



Introductory Java and FTC Programming Workshop

Week 3 - Operations and Methods (Nov. 14)

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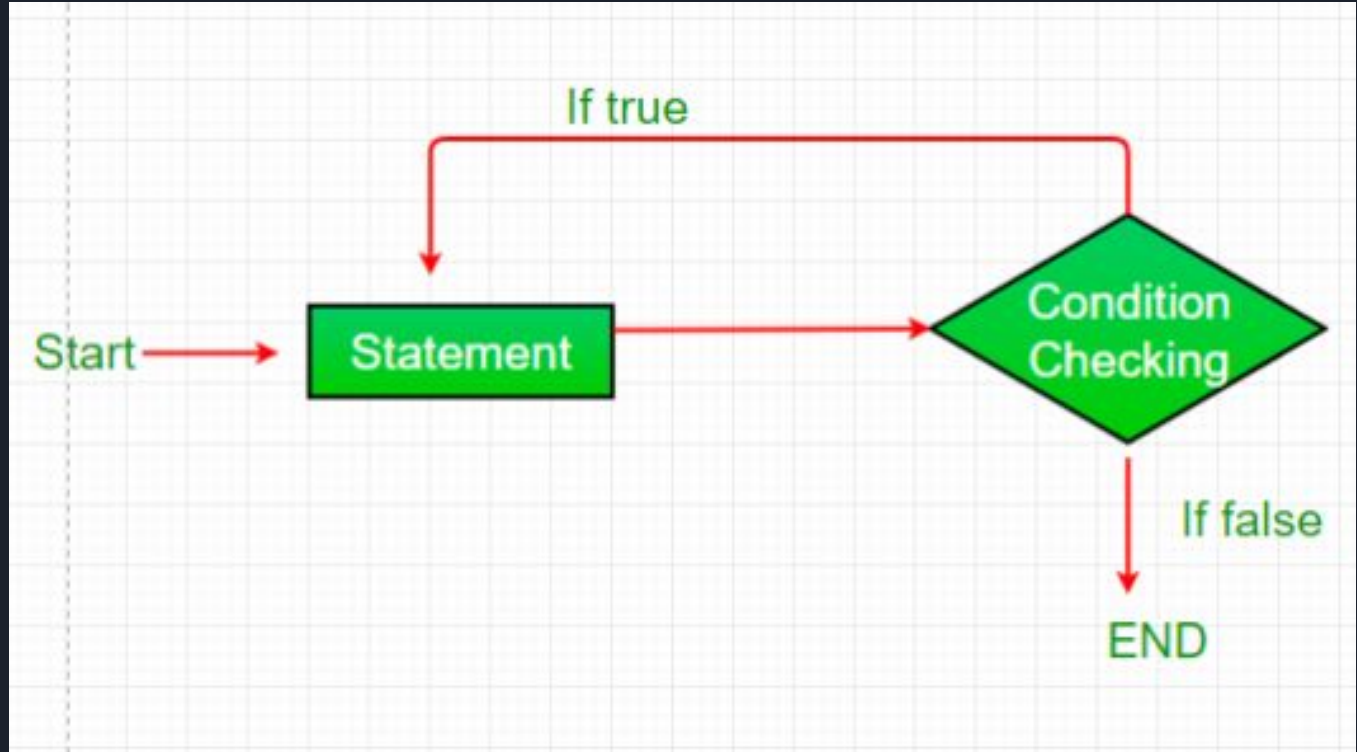
Which loop is this?

Definite loops

- For loops

Indefinite loops

- While Loops
- Do While loops



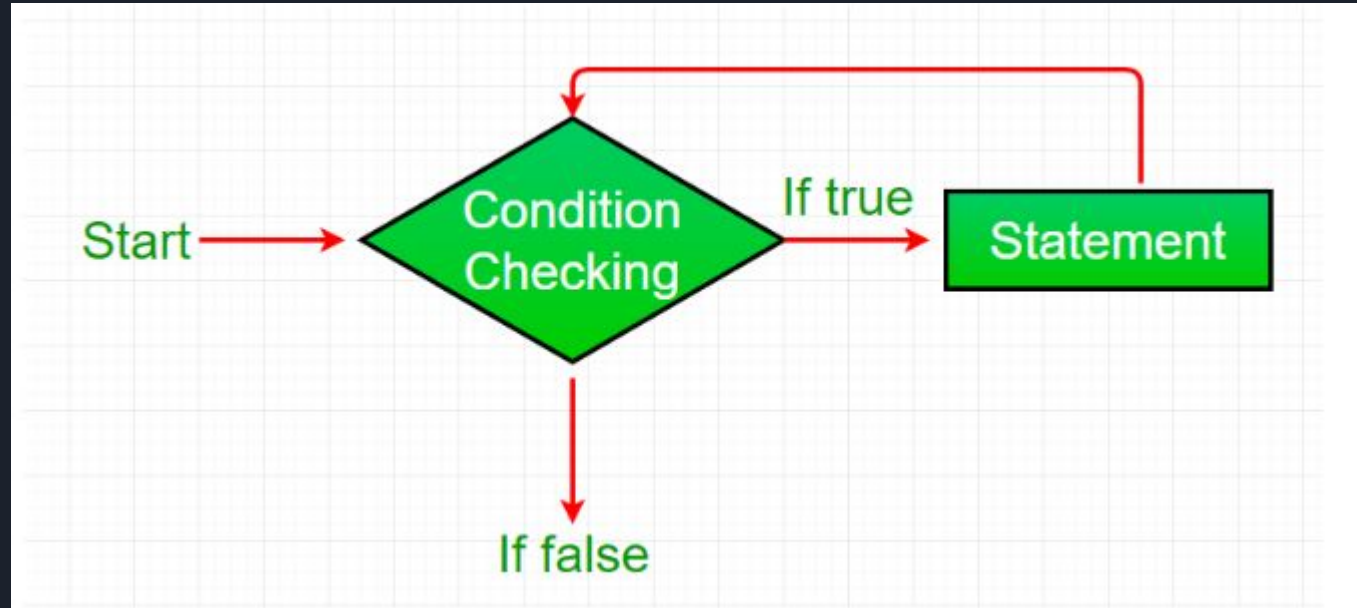
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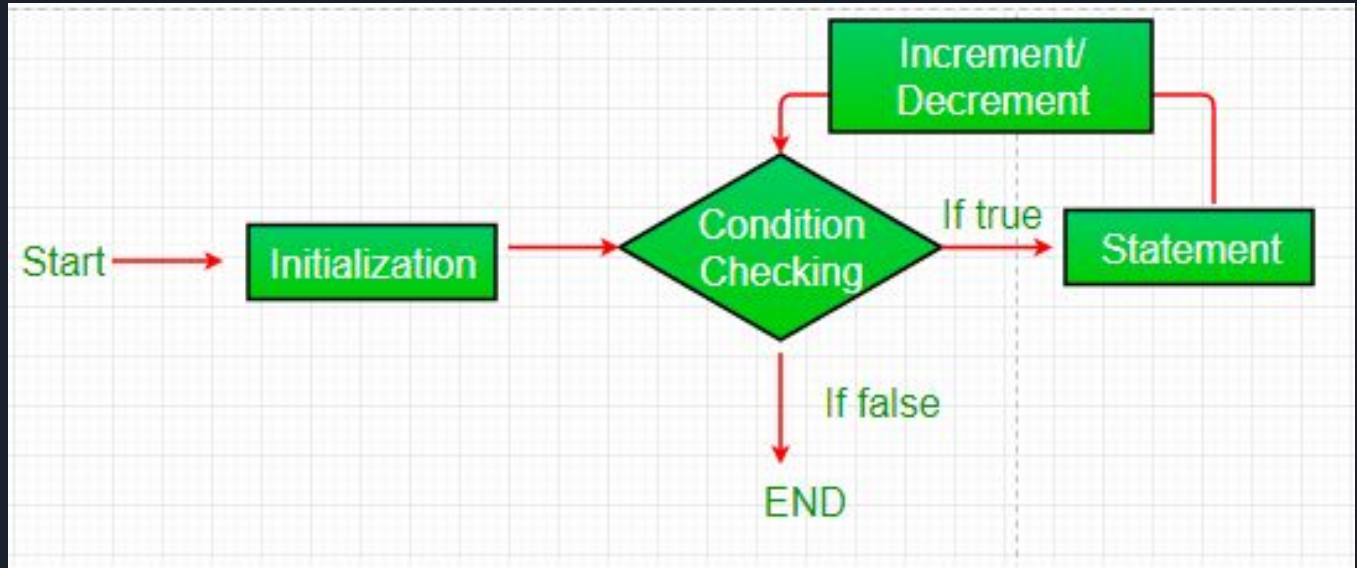
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Arithmetic Operations

Operator	Name	Description	Example
+	Addition	Adds together two values	$x + y$
-	Subtraction	Subtracts one value from another	$x - y$
*	Multiplication	Multiplies two values	$x * y$
/	Division	Divides one value by another	x / y
%	Modulus	Returns the division remainder	$x \% y$
++	Increment	Increases the value of a variable by 1	$++x$
--	Decrement	Decreases the value of a variable by 1	$--x$



Assignment Operator

```
int x = 10;
```

```
x += 5;
```



Assignment Operator (Cont.)

Operator	Example	Same As
=	<code>x = 5</code>	<code>x = 5</code>
<code>+=</code>	<code>x += 3</code>	<code>x = x + 3</code>
<code>-=</code>	<code>x -= 3</code>	<code>x = x - 3</code>
<code>*=</code>	<code>x *= 3</code>	<code>x = x * 3</code>
<code>/=</code>	<code>x /= 3</code>	<code>x = x / 3</code>
<code>%=</code>	<code>x %= 3</code>	<code>x = x % 3</code>



Comparison Operator

```
int x = 5;  
int y = 3;  
System.out.println(x > y); // returns true, because 5 is higher than 3
```




Comparison Operator (Cont.)

Operator	Name	Example
==	Equal to	<code>x == y</code>
!=	Not equal	<code>x != y</code>
>	Greater than	<code>x > y</code>
<	Less than	<code>x < y</code>
>=	Greater than or equal to	<code>x >= y</code>
<=	Less than or equal to	<code>x <= y</code>



Logical Operators

Operator	Name	Description	Example
&&	Logical and	Returns true if both statements are true	<code>x < 5 && x < 10</code>
	Logical or	Returns true if one of the statements is true	<code>x < 5 x < 4</code>
!	Logical not	Reverse the result, returns false if the result is true	<code>!(x < 5 && x < 10)</code>

Logical Operators (Cont.)

Logical AND table:

Logical AND			
False	&&	False	False
False	&&	True	False
True	&&	False	False
True	&&	True	True

Logical OR table:

Logical OR			
False		False	False
False		True	True
True		False	True
True		True	True

Methods!

Access modifier → **Return type** → **Method name** → **Parameters**

```
public static int Add(int x, int y) {  
    int sum = x+y;  
    return sum;  
}
```

← **Method body**

↑
Return value

