

## TASK-2

### API Call

1. Load the rest countries' data using your HTML and script.js file and run a for loop on the data and print all the country names in the console.
2. Give a write-up on the Difference between copy by value and copy by reference.
3. How to copy by value a composite datatype (array+objects).

1. Load the rest countries' data using your HTML and script.js file and run a for loop on the data and print all the country names in the console.

Ans.

### 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>sample 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);
console.log(data);
for(let i in data) {
  console.log(data[i].name);
}
}

```

## 2. Give a write-up on the Difference between copy by value and copy by reference.

### Copy by value

- In a primitive data-type when a variable is assigned a value we can imagine that a box is created in the memory. This box has a sticker attached to it i.e. the variable name. Inside the box the value assigned to the variable is stored.

For example:

```

var x= 10;
var y='shikha';
console.log(x,y);
var a=x;
var x=3;
console.log(a,x,y);

```

->10 'shikha'

->10 3 'shikha'

- In above example, In first 2 lines ,x' contains value 10, 'y' contains 'shikha'. Then in the fourth line the value in the box 'x' is copied into the variable 'a'.
- At this point of time both 'x' and 'a' contains the value 10. However, an important thing to understand here is that even though 'x' and 'a' contains the same value they are not connected to each other. It is so because the values are directly copied into the new variables.
- Changes taking place in one does not affect the other.

### Copy by reference

- In case of a non-primitive data-type the values are not directly copied. When a non-primitive data-type is assigned a value a box is created with a sticker of the name of the data-type. However, the values it is assigned is not stored directly in the box. The language itself assigns a different memory location to store the data. The address of this memory location is stored in the box created.

For example: let user={name : 'person1'};

```
let admin= user;
```

```
admin.name = 'person2';  
console.log(user.name);
```

-> personal

- In the above example, when the value of admin is changed it automatically changes the value of user as well.
- This happens because both 'user' and 'admin' are storing the address of the memory location. And when one changes the values in the allocated memory it is reflected in the other as well.
- We can further elaborate it we can say that; copy by reference is like having two keys of the same room shared between 'admin' and 'user'. one of them alters the arrangement of the room the other would experience it as well.

### 3. How to copy by value a composite datatype (array+objects).

#### Ans-

- The Object.assign() method copies all enumerable own properties from one or more source objects to a target object. It returns the target object. Note this will be a shallow copy.

For example: var arr=[1,2,3];

```
var b= Object.assign([],arr);  
console.log(arr,b);  
b[2]=100;  
console.log(arr,b);
```