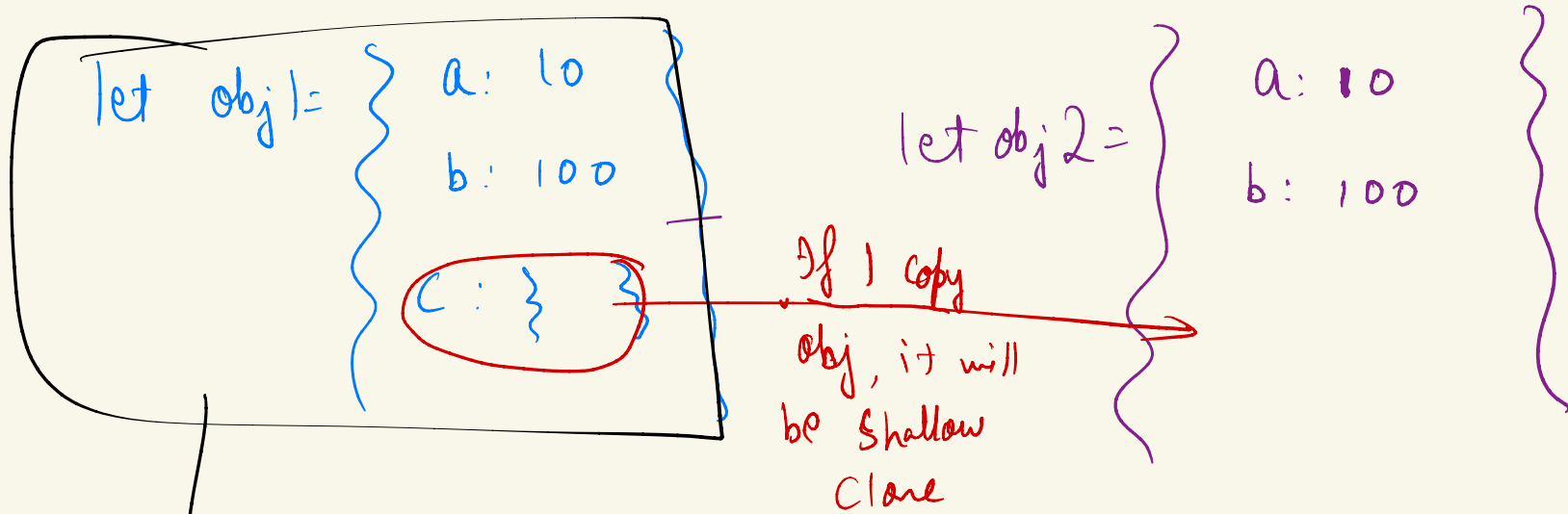


S Structured  
Clone

# deepClone — Our own Structured Clone



→ Converting Obj into array will make our life easy.

If I want to iterate over Object properties.

function deepClone (oldObj) {

let obj = {  
 a: 10  
 b: 100  
 c: { }  
}

① convert my Obj into array

② [ ["a", 10], ["b", 100], ["c", { } ] ]

③ {  
 a: 10  
 b: 100  
 c: { }  
}

returns newObj; → this newObj is deep cloned version of oldObj;

}



The best way is to do:

321



```
var obj = {"1":5,"2":7,"3":0,"4":0,"5":0,"6":0,"7":0,"8":0,"9":0,"10":0,"11":0},
var result = Object.entries(obj);

console.log(result);
```



Run code snippet

⌵ Hide results

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<pre>[   [     "1",     5   ],   [     "2",     7   ],   [</pre>	20:30:58.858
--	--------------

Calling `entries`, as shown here, will return `[key, value]` pairs, as the caller requested.

Alternatively, you could call `Object.values(obj)`, which would return only values.

<https://stackoverflow.com/questions/38824349/how-to-convert-an-object-to-an-array-of-key-value-pairs-in-javascript>

```
> typeof null
```

```
< 'object'
```

```
> !null
```

```
< true
```

```
> !{}
```

```
< false
```

```
>
```

let obj = {  
 a: 10  
 b: 100  
 c: {q: 20}  
} → Object.entries

→ [ ["a", 10], ["b", 100], ["c", {q: 20}] ]

⇒ [ ["a", deepClone(10)], ["b", deepClone(100)], ["c", deepClone({q: 20})] ]

⇒ [ ["a", 10], ["b", 100], ["c", {q: 20}] ]

⇒ { a: 10  
b: 100  
c: { q: 70 } }

- ① checking if it's object or not
- ② converting object into array
- ③ calling deep clone recursively on each & every value.
- ④ converting array back to obj.

```

9 const deepClone = (oldObj) => {
10
11   const type = typeof oldObj;
12   if (type !== "object" || !oldObj) return oldObj;
13
14   const arrayOfKeyValue = Object.entries(oldObj);
15   let deepClonedVersionOfArray = arrayOfKeyValue.map((item) => [
16     item[0],
17     deepClone(item[1]),
18   ]);
19
20   const finalObj = Object.fromEntries(deepClonedVersionOfArray);
21   return finalObj;
22 }

```

let obj = {  
 a: 10  
 b: 100  
 c: {q: 90}  
}

⇒ [ ["a", 10], ["b", 100], ["c", {q: 90}] ]

⇒ [ [ "a", deepClone(10) ], [ "b", deepClone(100) ], [ "c", deepClone({q: 90}) ] ]



deepClone(obj)

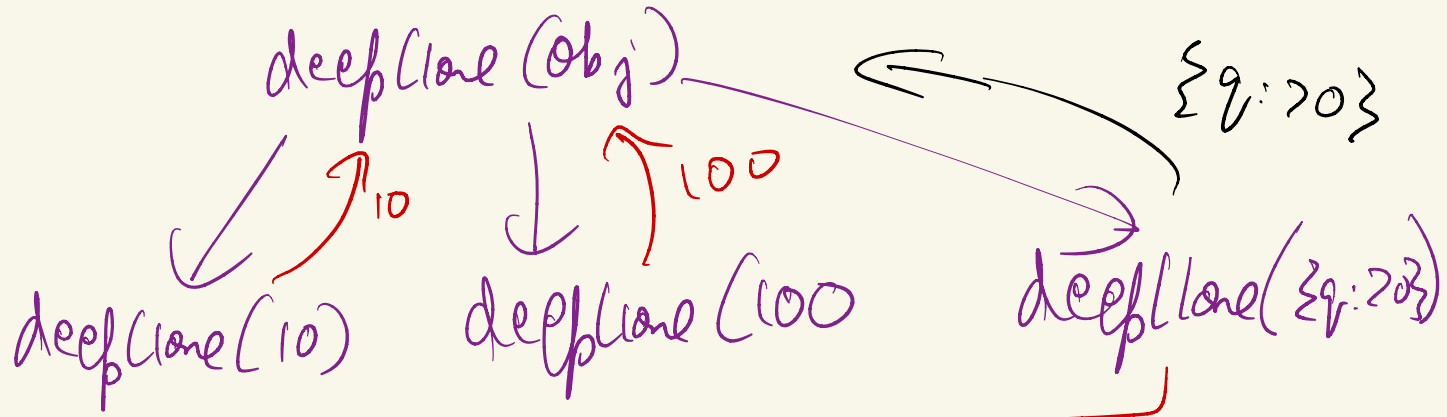
[["a", 10], ["b", 100], ["c", {q: 20}]]

↓  
deepClone(10)

↓  
deepClone(100)

deepClone({q: 20})

↓  
→ [{"a", 10}, {"b", 100}, {"c", {q: 20}}]



$\Rightarrow [ [ "q", 20 ] ] \Rightarrow [ [ "q", \text{deepClone}(20) ] ]$   
 $\hookrightarrow \{ q: 20 \}$