

## Chapter 5 - Loop Control Instruction

Sometimes we want our programs to execute a few set of instructions over and over again. For example - print 1 to 1000, print multiplication table of 7, etc.

Loops make it easy for us to tell the computer that a given set of instructions need to be executed repeatedly.

### Types of Loops

Primarily, there are three types of loops in Java:

1. While loop
2. do-while loop
3. for loop

We will look into these one by one.

### While loops

```
while (boolean condition)
```

```
{
```

```
    // Statement
```

```
}
```

→ This keeps executing as long as the condition is true.

If the condition never becomes false, the while loop keeps getting executed. Such a loop is known as an infinite loop.



Quick Quiz : Write a program to print natural numbers from 100 to 200.

do-while loop

This loop is similar to a while loop except the fact that it is guaranteed to execute at least once.

do {

// Code

} while (condition); → Note this semicolon

while → checks the condition & executes the code

do-while → Executes the code & then checks the condition

Quick Quiz : Write a program to print first  $n$  natural numbers using do-while loop.

for loop

The syntax of a for loop looks like this :

for (initialize; check loop expression; update) {

// Code ;

}

A for loop is usually used to execute a piece of code for specific number of times.

Quick Quiz : Write a program to print first  $n$  odd numbers using a for loop.



## Decrementing for loop

```
for(i = 7; i != 0; i--) {  
    System.out.println(i);  
}
```

This for loop keeps running until  $i$  becomes 0.

Quick Quiz: Write a program to print first  $n$  natural numbers in reverse order.

## break statement

The break statement is used to exit the loop irrespective of whether the condition is true or false.

Whenever a "break" is encountered inside the loop, the control is sent outside the loop.

## Continue statement

The continue statement is used to immediately move to the next iteration of the loop.

The control is taken to the next iteration thus skipping everything below "Continue" inside the loop for that iteration.

In a Nut Shell...

- 1> break statement completely exits the loop
- 2> continue statement skips the particular iteration of the loop.