

Modern JavaScript Features

Modern JavaScript features include:

- `let` and `const` for block-scoped variables.
- **Arrow functions:** `()=>{}` .
- **Template literals:** `Hello, ${name}` .
- **Destructuring:** `const {name, age} = obj` .
- **Spread/rest operators:** `[...arr]` , `{...obj}` .
- **Modules:** `export` and `import` .

What is Destructuring?

Destructuring is a convenient way to extract values from arrays and objects into variables.

Array Destructuring

Extract values from arrays using square brackets `[]` .

```
const numbers = [1, 2, 3];
const [a, b, c] = numbers;
console.log(a, b, c); // 1 2 3
```

Skipping Values

```
const [x, , z] = [10, 20, 30];
console.log(x, z); // 10 30
```

Using Rest Parameter

```
const [first, ...rest] = [1, 2, 3, 4];
console.log(first); // 1
console.log(rest); // [2, 3, 4]
```

Object Destructuring

Extract values from objects using curly braces `{}` .

```
const person = { name: "Alice", age: 25 };
const { name, age } = person;
console.log(name, age); // Alice 25
```

Renaming Variables

```
const { name: fullName, age: years } = person;
console.log(fullName, years); // Alice 25
```

Default Values

```
const { country = "USA" } = person;
console.log(country); // USA
```

Nested Destructuring

```
const user = {
  id: 1,
  profile: { username: "john_doe", email: "john@example.com" }
};
const { profile: { username } } = user;
console.log(username); // john_doe
```

Function Parameter Destructuring

```
function display({ name, age }) {
  console.log(`${name} is ${age} years old.`);
}
display(person); // Alice is 25 years old.
```

Summary

- **Array Destructuring** allows extracting values from arrays into variables.
- **Object Destructuring** extracts properties from objects efficiently.
- **Nested Destructuring** helps access deeply nested object properties.
- **Default values** can be used to handle missing properties.
- **Function Parameter Destructuring** makes functions more readable and clean.
- Destructuring improves code readability and reduces redundant property access, making it essential for modern JavaScript and frameworks like React.

Conclusion

Destructuring is a powerful feature that simplifies working with objects and arrays, making JavaScript code more concise and efficient.