Beginners Book: Java Basics

Lesson 6: Operators In Java

What is an operator?

An operator is a character that represents an action, for example + is an arithmetic operator that represents addition.

Arithmetic Operators:

Arithmetic Operators allow you to perform arithmetic operations on floating-point and integer numbers.

The Five Arithmetic Operators:

1. Addition +
2. Subtraction –
3. Multiplication *
4. Division /
5. Modulo (returns remainder) %

Assignment Operators:

Allow you to assign values to variables.

Example Of The Six Assignment Operators:

num2 = num1 would assign value of variable num1 to the variable.

num2+=num1 is equal to num2 = num2+num1

num2-=num1 is equal to num2 = num2-num1

num2*=num1 is equal to num2 = num2*num1

num2/=num1 is equal to num2 = num2/num1

num2%=num1 is equal to num2 = num2%num1

Auto-increment and Auto-decrement Operators:

Auto-increment and auto-decrement operators are used to increase or decrease the value of an operand by one, the operand must be a variable, an element of an array, or a field of an object.

Examples Of Auto-increment & Auto-decrement Operators:

num++ is equivalent to num=num+1;

num–- is equivalent to num=num-1;

Logical Operators:

Logical Operators are used with binary variables, mainly used in conditional statements and loops for evaluating a condition.

The Three Logical Operators:

1. AND &
2. OR ||
3. NOT !

Comparison (Relational) Operators:

Comparison/Relational operators compare two numbers and return a boolean value.

The Six Comparison (Relational) Operators:

1. Equal To ==
2. Not Equal To !=
3. Greater Than >
4. Less Than <
5. Greater Than or Equal To >=
6. Less Than or Equal To <=

Bitwise Operators:

Bitwise operators performs bit by bit processing.

The Six Bitwise Operators:

1. Bitwise And &
2. Bitwise OR |
3. Bitwise Exclusive OR ^
4. Bitwise Unary NOT ~
5. Shift Left <<
6. Shift Right >>

Ternary Operators:

Ternary operators evaluates a boolean expression and assign the value based on the result.

Ternary Operators Syntax:

```
variable num1 = (expression) ? value if true : value if false
```

If the expression results true then the first value before the colon (:) is assigned to the variable num1 else the second value is assigned to the num1.

Operator Precedence in Java

This determines which operator needs to be evaluated first if an expression has more than one operator. Operator with higher precedence at the top and lower precedence at the bottom.

Unary Operators

++ – – ! ~

Multiplicative

* / %

Additive

+ –

Shift

<< >> >>>

Relational

> >= < <=

Equality

== !=

Bitwise AND

&

Bitwise XOR

^

Bitwise OR

|

Logical AND

&&

Logical OR

||

Ternary

?:

Assignment

= += -= *= /= %= > >= < <= &= ^= |=