



JAVA

Class 7

Agenda

Increment & Decrement Operators

Loops in JAVA:

- for loop

- while loop

- Do while loop

Assignment Compound/Shorthand Operators

- A shorthand operator is a shorter way to express something that is already available in the Java programming language
- Shorthand operations do not add any feature to the Java programming language

Operator	Name	Example	Equivalent
<code>+=</code>	Addition assignment	<code>i+=5;</code>	<code>i=i+5</code>
<code>-=</code>	Subtraction assignment	<code>j-=10;</code>	<code>j=j-10;</code>
<code>*=</code>	Multiplication assignment	<code>k*=2;</code>	<code>k=k*2;</code>
<code>/=</code>	Division assignment	<code>x/=10;</code>	<code>x=x/10;</code>
<code>%=</code>	Remainder assignment	<code>a%=4;</code>	<code>a=a%4;</code>

Increment and Decrement Shorthand Operators

- Increment (++) and decrement (--) operators in Java programming let you easily add 1 to, or subtract 1 from, a variable.
- Increment and decrement operators are widely used in controlling loops.
- Increment and Decrement Operators can not be applied to boolean : We can apply ++ and -- operators for all primitive data types except Boolean.

Operator	Example	Called	Explanation
++	++a	preincrement	Increment a by 1, then use the new value of a in the expression in which a resides.
++	a++	postincrement	Use the current value of a in the expression in which a resides, then increment a by 1.
--	--b	predecrement	Decrement b by 1, then use the new value of b in the expression in which b resides.
--	b--	postdecrement	Use the current value of b in the expression in which b resides, then decrement b by 1.

Why use loop ?

Scenario:

you have a script written , if you run you program without the loop it will only run once. What if you want to run that script 20 times ? Would to like to wait for the program to finish so you can click the run button again **IMAGINE** you have to repeat this step for 20 times. **IT WILL BE A WASTE OF TIME**

What is loop? Importance of loop

- Loop is a general concept in any programming language which allow to run certain piece/block of code multiple times
- We use loops for repetitive execution
- We use loops to avoid code redundancy
- Time consuming process to execute the program is reduced.

Type of loops

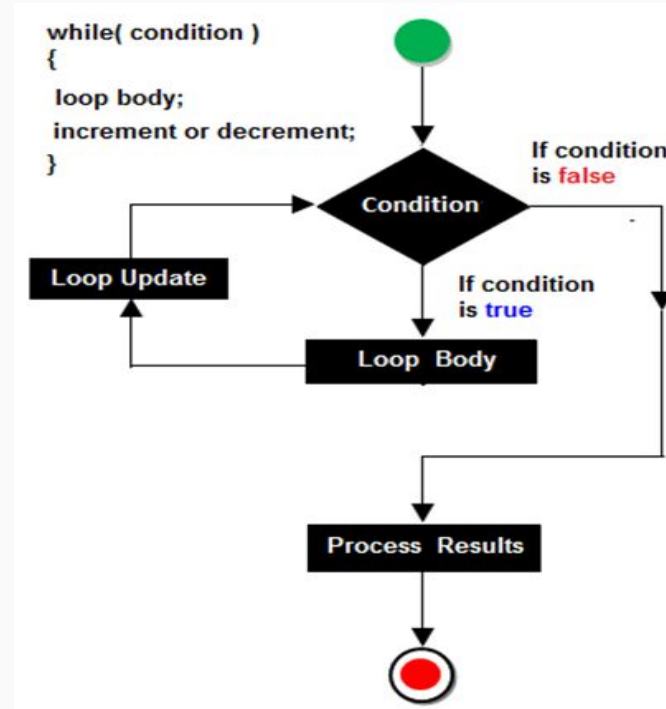
A loop statement allows us to execute a statement or group of statements multiple times

Types of loops:

1. While loop
2. Do while loop
3. For loop
4. Enhanced loop

While loop

while loop first checks the condition if condition is true then control goes inside the loop body otherwise goes outside of the body.



While loop

```
while (condition) {  
    statement(s);  
}
```

The while statement evaluates expression, which must return a boolean value. If the expression evaluates to true, the while statement executes the statement(s) in the while block. The while statement continues testing the expression and executing its block until the expression evaluates to false.

Example:

```
int i=0;  
while(i<5) {  
    System.out.println(i);  
    i++;  
}
```

While loop

Note: The important point to note when using while loop is that we need to use increment or decrement statement inside while loop so that the loop variable gets changed on each iteration, and at some point condition returns false.

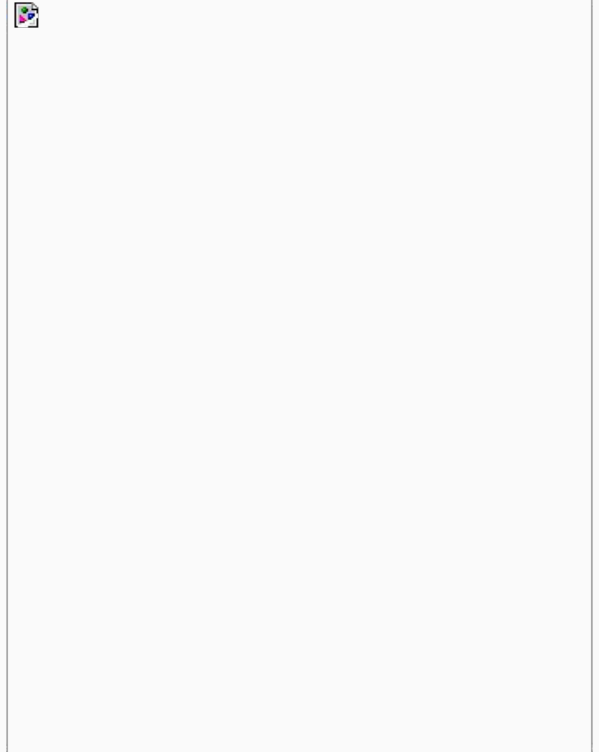
This way we can end the execution of while loop otherwise the loop would execute indefinitely.

do while loop

```
do {  
    statement(s);  
}while (condition);
```

do while loop is similar to while loop with only difference that it checks for condition after executing the statements

```
int i=0;  
do {  
    System.out.println(i);  
    i++;  
}while(i<5);
```



do while loop

- do while loop is similar to while loop with only difference that it checks for condition after executing the statements.
- A do while loop is a control flow statement that executes a block of **code at least once**, and then repeatedly executes the block, or not, depending on a given condition at the end of the block (in while)

When use do.. while loop

- when we need to repeat the statement block **at least one time** then use do-while loop.
- In do-while loop post-checking process will be occur, that is after execution of the statement block condition part will be executed.