About Loops

Module1 – JS - Handout 5

Loops offer a quick and easy way to do something repeatedly.

For loop

Syntax

for (initialExpression; condition; updateExpression) {

   // for loop body

}

- The initialExpression initializes and/or declares variables and executes only once.
- The condition is evaluated.
- If the condition is false, the for loop is terminated.
- If the condition is true, the block of code inside of the for loop is executed.
- The updateExpression updates the value of initialExpression when the condition is true.
- The condition is evaluated again. This process continues until the condition is false.

Example

Example 1 -

// program to display text 5 times

const n = 5;

// looping from i = 1 to 5

for (let i = 1; i <= n; i++) {

    console.log(`I love my country.`);

}

Output –

I love my country.

I love my country.

I love my country.

I love my country.

I love my country.

Example 2 –

// program to display the sum of natural numbers

```
let sum = 0;

const n = 100


// looping from i = 1 to n

// in each iteration, i is increased by 1

for (let i = 1; i <= n; i++) {

    sum += i;  // sum = sum + i

}


console.log('sum:', sum);
```

Output : sum: 5050

Example 3

Infinite loop –

```
for(let i = 1; i > 0; i++) {

    // block of code

}
```

While loop

- A while loop evaluates the condition inside the parenthesis ().
- If the condition evaluates to true, the code inside the while loop is executed.
- The condition is evaluated again.
- This process continues until the condition is false.
- When the condition evaluates to false, the loop stops.

Syntax

```
while (condition) {

    // body of loop

}
```

Examples

Example 1

```
// program to display numbers from 1 to 5

// initialize the variable

let i = 1, n = 5;


// while loop from i = 1 to 5

while (i <= n) {

    console.log(i);

    i += 1;

}
// infinite while loop

while(true){

    // body of loop

}
```

Do ..while

- The body of the loop is executed at first. Then the condition is evaluated.
- If the condition evaluates to true, the body of the loop inside the do statement is executed again.
- The condition is evaluated once again.
- If the condition evaluates to true, the body of the loop inside the do statement is executed again.
- This process continues until the condition evaluates to false. Then the loop stops.

Syntax

```
do {

    // body of loop

} while(condition)
```

Examples

```
    // program to display numbers
let i = 1;
const n = 5;

// do...while loop from 1 to 5
do {
    console.log(i);
    i++;
} while(i <= n);
```

Output –

1

2

3

4

5

```
// infinite do...while loop

const count = 1;

do {

  // body of loop

} while(count == 1)
```