**Introduction**

1. Java Introduction
2. Syntax
3. Variables
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6. Loops
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**Java Loops**

**Need for loops in java:** While programming, sometimes, there occurs a situation when we need to execute a block of code several numbers of times. In general, these statements execute in a sequential manner: The first statement in a function executes first, followed by the second, and so on

But this makes the process very complicated as well as lengthy and therefore time-consuming. Therefore, programming languages provide various control structures that allow for such complex execution statements.

In computer programming language loop are used to repeat a block of code. For example if want to show a message 100 times, they can use loops.

In java, there are three kinds of loops which are – for loop, while loop & do while loop. All these three loops construct of java executes set of repeated statements as long as specified condition remains true.

* Initialization Expression (s)
* Test Expression
* Update Expression
* Body of the loop

**For Loop:**

Java for loop is used to run a block of code for a certain number of times,

For (initial Expression; condition; decrement/increment)

{

// body of the loop

}

* The **initialization expression** initializes and / or declares variables and execute only once
* The **condition** is evaluated. If the condition is true, the body of the for loop is executed
* The **update expression** is update the value of initial expression
* The **condition** is evaluated again. The process continues until the condition is false

**Infinity Loop:**

An infinity loop can be created by skipping the test expression, we can also skip all three expression to create an infinity loop.

**Nested For Loop:**

If we have for loop inside the another loop it is known as nested for loop. The inner loop executes completely whenever outer loop also executes.

**For Each Loop:**

The for each loop is used to traverse array or collection in java. It is use than simple for loop because we don’t need to increment or decrement and use subscript notation (:)

**Syntax:**

For(datatype variable:array){

// code to be executed

}

**While Loop:**

Java while loop is used to run specific code until a certain condition is met.

Java while loop is used to iterate a part of the program several times. If number of iteration is not fixed, it is recommended to use the while loop

**Syntax:**

While(testexpressio){

//body of the loop

}

**Do While Loop:**

The do while loop is similar to while loop. However, the body of do while loop is executed once before the test expression is checked.

**Syntax:**

Do {

// body of the loop

}

While(Expression);

**Break:**

The break statement in java terminates the loop immediately, and the control of the program moves to the next statement following of the loop.

**Syntax:**

**Java**

There are 9 types of operators in java

1. Arithmetic Operators (+, -, \*, /, %)

2. Assignment Operators ( = )

3. Unary Operators (-, ++, --)

4. Relational Operators (>, <, <=, >= ==, !==)

5. Logical Operators (&, |, &&, ||, ^, !)

6. Bitwise Operators

7. Conditional Operators / ternary (?:)

8. New Operators (new)

9. Dot Operator (.)

Conditional Operators / ternary ( ?: ) : In java conditional operators check the condition and decides the desired result on the basis of the both conditions.

Ternary Operator: In java ternary operator lets you write an if statement on one line of code. A ternary operator can either evaluate to true or false. It returns a specified value depending on whether the statement evaluates to true or false.

Syntax: variable = condition ? expression1 : expression 2

Example:

Class TernaryOperator{

Public static void main(String args[]){

Var x = 5;

Var y = 7;

System.out.println(x>y ? “x is greater than y” : “y is greater than x” );

}

}

**Transfer Statements**

1. Break (loops, switch)
2. Continue (loops)

Break: In break statement in java terminates the loop immediately and the control of the program moves to the next statement following the loop.

**How to works Break Statements:**

While (testexpression) {

// codes

If(condition to break){

Break;

}

// codes

}

do (testexpression) {

// codes

If(condition to break){

Break;

}

While (textexpression);

}

for (init, testexpression, update) {

// codes

If(condition to break){

Break;

}

}

**Keywords:**

Java keywords are also known as reserved words. Keywords are particular words that act as a key to a code. This are predefined words by java so they cannot be used as a variable or object name or class name.

1 . **Abstract:** java abstract keyword is used to declare an abstract class. An abstract class can provide the implementation of the interface. It can have abstract and non-abstract methods.

2. **Boolean:**  Java Boolean keyword is used to declare variable as Boolean type. It can hold true or false values only

3. **Break:** Java break keyword is used to break the loop or switch statement. It breaks the current flow of the program at specified condition

4. **Import:** Java import keyword makes classes and interface available and accessible to the current source code

5. **Interface:** Java interface keyword is used to declare an interface. It can have only abstract methods.

**Java OPPs (Object Oriented Programming System):**

1. **Object:** Any entity that has state and behavior is known as an object. An object can be defined as an instance of class an object contains an address and takes up some space in memory.

**Example:** car is an object because it has states like color, name, brand etc., as well as behaviors like different direction to moving, stop the car

class sample-obj() {

int x = 6;

public static void main(String args[]){

sample-obj myObj = new sample-obj();

S.o.p(myObj.x);

}

}

**Break:** In java break statement is used to break inside a loop or switch statement. It breaks the current flow of program at specified condition. In case of inner loop, it breaks only inner loop.

We can use java break statement in all types of loops such as for loop, while loop and do while loop.