 > num44); //false

// Greater Than or Equal To

*let* num51 = 13;

*let* num52 = 12;

console.log(num51 >= num52);    //true

*let* num53 = 10;

*let* num54 = 12;

console.log(num53 >= num54);    //false

// Lesser Than

*let* num61 = 12;

*let* num62 = 13;

console.log(num61 < num62);     //true

*let* num63 = 12;

*let* num64 = 10;

console.log(num63 < num64);     //false

// Lesser Than or Equal To

*let* num71 = 13;

*let* num72 = 13;

console.log(num71 <= num72);    //true

*let* num73 = 12;

*let* num74 = 10;

console.log(num73 <= num74);    //false

**What are Conditions**

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

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

**Ans:-**

*let* trafficLight = "orange";

if(trafficLight == "red"){

    console.log("Vechiles must stop.");

}else if(trafficLight == "orange"){

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

}else if(trafficLight == "green"){

    console.log("Vechiles may proceed with caution.");

}else{

    console.log("Invalid traffic Light");

}

1. **Write a program to print the largest of 2 numbers.**

**Ans:-**

*let* num1 = 20;

*let* num2 = 15;

if(num1 > num2){

    console.log("num1 is greater than num2");

}else{

    console.log("num2 is greater than num1");

}

1. **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:-**

*let* num = 5;

if (num % 5 == 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");

}

**Switch Case**

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:-**

*const* day="Tuesday"

*let* daysUntilWeekend;

switch (day) {

    case "Monday":

        console.log(`There are 5 day(s) until the weekend.`);

        break;

    case "Tuesday":

        console.log(`There are 4 day(s) until the weekend.`);

        break;

    case "Wednesday":

        console.log(`There are 3 day(s) until the weekend.`);

        break;

    case "Thursday":

        console.log(`There are 2 day(s) until the weekend.`);

        break;

    case "Friday":

        console.log(`There are 1 day(s) until the weekend.`);

        break;

    case "Saturday":

    case "Sunday":

        console.log(`There are 0 day(s) until the weekend.`);

        break;

    default:

        daysUntilWeekend = "Invalid day";

        break;

}

1. **Write a program that takes in a number between 1 and 12 and outputs the corresponding month of the year.**

**Ans:-**

*const* monthNumber = 1;

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");

}

**Ternary Conditions**

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

**Ans:-**

*let* number = 0;

number == 0

  ? console.log("The number is zero")

  : number > 0

  ? console.log("The number is greater than zero")

  : console.log("The number is lesser than zero");

1. **Create a program that takes in two numbers and prints the larger one.**

**Ans:-**

*let* num1 = 10;

*let* num2 = 10;

num1 == num2

  ? console.log("Both the numbers are equal.")

  : num1 > num2

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

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

**Loops**

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

**Ans:-**

*let* number = 5;

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

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

}

1. **Write a program that print all the positive even numbers till the number specified.**

**Ans:-**

*let* number = 10;

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

  if (i % 2 == 0) {

    console.log(i);

  }

}