**Question 1: Explain the different types of loops in JavaScript (for, while, do-while).**

**Provide a basic example of each.**

Loops in JavaScript allow you to execute a block of code repeatedly. The main types are:

**1. for Loop**

Best for known iterations (when you know how many times to loop).

Consists of initialization, condition, and increment.

Example:

for (let i = 0; i < 5; i++) {

console.log(i); // Prints 0, 1, 2, 3, 4

}

**2. while Loop**

Runs while a condition is true.

Best when the number of iterations is unknown.

Example:

let count = 0;

while (count < 3) {

console.log(count); // Prints 0, 1, 2

count++;

}

**3. do-while Loop**

Similar to while, but guarantees at least one execution (checks condition after the first run).

Example:

let x = 5;

do {

console.log(x); // Prints 5 (even though condition is false)

x++;

} while (x < 3);

**Question 2: What is the difference between a whileloop and a do-whileloop?**

| **Feature** | while **Loop** | do-while **Loop** |
| --- | --- | --- |
| Condition Check | **Before execution** | **After execution** |
| Minimum Runs | **0 (if condition is false initially)** | **1 (always runs at least once)** |
| Use Case | **When loop may not run at all** | **When loop must run at least once** |