**🧠 Day 4: Destructuring, Spread, Rest & Template Power Moves**

**🔹 1. Destructuring – Shortcuts for extracting values**

Instead of this:

js

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const student = { name: "Riya", marks: 85 };

const name = student.name;

const marks = student.marks;

Do this:

js

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const { name, marks } = student;

console.log(name); // Riya

console.log(marks); // 85

**🧠 Desi Analogy:**

Imagine you opened a **tiffin box** and directly picked out "sabzi" and "roti" — that’s destructuring 🍱

**🧪 Destructuring in Arrays:**

js

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const food = ["Dosa", "Idli", "Sambar"];

const [a, b] = food;

console.log(a); // Dosa

console.log(b); // Idli

**🔹 2. Spread Operator (...) – Clone, merge, expand 🚀**

**🧪 Clone an array:**

js

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const nums = [1, 2, 3];

const copy = [...nums];

console.log(copy); // [1, 2, 3]

**🧪 Merge two arrays:**

js

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const veg = ["Bhindi", "Palak"];

const nonVeg = ["Chicken", "Fish"];

const thali = [...veg, ...nonVeg];

console.log(thali);

**🧪 Add new data to object:**

js

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const student = { name: "Aman", age: 22 };

const updated = { ...student, city: "Delhi" };

console.log(updated);

**🔹 3. Rest Operator (...) – Collect the leftovers 🍲**

Used in function parameters:

js

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const addAll = (...numbers) => {

return numbers.reduce((sum, num) => sum + num, 0);

};

console.log(addAll(10, 20, 30)); // 60

Used in destructuring:

js

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const [first, ...others] = ["Paneer", "Dosa", "Pav Bhaji"];

console.log(first); // Paneer

console.log(others); // [Dosa, Pav Bhaji]

**🔹 4. Template Literals Refresher ( )**

js

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const user = "Neha";

const marks = 88;

console.log(`Hello ${user}, you scored ${marks} marks! 🎉`);

✅ Cleaner than using "Hello " + user + ...  
✅ Makes UI in React/Next easier

**🧪 Mini Challenge: Your Turn!**

js

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const players = [

{ name: "Virat", runs: 70 },

{ name: "Rohit", runs: 45 },

{ name: "Gill", runs: 90 }

];

**💪 Do the following:**

1. Use **destructuring** inside a loop to print:

python-repl

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Virat made 70 runs

Rohit made 45 runs

...

1. Use **spread** to add a new player into the array (don’t change original)
2. Use **rest** to separate the first player and group the rest into another array

**🔁 Summary of Day 4**

| **Concept** | **Symbol** | **Purpose** |
| --- | --- | --- |
| Destructuring | {} / [] | Extract values from arrays/objects |
| Spread | ... | Copy, merge, expand |
| Rest | ... | Collect remaining values |
| Template Literals | ` ` | Easy string + variable combo |