JavaScript Loops

1. Basic For Loop

A `for` loop allows you to repeat a block of code a certain number of times.

```javascript
// Example: Basic for loop that counts from 0 to 4
for (let i = 0; i < 5; i++) {
    console.log("Iteration number:", i);
}
```

2. For Loop with an Array

A `for` loop can also be used to iterate through each item in an array.

```javascript
// Example: Iterating over an array of fruits
let fruits = ["Apple", "Banana", "Cherry"];
for (let i = 0; i < fruits.length; i++) {
    console.log("Fruit:", fruits[i]);
}
```

3. For...of Loop

The `for...of` loop is designed for looping over the values of an iterable, like an array.

```javascript
// Example: Using for...of to loop over each fruit in the array
for (let fruit of fruits) {
    console.log("Fruit with for...of:", fruit);
}
```

4. For...in Loop

The `for...in` loop is used to iterate over the properties of an object.

```javascript
// Example: Using for...in to loop over properties of an object
let person = { name: "John", age: 30, city: "New York" };
for (let property in person) {
    console.log(property + ": " + person[property]);
}
```

5. Nested For Loop

A `for` loop inside another `for` loop is called a nested loop, useful for multi-dimensional arrays.

```javascript
// Example: Nested for loop to print a 2D array
let matrix = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
];
for (let i = 0; i < matrix.length; i++) {
    for (let j = 0; j < matrix[i].length; j++) {
        console.log("Element at [" + i + "][" + j + "] is:", matrix[i][j]);
    }
}
```

6. While Loop

The `while` loop continues executing as long as the specified condition is `true`.

```javascript
// Example: While loop that counts from 0 to 4
let count = 0;
while (count < 5) {
    console.log("While loop count:", count);
    count++;
}
/*
Explanation:
- The loop runs while `count` is less than 5.
- `count++` increments `count` by 1 each time the loop executes.
*/
```

7. Do...While Loop

The `do...while` loop is similar to the `while` loop, but it always executes the block at least once.

```javascript
// Example: Do...while loop that counts from 0 to 4
let countDo = 0;
do {
    console.log("Do...while loop count:", countDo);
    countDo++;
} while (countDo < 5);
/* Explanation:
- The loop runs at least once, even if the condition is false initially.
- `countDo` is incremented by 1 after each loop. */
```