(1). How to compare two JSON have the same properties without order?

a. var obj1 = { name: "Person 1", age:5 };
b. var obj2 = { age:5, name: "Person 1" };

CODE:-

Output :-

```
74  var obj1 = { name: "Person 1", age:5 };
75  var obj2 = { age:5, name: "Person 1" };
76  if(JSON.stringify(obj1)===JSON.stringify(obj2)){
77      console.log("JSON have The Same Properties");
78  }else{
79      console.log("JSON are not have same properties");
80  }
81
82
83
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  JUPYTER

Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Mahadev\OneDrive\Desktop\IIT Madras\Index> node exe.js
JSON are not have same properties
PS C:\Users\Mahadev\OneDrive\Desktop\IIT Madras\Index>
```
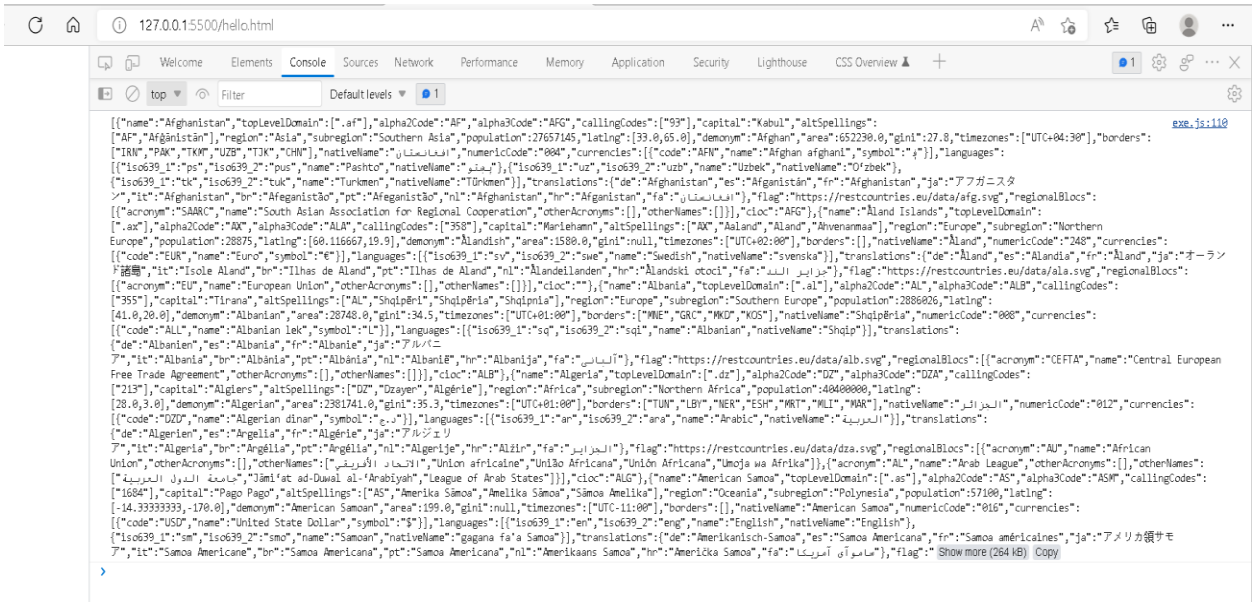

(2).Use the rest api and display the all country flag in console.

CODE:-

```
Var = new XMLHttpRequest();

 url.open =('GET',"https://raw.githubusercontent.com/rvsp/restcountries-json-data/master/res-countries.json");

xhr.onload = function(){
        if(xhr.status>=250 && xhr.status<=300){
        var data=JSON.parse(this.responceText);
        //console.log(data);
        For(let i=0;i<data.length;i++){
        Console.log(data[i].flag);
}
} else{
        Console.log(xhr.responseText);


}
};
Xhr.send();
```

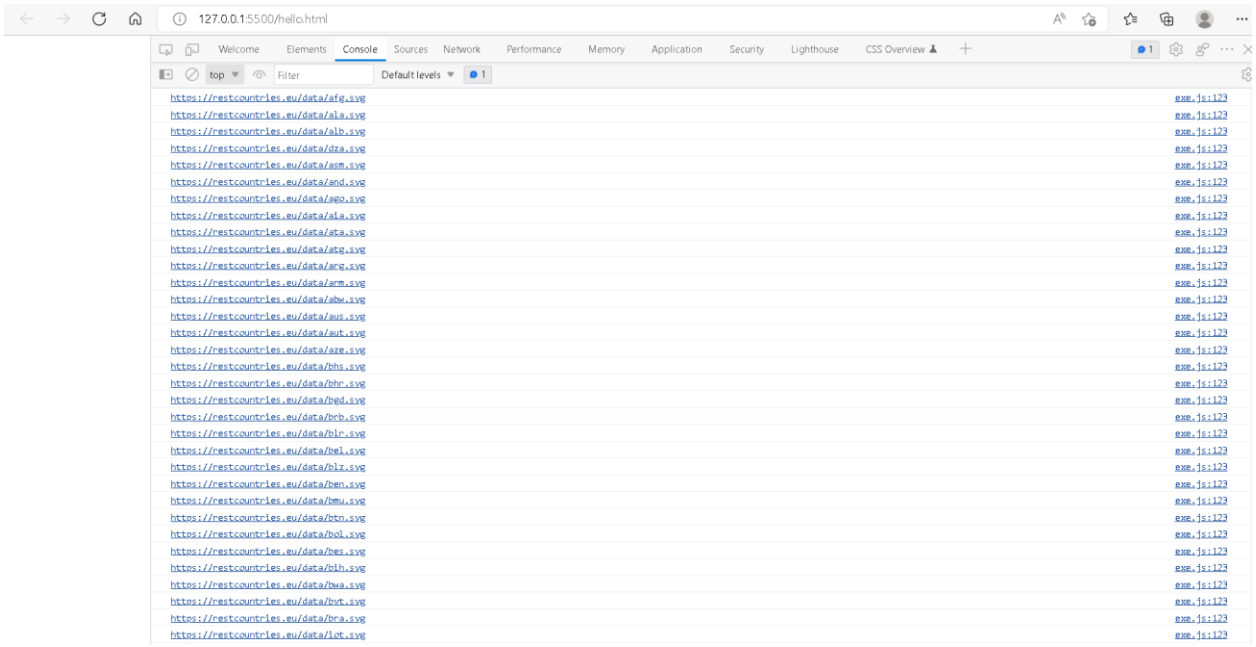
Output:-



(3)Use the rest country API and display all country population,name,sub-region and region .

```
//set up a http request object

var xhr = new XMLHttpRequest();

xhr.open('GET',"https://raw.githubusercontent.com/rvsp/restcountries-json-data/master/res-countries.json");



xhr.onload = function() {

   if(xhr.status >=250 && xhr.status< 300){

      var data =JSON.parse(this.responseText);

      console.log(data);

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

console.log(data[i].name,data[i].region,data[i].sub-region,data[i].population);

}}

Else{

Console.log(xhr.responceText);

}

};

xhr.send();
```

OUTPUT:-



(4).Pratice :- Different Different Functions

Q-4

Ans:-

For practice:-

1.var myvar= 1;

console.log("myvar");

2.

```
let personData=[
{
   firstname:"Rushiraj",
   lastname:"Bhuva",
   marital:"Savaliya",
   Hobbies:"Music,Reading,Gaming,Cycling,Watch Movies",
   Age:22,
   Country:"india",
}
]
console.log(personData);
```

3.Null type

The Null type has exactly one value: null. See null and Null for more details.

Undefined type

A variable that has not been assigned a value has the value undefined. See undefined and Undefined for more details.

Numeric types

ECMAScript has two built-in numeric types: Number and BigInt — along with the related value NaN.

```
let let num = 16;                          // Number
let lastName = "Rushiraj";                 // String
let x = {firstName:"Rushiraj", lastName:"Bhuva"};    // Object
```

4.Convert mathod:-

```
parseInt("60.5") //O.p 60
parseInt(22 year) //O.p 22
parseInt("He was 22") //O.p Nan
parseInt("45.25") //O.p 45
parseInt("20.00") //O.p 20
```

5.

1.ParseInt-code

```
myString = '111'
console.log(parseInt(myString)) // expected result: 111
```

2.using number()-code

```
a = 14.22
console.log(parseInt(a)) // expected result: 14
Number("15");         // returns 15
```

```
Number(" 25  ");       // returns 25

Number("98.30");       // returns 98.30
```

3.unary()-code

```
const x = 25;

const y = -25;

console.log(+x); // expected output: 25

console.log(+y); // expected output: -25

console.log(+''); // expected output: 0
```

6. True & False

```
// all false

5 === '5';

9 === [9];

'3' === [3];


//all true

8 == '8';

11 == [11];

'20' == [20];
```

7. square of number-code

```
let x = Math.pow(5, 2);
```

8. swaping of 2 number-code

```
function swap(x, y) {
   return [y, x];
}


console.log(swap(2, 3));
```

9.Addition of 3 numbers-code

```
let a=5;
let b=4;
let c=5;
console.log(a+b+c); //O.p 14
```

10. F` to C`-code

```
function temperatureConverter(valNum) {
  valNum = parseFloat(valNum);
  document.getElementById("outputCelsius").innerHTML = (valNum-32) / 1.8;
}
```

11.Meter to miles-code

```
#Taking user input
km = float(input("Enter value in kilometers: "))

#Conversion factor
cf = 0.621371

#Calculate miles
miles = km * cf

#Print the output
print('%0.2f kilometers is equal to %0.2f miles' %(kilometers,miles))
```

12.Pounds to kg-code

```
function weightConverter(valNum) {
  document.getElementById("outputGrams").innerHTML = valNum / 0.0022046;
}
```

13.Calculate Batting Average-code

```
var sum = array.reduce((a, b) => a + b, 0);      //get sum of all elements in array
var avg = (sum / array.length) || 0; //get average of all elements in array ;)
```

14.Calculate five test scores and print their average-code

```
var alpha = [['A', 80], ['B', 77], ['C', 88], ['D', 95], ['E', 68]];

var Avgmarks = 0;

for (var i=0; i < students.length; i++) {
	Avgmarks += students[i][1];
	var avg = (Avgmarks/alpha.length);
}

console.log("Average grade: " + (Avgmarks)/alpha.length);

	if (avg < 60){
	  console.log("Grade : F");
	  }
	else if (avg < 70) {
		console.log("Grade : D");
		  }
	else if (avg < 80)
	   {
		console.log("Grade : C");
```

```
    } else if (avg < 90) {
        console.log("Grade : B");
    } else if (avg < 100) {
        console.log("Grade : A");
}
```

15.code for square

x^y =?

```
let b=Math.pow(5,9);
```

16.Calculate Simple Interest-code

```
const simpleInterest = document.querySelector('.simple-interest');
const button = document.querySelector('.button');
//const loading = document.querySelector('.loader');
const results = document.querySelector('.results');

function calculateResults(e) {
    // ui elements
    const principal = document.querySelector('#principal');
    const rate = document.querySelector('#rate');
    const time = document.querySelector('#time');
    const monthlyPayment = document.querySelector('#payment');
```

```
const totalInterest = document.querySelector('#interest');
const totalAmount = document.querySelector('#total');
// formula variables
const p = parseFloat(principal.value);
const r = parseFloat(rate.value);
const t = parseFloat(time.value);

// calculate total interest
const interest = (p*t*r/100);
// calculate monthly payment
const payment = ((interest + p) / (t * 12)).toFixed(2);
// calculate total amount paid
const total = (interest + p).toFixed(2);

if (isFinite(payment)) {
        totalInterest.innerHTML = '$' + (interest).toFixed(2);
        monthlyPayment.innerHTML = '$' + payment;
        totalAmount.innerHTML = '$' + total;
        // hide loader
        button.classList.remove('loading');
        // show results
        results.classList.remove('hide');
```

```
        } else {
            // show error
            showError('Please check your numbers and try again.');
            // hide loader
            button.classList.remove('loading');
        }
}

function showError(error) {
        // create error
        const errorMessage = document.createElement('div');
        const calculate = document.querySelector('#calculate');

        errorMessage.className = 'error';
        errorMessage.appendChild(document.createTextNode(error));
        simpleInterest.insertBefore(errorMessage, calculate);
        // clear error
        setTimeout(clearError, 3000);
}

function clearError() {
        // remove error
```

```
        document.querySelector('.error').remove();
}

button.addEventListener('click', (e) => {
        console.log('Calculating...');
        // show loader
        button.classList.add('loading');

        // set timeout
        setTimeout(calculateResults, 2000);

        // prevent page from reloading on submit
        e.preventDefault();
});



/* IMPROVED OLD CODE BELOW */
// const button = document.querySelector('button');

// function simpleInterest() {
//      console.log('Calculating...');
```

```
//      //ui elements
//      const p = parseFloat(document.querySelector('#principal').value);
//      const r = parseFloat(document.querySelector('#rate').value);
//      const t = parseFloat(document.querySelector('#time').value);
//      const interest = document.querySelector('#interest');
//      const payment = document.querySelector('#payment');
//      const total = document.querySelector('#total');

//      // calculate interest
//      interest.innerHTML = '$' + (p*t*r/100).toFixed(2);
//      // calculate monthly payment
//      payment.innerHTML = '$' + (((p*t*r/100) + p) / (t * 12)).toFixed(2);
//      // calculate total amount
//      total.innerHTML = '$' + ((p*t*r/100) + p).toFixed(2);

//      if(isFinite(payment)) {
//              console.log('go');
//      } else {
//              console.log('error');
//      }
// }
```

```
// button.addEventListener('click',simpleInterest);
```

17.Find the area of triangle-code

```
const baseValue = prompt('Enter the base of a triangle: ');// 6
const heightValue = prompt('Enter the height of a triangle: ');//4

// calculate the area
const areaValue = (baseValue * heightValue) / 2;//12

console.log(
  `The area of the triangle is ${areaValue}`
);
```

18.Area Of Isosceles Triangle-Code

```
<script>

// Javascript program to find the Altitude
// Area of an isosceles triangle

// function to find the altitude
function altitude(a,b)
{
        // return altitude
```

```
        return Math.sqrt(Math.pow(a, 2) - (Math.pow(b, 2) / 4));
}

// function to find the area
function area( b, h)
{

        // return area
        return (1 * b * h) / 2;
}

// Main code
let a = 2, b = 3;
        let h = altitude(a, b);
        document.write("Altitude= " + h.toFixed(2) + ", ");

        document.write( "Area= " + area(b, h).toFixed(2));
```

19.volume of sphere-code

```
function calc(){
   let number=document.getElementById("radius").value;
   number=Number(number);
```

```
    // The formula for the volume of a sphere (4. π. r*r*r )/ 3
    let sphere=(4*Math.PI*number*number*number)/3;

    //Cut the floating digits to two float
    sphere =sphere .toFixed(2);
    alert("The volume of a sphere: "+sphere);
}



let btnCalc=document.getElementById("btnCalc");
btnCalc.onclick=calc;
```

20.Volume Of Prism-code

```
// function to find the Volume
// of triangular prism
function findVolume( l, b, h)
{

        // formula to find Volume
        let volume = (l * b * h) / 2;
```

```
    return volume;
}

// Main Code
let l = 18, b = 12, h = 9;

    // function calling
    document.write( "Volume of triangular prism: " + findVolume(l, b, h));
```

21.Find area of triangle-code

```
//JavaScript Program To Calculate The Area of a Triangle
var base = parseInt(prompt("Enter the base: "));
var height = parseInt(prompt("Enter the height: "));
//Calculating the area
var area = (base * height) / 2;
//Display Output
console.log("Base: " + base);
console.log("Height: " + height);
console.log("The area of the triangle is " + area);
```

22.Give the Actual cost and Sold cost, Calculate Discount Of Product-code

```
 getPrice = function() {
        var numVal1 = Number(document.getElementById("price").value);
        var numVal2 = Number(document.getElementById("discount").value) /
100;
        var totalValue = numVal1 - (numVal1 * numVal2)
        document.getElementById("total").value = totalValue.toFixed(2);
    }
```

23.Given their radius of a circle and find its diameter, circumference and area.
code:-

```
function circle(radius)
{
   this.radius = radius;
  // area method
   this.area = function ()
   {
      return Math.PI * this.radius * this.radius;
   };
  // perimeter method
```

```
    this.perimeter = function ()
    {
        return 2*Math.PI*this.radius;
    };
}
var c = new circle(3);
console.log('Area =', c.area().toFixed(2));
console.log('perimeter =', c.perimeter().toFixed(2));
```

24.Given two numbers and perform all arithmetic operations:-code

1)

Math.round(a) Returns a rounded to its nearest integer.

2)

Math.ceil(b) Returns b rounded up to its nearest integer.

3)

Math.floor(c) Returns c rounded down to its nearest integer.

4)

Math.trunc(d) Returns the integer part of d.

5)

Math.round(4.6) returns the nearest integer.//o.p=5

6)

Math.ceil(5.9) returns the value of x rounded up to its nearest integer://o.p=6

7)

Math.floor(4.2) returns the value of x rounded down to its nearest integer://0.p=4

8)

Math.pow(5, 5) returns the value of x to the power of y://o.p=3125//5^5

9)

Math.sqrt(25) returns the square root of x://o.p=5

10)

Math.min() and Math.max() can be used to find the lowest or highest value in a list of arguments:

11)

Math.random() returns a random number between 0 (inclusive), and 1 (exclusive):

12)

Math.log(f) returns the natural logarithm of x.

13)

Math.log2(g) returns the base 2 logarithm of x.

14)

Math.log10(h) returns the base 10 logarithm of x.

15)

Math.abs(i) returns the absolute (positive) value of x:

16)

Math.sin(x) returns the sine (a value between -1 and 1) of the angle x (given in radians).

17)

Math.cos(x) returns the cosine (a value between -1 and 1) of the angle x (given in radians).