Q1. Explain the different types of loops in JavaScript (for, while, do-while). Provide abasic example of each.

Ans: Loops in JavaScript are used to repeat a block of code multiple times until a specific condition is met. JavaScript mainly provides three types of loops: for, while, and do-while.

1. for Loop

The for loop is used when the number of iterations is known in advance.

Syntax:

```
for (initialization; condition; increment/decrement) {
  // code to be executed
}
```

Example:

```
for (let i = 1; i <= 5; i++) {
  console.log(i);
}
```

Output: 1 2 3 4 5

2. while Loop

The while loop executes as long as the condition is true. The condition is checked before each iteration.

Syntax:

```
while (condition) {
  // code to be executed
}
```

Example:

```
let i = 1;
while (i <= 5) {
  console.log(i);
  i++;
}
```

3. do-while Loop

The do-while loop executes the code at least once, even if the condition is false, because the condition is checked after the loop body.

Syntax:

```
do {
  // code to be executed
} while (condition);
```

Example:

```
let i = 6;
do {
  console.log(i);
  i++;
} while (i <= 5);
```

Q2. What is the difference between a while loop and a do-while loop?

Ans: Both while and do-while loops are used to repeat a block of code, but they differ in when the condition is checked.

while Loop

- The condition is checked before executing the loop body.
- The loop may not run at all if the condition is false initially.

Syntax:

```
while (condition) {
  // code to execute
}
```

Example:

```
let i = 6;
while (i <= 5) {
  console.log(i);
```

```
  i++;
}
```

Output: No output (condition is false at the start)

do-while Loop

- The loop body is executed at least once.
- The condition is checked after executing the loop body.

Syntax:

```
do {
  // code to execute
} while (condition);
```

Example:

```
let i = 6;

do {
  console.log(i);
  i++;
} while (i <= 5);
```

Output: 6