Logical Operators

Logical Operators

Logical Operators have two boolean operands that yield a boolean result

OPERATOR	DESCRIPTION
&&	Logical AND
||	Logical OR
!	Logical NOT

Truth table for &&(logical AND)

Expression1	Expression2	Returned Value
False	False	False
False	True	False
True	False	False
True	True	True

Truth table for ||(logical OR)

Expression1	Expression2	Returned Value
False	False	False
False	True	True
True	False	True
True	True	True

Logical NOT Operator(!)

Expression	Returned Value
False	True
True	False

Logical Operator Precedence

The operators at the top of the table have higher precedence than the ones below them

Precedence of logical operators(highest to lowest)	
Highest Precedence	!
	&&
Lowest Precedence	||

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Precedence of all Operators

Order of Precedence	Operators	Description
1	-(unary negation) !	Unary negation, logical NOT
2	* / %	Multiplication, division, modulus
3	+ -	Addition, subtraction
4	< > <= >=	Less than, Greater than, Less than or Equal to, Greater than or equal to
5	== !=	Equal to, not equal to
6	&&	Logical AND
7	||	Logical OR
8	= += -= *= /= %=	Assignment and combined assignments

Task

```
int ApplesCount = 20;
int OrangesCount = 30;
int PearsCount = 30;

boolean comp = ApplesCount < OrangesCount || OrangesCount >= PearsCount;

System.out.println(comp);
```

```
String OutsideWeather;
int Degree;
OutsideWeather = "Shinny";
Degree = 70;
boolean comp2 = (!(OutsideWeather=="Rainy"||Degree==70));

System.out.println(comp2);
```

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Task

```java
int b = 2;
boolean res = ++b == 2 || --b == 2 && --b == 2;

System.out.println(res);
```

```java
boolean x = true, z = true;
int y = 20;
x = (y!=10)||(z=false);

System.out.println(x);
```

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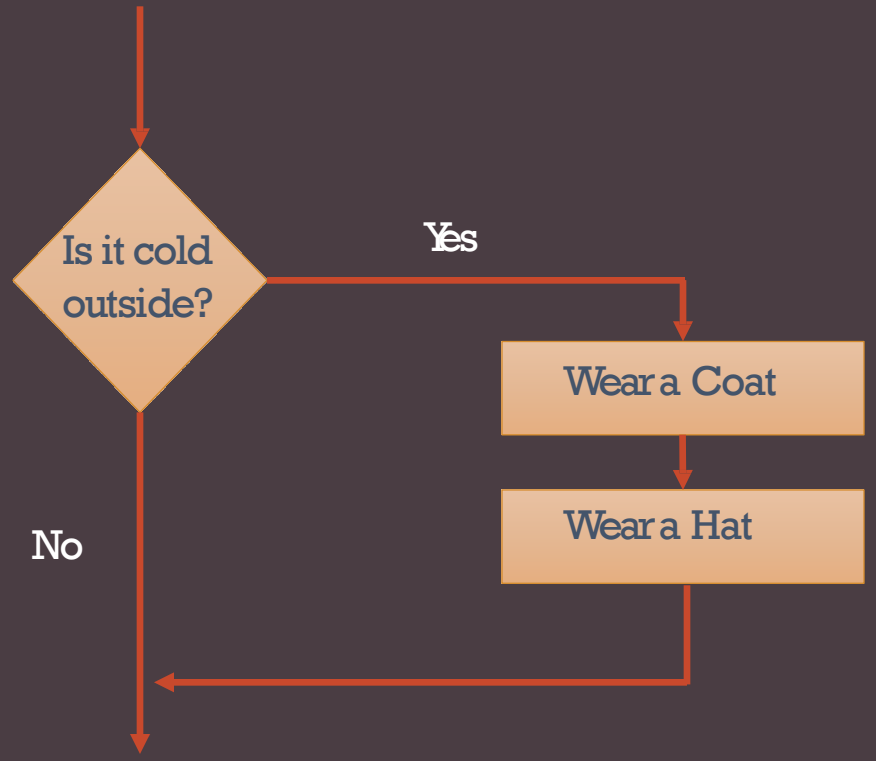
Task

1. Create a double variable with the value 20
2. Create a second variable of type double with the value 80
3. Add both numbers up and multiply by 25
4. Use the remainder operator to figure out the remainder from the sum of #3 divided by 40
5. Print remaining total (#4) is equal to 20 or less : true/false

Single IF Statements

IF Statements

The if statement evaluates a condition. If the condition evaluates to true, any statements in the subsequent code block are executed.



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Syntax

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Task

Write a Java program:

1) Declare a variable and initialize user age.
2) Then the program will show if the user is eligible to vote. A Person who is eligible to vote must be older than or equal to 18 years old.

Input: age :18

Output: You are eligible to vote

Task

Write Java program that will accept three numbers and return the greatest number.

- Input:

number1:4

number2:8

number3:1

- Output:

The greatest number is: 8

Task

1.Write a Java program that will accept two numbers and check if two numbers are equal or not.

2. Write a Java program to implement following logic using if statement

    1. if hour is less than 12 noon, greet with Good Morning

    2.if hour is greater than or equal 12 noon but less than 3 pm, greet with Good Afternoon

    3. if hour is greater than or equal to 3 pm, greet with Good Evening

Task

Write a Java program to implement following logic using if statement

1. if hour is less than 12 noon, greet with Good Morning
2. if hour is greater than or equal 12 noon but less than 3 pm, greet with Good Afternoon
3. if hour is greater than or equal to 3 pm, greet with Good Evening

Task: What will be the output of this code?

```
2
3       int numberOfWaterMelon;
4       boolean lotsOfWaterMelon;
5       lotsOfWaterMelon=false;
6
7       numberOfWaterMelon=40;
8
9       if(numberOfWaterMelon>=20){
10          System.out.println("I have more than 20 watermelon");
11          lotsOfWaterMelon=true;
12      }
13
14      if(lotsOfWaterMelon){
15          System.out.println("Good Job");
16      }
17
18      if(lotsOfWaterMelon==false){
19          System.out.println("I need more watermelon");
20      }
21
```

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