**while and do...while Loops in JavaScript**

Loops are used to execute a block of code multiple times.

**1️. while Loop**

The while loop **executes as long as the condition is true**.

**Syntax:**

while (condition) {

// Code to execute

}

**Example: Print numbers from 1 to 5**

let i = 1;

while (i <= 5) {//3<=5 – 4<=5- 5<=5 6<=5

console.log(i); //1/2/3/4/5

i++; // Increment i to avoid infinite loop – I = i+1 -2/3/4/5/6

}

**Output:**

1

2

3

4

5

🔹 **How it works?**

* It **checks the condition first** (i <= 5).
* If true, it **executes the block**.
* It repeats until i becomes greater than 5.

**2 do...while Loop**

The do...while loop **executes the code at least once, even if the condition is false**.

**Syntax:**

do {

// Code to execute

} while (condition);

**Example: Print numbers from 1 to 5**

let i = 1;

do {

console.log(i);

i++; // Increment i

} while (i <= 5);

**Output:**

1

2

3

4

5

🔹 **How it works?**

* The **code inside do runs first**, **before checking the condition**.
* If the condition is true, it continues looping.
* If false, it **stops**.

**3️ Difference Between while and do...while**

| **Feature** | **while Loop** | **do...while Loop** |
| --- | --- | --- |
| Condition Check | Before execution | After execution |
| Executes At Least Once | ❌ No (if condition is false) | ✅ Yes (always runs once) |
| Use Case | When unsure if the code should run | When the code must run at least once |

**Example Showing the Difference**

let x = 10;

while (x < 5) {

console.log("Inside while loop");

}

do {

console.log("Inside do...while loop");

} while (x < 5);

**Output:**

Inside do...while loop

🔹 **Explanation:**

* The while loop **does not run** because x < 5 is false.
* The do...while loop **runs once** before checking the condition.

**When to Use Which?**

✅ **Use while when** you **only** want to execute the loop if the condition is true from the start.  
✅ **Use do...while when** you need to **execute at least once**, even if the condition is false.