

Day 6 – [26th June 2025]

TOPICS COVERED

JavaScript Arrays:

- Shallow Copy: Copies the reference of the original array — both variables point to the same array.

```
let arr1 = [1, 2, 3];  
let arr2 = arr1; // same reference  
arr2.push(4);  
console.log(arr1); // [1, 2, 3, 4]
```

- Deep Copy: Creates a brand-new array with copied values — changes do not affect the original.

```
let original = [10, 20, 30];  
let deepCopy = [];  
for (let i = 0; i < original.length; i++) {  
    deepCopy[i] = original[i];  
}  
deepCopy.push(40);  
console.log("Original:", original); // [10, 20, 30]  
console.log("Deep Copy:", deepCopy); // [10, 20, 30, 40]
```

- for...of Loop: Used to loop through array values directly.

```
let fruits = ["apple", "banana", "mango"];  
for (let fruit of fruits) {  
    console.log(fruit);  
}  
// Output:  
// apple  
// banana  
// mango
```

JavaScript Objects:

- Empty Object:

```
let student = {};
```

- Initialization:

```
let person = {  
  name: "Navpreet",  
  age: 20  
};
```

- Insertion:

```
person.city = "Ludhiana";
```

- Deletion:

```
delete person.age;
```

- Object of Object:

```
let users = {  
  user1: { name: "Aman", age: 21 },  
  user2: { name: "Simran", age: 22 }  
};  
console.log(users.user1.name); // Aman
```

- Array of Objects:

```
let students = [  
  { name: "Navpreet", marks: 90 },  
  { name: "Aman", marks: 85 }  
];  
console.log(students[1].name); // Aman
```

- Nested Object:

An object inside another object.

```
let school = {  
  name: "GNDEC",  
  location: "Ludhiana",  
  departments: {  
    CSE: {  
      hod: "Dr. Singh",  
      strength: 120  
    },  
    ECE: {  
      hod: "Ms. Kaur",  
      strength: 100  
    }  
  }  
};  
console.log(school.departments.CSE.hod); // Dr. Singh
```

JavaScript Functions:

- Function Declaration:

```
function greet(name) {  
  console.log("Hello, " + name + "!");  
}  
greet("Navpreet"); // Hello, Navpreet!
```

- Function with Parameters:

```
function add(a, b) {  
  console.log("Sum:", a + b);  
}  
add(5, 3); // Sum: 8
```

- Inbuilt Math Functions:

```
console.log(Math.random()); // Random between 0–1
```

```
console.log(Math.floor(4.7)); // 4
console.log(Math.ceil(4.2)); // 5
console.log(Math.PI);        // 3.141592...
console.log(Math.E);         // 2.718281...
```

TOOLS USED:

Visual Studio Code (VS Code)

Chrome Browser (JavaScript Console)

To Read and Practice:

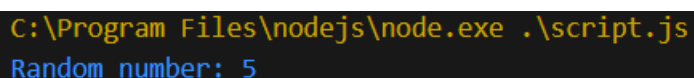
Arrow Functions

Higher Order Functions

TASKS:

1) Generate a random number between 1–10.

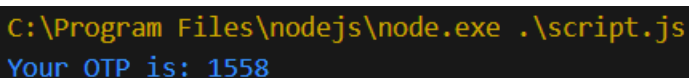
```
let num = Math.floor(Math.random() * 10) + 1;
console.log("Random number:", num);
```



```
C:\Program Files\nodejs\node.exe .\script.js
Random number: 5
```

2) 4-digit OTP Generator:

```
let otp = "";
for (let i = 0; i < 4; i++) {
  otp += Math.floor(Math.random() * 10);
}
console.log("Your OTP is:", otp);
```



```
C:\Program Files\nodejs\node.exe .\script.js
Your OTP is: 1558
```