

## **Report Day: 5.5**

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### **Task:**

#### **What is ECMAScript?**

- ECMAScript is the standardized specification of JavaScript.
- It is maintained by ECMA International, and its purpose is to ensure consistency across all JavaScript implementations (like browsers).

#### **ES6 Overview:**

Released in 2015, ES6 was the biggest update to JavaScript since it was created. It introduced many modern features that make JavaScript more powerful and easier to write.

#### **1. Destructuring**

**Destructuring** is a feature in ES6 that allows unpacking values from arrays or properties from objects into distinct variables.

#### **Example:**

##### **Array Destructuring:**

```
const colors = ["red", "green", "blue"];
const [first, second] = colors;

console.log(first); // red
console.log(second); // green
```

### Use Case:

Makes code cleaner, especially when accessing multiple properties.

## 2. Spread & Rest Operators

Both **Spread (...)** and **Rest (...)** use the same syntax but work **differently depending on context**.

### Spread Operator:

Used to expand elements from arrays/objects.

```
const arr1 = [1, 2, 3];
const arr2 = [...arr1, 4, 5]; // [1, 2, 3, 4, 5]

const obj1 = { a: 1, b: 2 };
const obj2 = { ...obj1, c: 3 }; // { a: 1, b: 2, c: 3 }
```

### Rest Operator:

Used to collect remaining elements into an array or object.

```
const [first, ...rest] = [10, 20, 30, 40];
console.log(rest); // [20, 30, 40]
```

### Use Case:

- Spread is useful for cloning or merging.
- Rest is helpful in functions to accept variable arguments.

## 3. Template Literals

Template Literals (backticks `) allow embedded expressions, multi-line strings, and more readable syntax.

```
const name = "Ayesha";  
const greeting = `Hello, ${name}!`;  
console.log(greeting); // Hello, Ayesha!
```

**Use Case:**

- Cleaner syntax for strings.
- Dynamically insert variables or expressions.

**Conclusion:**

ES6+ features helps developers write cleaner, shorter, and more readable code. Essential for modern web development. Supported by all modern browsers.