Spread & Rest Operator

❑ Both use three dots (...) syntax but do different things based on context.

❑ Spread operator expands/unpacks values.

❑ Rest operator collects/packs values.

Spread Operator:

Spread Array

```js
const arr1 = [1, 2, 3];
const arr2 = [...arr1, 4, 5];
console.log(arr2); // [1, 2, 3, 4, 5]
```

Copying Arrays (Shallow Copy)

```js
const original = [10, 20, 30];
const copy = [...original];
console.log(copy); // [10, 20, 30]
```

Merging Arrays

```js
const boys = ['Manas', 'Harshit'];
const girls = ['Muskan', 'Ritika'];
const students = [...boys, ...girls];
console.log(students); // ['Manas', 'Harshit', 'Muskan', 'Ritika']
```

Spread String

```javascript
const word = "Muskan";
const letters = [...word];
console.log(letters); // ['M', 'u', 's', 'k', 'a', 'n']
```

Spread in function calls

```javascript
function add(a, b, c) {
    return a + b + c;
}
const nums = [1, 2, 3];
let result = add(...nums);
console.log(result); // 6
```

Spread Objects

```javascript
const user = { name: 'Muskan', age: 19 };
const updatedUser = { ...user, location: 'India' };
console.log(updatedUser); // { name: 'Muskan', age: 19, location: 'India' }
```

Merging Objects

```javascript
const a = { x: 1 };
const b = { y: 2 };
const merged = { ...a, ...b };
console.log(merged); // { x: 1, y: 2 }
```

Rest Operator:

Rest in Function Parameters

```javascript
function sum(...numbers) {
    console.log(numbers)
}
sum(1, 2, 3, 4, 5); // [1,2,3,4,5]
```

Rest with Destructuring Array

```
const [first, ...rest] = [100, 200, 300, 400];
console.log(first); // 100
console.log(rest);  // [200, 300, 400]
```

Rest with Destructuring Object

```
const person = { name: 'Manas', age: 19, city: 'Bhagalpur' };
const { name, ...others } = person;
console.log(name); // 'Manas'
console.log(others); // { age: 19, city: 'Bhagalpur' }
```

Spread v/s Rest:

Feature	Spread ...	Rest ...
Purpose	Expands values	Collects values
Used in	Function calls, arrays, objects	Function parameters, destructuring
Position	Right side of = or in arguments	Left side of = or parameters
Example	add(...arr)	function add(...nums)