

### 0.1 Assignment

1. Write code to extract the first and third elements from the array `[10, 20, 30]` into variables `x` and `y`, and set `z` to 100 if the fourth element is missing.
2. Write code to extract property `a` from `{ a: 5 }` into variable `foo`, and property `b` into variable `bar` with a default value of 20.
3. Write code to extract the name, email, and phone from the nested object `user` below using destructuring:

```
let user = {  
  id: 42,  
  profile: {  
    name: "Omar",  
    contacts: [  
      { type: "email", value: "omar@mail.com" },  
      { type: "phone", value: "123456" },  
    ],  
  },  
};
```

4. Write code to demonstrate that assigning one object to another variable creates a reference, not a copy. Show that changing a property via one variable affects the other.
5. Write code to clone an object with a nested object using `Object.assign`, then change a nested property in the clone and show the effect on the original.
6. Write code to deep clone an object with a nested object using `structuredClone`, then change a nested property in the clone and show the effect on the original.
7. Write code to destructure an array `[undefined, 2, 3]` into variables `a`, `b`, `c`, and `d`, with defaults for missing values.
8. Write code to clone an object using the spread operator, then change a property in the clone and show the original is unchanged.
9. Write code to compare two objects by reference and show the result for both same and different objects.
10. Write code to clone an object using `JSON.parse(JSON.stringify(obj))`, then change a property in the clone and show the original is unchanged.
11. Write code to deep clone an object with a circular reference using `structuredClone`, and show that the circular reference is preserved in the clone.
12. Write code to show that you can modify properties of a `const` object, but cannot reassign the variable.
13. Write code to add a symbol-keyed property to an object, access it, and show that it does not appear in `Object.keys` or `for...in`.
14. Write code to create two global symbols with the same key and show that they are equal.
15. Write code to safely access a nested property using optional chaining.
16. Write code to assign a default value using the nullish coalescing operator if a variable is `null` or `undefined`.

## *Assignment*

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17. Write a generator function that yields 1 and 2, and show how to get both values and the final `undefined`.
18. Write a generator function that catches an error thrown into it and returns a string. Show how to throw the error and get the result.
19. Write a generator function that yields two values, then ends early using `.return()` and shows the result.