# ProSensia PVT LTD
# M Farooq Sajid
# ES6+ Concepts

## Destructuring, Spread/Rest, and Template Literals

### 1. Introduction

ES6 (ECMAScript 2015) and later versions introduced several powerful features that make JavaScript more readable, concise, and efficient. Among these, Destructuring, Spread/Rest operators, and Template Literals are commonly used in modern JavaScript applications. This report highlights the usage, syntax, and examples of these core features.

### 2. Destructuring

Destructuring allows unpacking values from arrays or properties from objects into distinct variables.

Array Destructuring Example:

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

Object Destructuring Example:

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

### 3. Spread and Rest Operators

These operators use the same syntax (`...`) but function differently based on the context.

Spread Operator: Expands elements of an array or object.

```
const arr1 = [1, 2];
const arr2 = [...arr1, 3, 4];
console.log(arr2); // [1, 2, 3, 4]
```

Rest Operator: Collects multiple elements into a single array or object.

```
function sum(...numbers) {
  return numbers.reduce((total, num) => total + num, 0);
}
console.log(sum(1, 2, 3)); // 6
```

## 4. Template Literals

Template literals provide an easy and readable way to create strings using backticks (`) and support interpolation with `${}` syntax.

Example:

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

## 5. Conclusion

ES6+ features like destructuring, spread/rest operators, and template literals offer cleaner syntax and improved developer productivity. These concepts are essential for writing modern and maintainable JavaScript code.