Training Day 6

26th June 2025

TOPICS COVERED

- **Arrays**

1. Shallow Copy

A shallow copy only copies the reference to the original array. Changing one affects the other.

Example:

```
let arr1 = [1, 2, 3];
let arr2 = arr1;  // Shallow copy
arr2[0] = 99;     // arr1[0] becomes 99 too
```

2. Deep Copy

A deep copy creates a completely new array with copied values.

Example:

```
let arr1 = [1, 2, 3];
let arr2 = [...arr1];  // Deep copy using spread operator
arr2[0] = 99;          // arr1 remains unchanged
```

3. for...of Loop

Used to iterate through array elements.

Example:

```
for (let num of arr1) {
  console.log(num);
}
```

- **Objects in JavaScript**

1. Creating an Empty Object

```
let obj = {};
```

2. Initialization

```
let student = {
  name: "Navneet",
  age: 19,
  course: "MERN"
};
```

3. Insertion

```
student.email = "navneet@abc.com";
```

4. Deletion

```
delete student.age;
```

5. Object of Object

```
let school = {
  student1: { name: "Navneet", age: 19 },
  student2: { name: "Aman", age: 23 }
};
```

6. Array of Objects

```
let students = [
  { name: "Navneet", age: 19 },
  { name: "Aman", age: 23 }
];
```

- **Functions in JavaScript**

1. Function Initialization

```
function greet() {
```

```
  console.log("Hello!");
}
greet();
```

2. Function with Parameters

```
function add(a, b) {
  return a + b;
}
let result = add(10, 5);  // Output: 15
```

- **Inbuilt Math Functions**

1. Math.random() – Returns a random number between 0 and 1

```
console.log(Math.random());
```

2. Math.floor() – Rounds down to the nearest integer

```
console.log(Math.floor(4.9));  // Output: 4
```

3. Math.ceil() – Rounds up to the nearest integer

```
console.log(Math.ceil(4.1));   // Output: 5
```

4. Math.PI – Returns the value of π

```
console.log(Math.PI);  // Output: 3.141592653589793
```

5. Math.E – Returns Euler's number

```
console.log(Math.E);   // Output: 2.718281828459045
```

TOOLS USED

Visual Studio Code (VS Code)

Chrome Browser (Console)

TASK

1) Generate a random number between 1 to 10

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

2) 4-digit OTP generation code using inbuilt functions

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