TASK-2

1.html and script.js file and run a for loop on the data and print all the country names in the console?

index.HTML-

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>API data</title>
</head>
<body>
    <script src="script.js">
    </script>
</body>
</html>
```

Script.js-

```
var request = new XMLHttpRequest();
request.open('GET','https://restcountries.eu/rest/v2/all',true);
request.send();
request.onload = function(){
    var data = JSON.parse(this.response)
    for(i=0;i<data.length;i++)
    {
        console.log(data[i].name);
}
}
```

2.Write a write up on Difference between copy by value and copy by reference?

Call by value	Call by reference
1.While calling a function,when you pass values by copying variables,it is known as “Call by value”.	1.While calling a function,in programming instead of copying the values of variables, the address of the variables is used.
2.In this method,a copy of the variables is passed.	2.In this method,a variable itself is passed.
3.Change made in a copy of variable never modify the value of variable outside the function.	3.Change in the variable also affects the value of the variable outside the function.
4.Does not allow you to make any changes In actual variables.	4.Allows you to make changes in the value of variables by using function calls.
5.Original value not modified.	5.Original value modified.

3.How to copy by value a composite data type (array+objects)?

1. Use the spread(**...**) syntax.
2. Use the **object.assign()** method.
3. Use the **JSON.stringify()** and **JSON.parse()** method.

4. Problem0-PART-A

1)Add height and weight to Fluffy?

```
var cat = {
name: 'Fluffy',
activities: ['play', 'eat cat food'],
catFriends: [
{
name: 'bar',
activities: ['be grumpy', 'eat bread omblet'],
weight: 8,
furcolor: 'white'
},
{
name: 'foo',
activities: ['sleep', 'pre-sleep naps'],
weight: 3
}
]
}
```

```
cat.height=2,cat.weight=8;
var total=cat.height+cat.weight;
console.log(total);
```

2)Fluffy name is spelled wrongly. Update it to Fluffyy?

```
var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
 }
 ]
}
let update = cat.name.replace('Fluffy','Fluffyy');
console.log(update);
```

3)List all the activities of Fluffyy's catFriends?

```
var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
```

```
 weight: 3
 }
 ]
}
for(var i in cat.catFriends)
{
    console.log(cat.catFriends[i].activities);
}
```

4)Print the catFriends names?

```
 var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
 }
 ]
}
for(var i in cat.catFriends)
{
    console.log(cat.catFriends[i].name);
}
```

5)Print the total weight of catFriends?

```
var total=0,cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
```

```
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
 }
 ]
}
for(var i in cat.catFriends){
total = total+cat.catFriends[i].weight;
}
console.log(total);
```

6)Print the total activities of all cats?

```
var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
 }
 ]
}
console.log(cat.activities);
for(var i in cat.catFriends)
{
    console.log(cat.catFriends[i].activities);
}
```

7)Add 2 more activities to bar & foo cats?

```
 var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
 }
 ]
}
for(var i in cat.catFriends)
{
    cat.catFriends[i].activities.push("singing","hunting");
}
console.log(cat.catFriends);
```

8)Update the fur color of bar?

```
var cat = {
 name: 'Fluffy',
 activities: ['play', 'eat cat food'],
 catFriends: [
 {
 name: 'bar',
 activities: ['be grumpy', 'eat bread omblet'],
 weight: 8,
 furcolor: 'white'
 },
 {
 name: 'foo',
 activities: ['sleep', 'pre-sleep naps'],
 weight: 3
```

```
 }
 ]
}
cat.catFriends[0].furcolor="red";
console.log(cat.catFriends);
```

Problem0-PART-B

1)Loop over the accidents array. Change atFaultForAccident from true to false?

```
var myCar = {
 make: 'Bugatti',
 model: 'Bugatti La Voiture Noire',
 year: 2019,
 accidents: [
 {
 date: '3/15/2019',
 damage_points: '5000',
 atFaultForAccident: true
 },
 {
 date: '7/4/2022',
 damage_points: '2200',
 atFaultForAccident: true
 },
 {
 date: '6/22/2021',
 damage_points: '7900',
 atFaultForAccident: true
 }
 ]
}
for(var i in myCar.accidents)
{
    myCar.accidents[i].atFaultForAccident=false
}
console.log(myCar);
```

2) Print the dated of my accidents?

```
var myCar = {
 make: 'Bugatti',
 model: 'Bugatti La Voiture Noire',
 year: 2019,
```

```
 accidents: [
 {
 date: '3/15/2019',
 damage_points: '5000',
 atFaultForAccident: true
 },
 {
 date: '7/4/2022',
 damage_points: '2200',
 atFaultForAccident: true
 },
 {
 date: '6/22/2021',
 damage_points: '7900',
 atFaultForAccident: true
 }
 ]
}
for(var i in myCar.accidents)
{
    console.log(myCar.accidents[i].date);
}
```

Problem-1

1)Write a function called “printAllValues” which returns an newArray of all the input object’s values?

```
var obj = {name : 'RajiniKanth', age : 33, hasPets : false};
function printAllValues() {
 console.log(Object.values(obj));
}
printAllValues();
```

Problem-2

1)Write a function called “printAllKeys” which returns an newArray of all the input object’s keys?

```
var obj = {name : 'RajiniKanth', age : 33, hasPets : false};
function printAllValues() {
 console.log(Object.keys(obj));
}
printAllValues();
```

Problem-3

1)Write a function called “convertObjectToList” which converts an object literal into an array of arrays?

```
var obj = {name: "ISRO", age: 35, role: "Scientist"};
function convertListToObject(obj) {
 let list=[];
 for(let i in obj)
 {
    list.push([i,obj[i]]);
 }
 return list;
}
console.log(convertListToObject(obj));
```

Problem-4

1)Write a function ‘transformFirstAndLast’ that takes in an array, and returns an object with:

1) the first element of the array as the object’s key, and
2) the last element of the array as that key’s value.

```
var arr = ["GUVI", "I", "am", "Geek"];
function transformFirstAndLast(arr) {
   let newObject={ };
   let arrLength = arr.length;
   newObject[arr[0]]=arr[arrLength-1];
 return newObject;
}
console.log(transformFirstAndLast(arr));
```

Problem-5

1)Write a function “fromListToObject” which takes in an array of arrays, and returns an object with each pair of elements in the array as a key-value pair?

```
var arr = [['make', 'Ford'], ['model', 'Mustang'], ['year', 1964]];
function fromListToObject(arr) {
 var newObject = {};
 for(let i in arr)
 {
    newObject[arr[i][0]]=arr[i][1];
 }
```

```
 return newObject;
}
console.log(fromListToObject(arr));
```

Problem-6

1)Write a function called “transformGeekData” that transforms some set of data from one format to another?

```
var arr= [[['firstName', 'Vasanth'], ['lastName', 'Raja'], ['age', 24], ['role', 'JSWizard']], [['firstName', 'Sri'], ['lastName', 'Devi'], ['age', 28], ['role', 'Coder']]];
function transformEmployeeData(arr) {
 var tranformEmployeeList = [];
 let newObject = {};
 n=arr.length;
 for(let i in arr)
 {
    m=arr[i].length;
    for(let j in arr[i])
       newObject[arr[i][j][0]]=arr[i][j][1];
       tranformEmployeeList.push({...newObject});
    }
 return tranformEmployeeList;
}
console.log(transformEmployeeData(arr));
```

Problem-7

1)Write an “assertObjectsEqual” function from scratch.Assume that the objects in question contain only scalar values?

```
var expected = {foo: 4, bar: 6};
var actual = {foo: 5, bar: 6};
assertObjectsEqual(actual,expected,'Detects that two objects are equal');
function assertObjectsEqual(actual, expected, testName){
 var values = Object.values(actual);
 var values1 = Object.values(expected);
 var check=0;
 for(let i in values)
 {
   if(values[i]!==values1[i])
    check=1;
 }
```

```
 if(check==1)
 console.log("Failed[my text] Expected"+ JSON.stringify(expected)+"But
got"+JSON.stringify(actual));
 else
 console.log("Passed");
}
```

Problem-8

1)I have a mock data of security Questions and Answers. You function should take the object and a pair of strings and should return if the quest is present and if its valid answer?

```
function chksecurityQuestions(securityQuestions,question,answer) {
output=false;
for(let i in securityQuestions)
{
   if(securityQuestions[i].question==question)
   {
      if(securityQuestions[i].expectedAnswer==answer){
      output=true;
   }
   }
}
return output;

}
var securityQuestions = [
 {
 question: 'What was your first pet's name?',
 expectedAnswer: 'FlufferNutter'
 },
 {
 question: 'What was the model year of your first car?',
 expectedAnswer: '1985'
 },
 {
 question: 'What city were you born in?',
 expectedAnswer: 'NYC'
 }
];
var question = 'What was your first pet's name?';
var answer  =  'FlufferNutter';
var status = chksecurityQuestions(securityQuestions, question, answer);
```

```
console.log(status); // true
var question = 'What was your first pet's name?';
var answer  =  'DufferNutter';
status = chksecurityQuestions(securityQuestions, question, answer);
console.log(status); // flase
```

Problem-9

1)Write a function to return the list of characters below 20 age?

```
var students = [
 {
 name: 'Siddharth Abhimanyu', age: 21}, { name: 'Malar', age: 25},
 {name: 'Maari',age: 18},{name: 'Bhallala Deva',age: 17},
 {name: 'Baahubali',age: 16},{name: 'AAK chandran',age: 23},   {name:'Gabbar Singh',age:
33},{name: 'Mogambo',age: 53},
 {name: 'Munnabhai',age: 40},{name: 'Sher Khan',age: 20},
 {name: 'Chulbul Pandey',age: 19},{name: 'Anthony',age: 28},
 {name: 'Devdas',age: 56}
 ];
function returnMinors(arr)
{
   array=[];
   for(var i in arr)
   {
      if(arr[i].age<20)
      array.push(arr[i].name);
   }
   return array;
}
console.log(returnMinors(students));
```

5.Try the rest of the countries api. Extract and print the total population of all the countries in the console.use the html template. https://restcountries.eu/rest/v2/all ?

index.HTML-

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>API data</title>
```

```
</head>
<body>
    <script src="script.js">
    </script>
</body>
</html>
```

Script.js-

```
var request = new XMLHttpRequest();
request.open('GET','https://restcountries.eu/rest/v2/all',true);
request.send();
request.onload = function(){
    var data = JSON.parse(this.response);
    var sum=0;
        for(i=0;i<data.length;i++)
        {
            sum=sum+data[i].population;

        }
        console.log(sum);
}
```