

What is the purpose of loops in JS

Loops

Loops repeat executing a block of code a number of times until a condition ~~not~~ remains true.

They are essential for task involving iteration over data structures

Handling repetitive operations

Performing action multiple time

For Loop

What is syntax of for loop?

When the number of iteration is already known, then for loop is used

It consists of three parts

Initialization

Executed once before loop begins. Usually for declaring counter variable

Condition

Evaluate before each iteration of loop. If true; loop body executed again. If false; loop terminated.

Expression

After each iteration typically incrementing or decrementing counter variable.

Example:

```
for (int i; i < 5; i++) {
```

```
    console.log("Iteration: ", i);
```

Diff b/w while & do-while loop

While Loop

when iteration is not known.
This loop executes a block of code repeatedly as long as specified condition remains true. The condition is evaluated before each iteration.

```
let i = 0;  
while( i < 3){  
    console.log ("Iteration is: " + i);  
    i++  
}
```

do-while loop

Similar to while loop, but code block is executed at least once and then condition is checked after each iteration.

```
for(let i = 0; i < 10; i++) {
```

```
    if(i == 5) {
```

```
        break;
```

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

```
let n = 0
```

```
do {
```

```
    console.log("value of n", n);
```

```
n++;
```

```
} while (n < 2);
```

What happen if forget to update
loop variable

→ The loop become for infinite.

Break Statement

The break statement immediately

terminates innermost loop in which

it encountered. Execution jumps

to the immediate following statement

the terminated loop.

continue Statement

continue statement skips the current iteration of loop and proceed to next iteration. The remaining statement within current iteration are not executed.

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

```
    if ( i === 2) {
```

```
        continue;
```

```
}
```

```
    console.log(i);
```

```
}
```

```
110, 1, 3, 4
```

Nested Loop

A nested loop in JS refers to placing one loop inside other. This structure is used to iterate multi-dimensional data structures like arrays.

→ When an outer loop contains an inner loop, the inner loop executes completely for each iteration of outer loop.

```
for(let i=0; i<3; i++) {
```

```
    console.log(i);
```

```
    for(let j=0; j<2; j++) {
```

```
        console.log(j);
```

```
}
```

```
}
```

In which case you will use
while loop instead of for loop.

→ When number iteration are
not known

Infinite Loop

An infinite loop continue to
execute indefinitely because
its termination condition never
met.

let count = 0;

while (count < 10) {

 console.log(count);

}