

Introduction to Java

Objectives

- In this session, you will learn to:
 - Work with operators
 - Use operator precedence



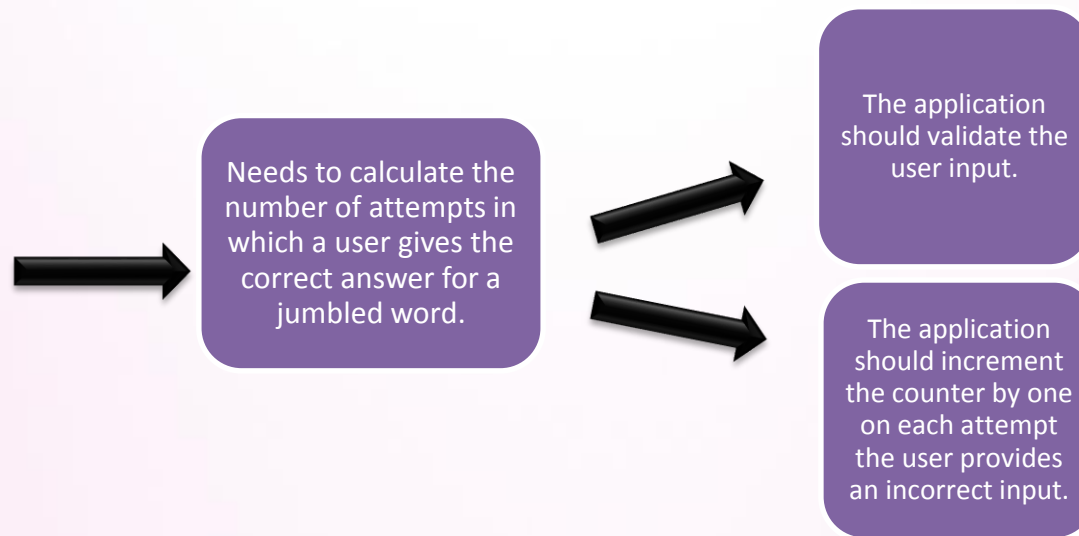
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Working with Operators

■ Scenario:

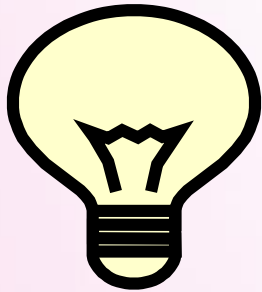


Sam



Working with Operators (Contd.)

■ Scenario (Contd.):



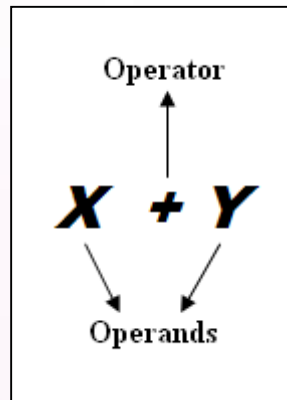
For such calculations and comparisons, Java provides various types of operators.



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Working with Operators (Contd.)

- An operator is a special symbol that is combined with one or more operands.
- The following figure shows the operator and operands.



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Working with Operators (Contd.)

- The following types of operators are supported in Java:
 - Arithmetic operators
 - Assignment operators
 - Comparison operators
 - Logical operators
 - Unary operators
 - Bitwise operators
 - Shift operators
 - Ternary operator



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Using the Arithmetic Operators

- Arithmetic operators are used to perform arithmetic operation on operands.
- Types of arithmetic operators:

Plus (+)	Minus (-)	Multiply (*)	Divide (/)	Modulus (%)
<ul style="list-style-type: none">• Used to add two numbers.	<ul style="list-style-type: none">• Used to subtract two numbers.	<ul style="list-style-type: none">• Used to multiply two numbers.	<ul style="list-style-type: none">• Used to divide one number by another.	<ul style="list-style-type: none">• Used to find the remainder after dividing the two numbers.

Using the Assignment Operators

- The assignment operators can be categorized into:



Simple assignment operator



Complex assignment operator

- Simple assignment operator, =, is used to assign a value to a variable.
- Complex assignment operators are:
 - Also known as arithmetic assignment operators.
 - Shorthand for their equivalent long forms.



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Using the Assignment Operators (Contd.)

■ Types of complex assignment operators:

$+=$

- Used to add two numbers and assign the result to a variable.

$-=$

- Used to subtract two numbers and assign the result to a variable.

$*=$

- Used to multiply two numbers and assign the result to a variable.

$/=$

- Used to divide one number by another and assign the result to a variable.

$\%=$

- Used to find the remainder and assign the result to a variable.

Using the Assignment Operators (Contd.)

- Play the animation, which explains the concept of assignment arithmetic operators.

Use the AssignmentArithmeticOperators animation

Using the Comparison Operators

- Comparison operators are used to:
 - Compare two values.
 - Perform an action on the basis of the result of that comparison.
- Whenever you use a comparison operator, the expression results in the boolean value, `true` or `false`.



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Using the Comparison Operators (Contd.)

■ Types of comparison operators:

Less than
($<$)

Used to check whether the value of the left operand is less than the value of the right operand.

Greater than
($>$)

Used to check whether the value of the left operand is greater than the value of the right operand.

Less than or equal to
(\leq)

Used to check whether the value of the left operand is less than or equal to the value of the right operand.

Greater than or equal to
(\geq)

Used to check whether the value of the left operand is greater than or equal to the value of the right operand.

Equal to
($==$)

Used to check whether the value of the left operand is equal to the value of the right operand.

Not equal to
(\neq)

Used to check whether the value of the left operand is not equal to the value of the right operand.

Using the Comparison Operators (Contd.)

- There is one more comparison operator called the `instanceof` operator, which is used to test whether an object is an instance of a specific class at runtime or not.
- The syntax of the `instanceof` operator is:
`op1 instanceof op2`



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Using the Logical Operators

- Logical operators are used to evaluate operands and return a boolean value.
- Types of logical operators:

Logical
AND(& &)

Used to compare two boolean expressions and returns true if both the boolean expressions are true.

Logical
OR (||)

Used to compare two boolean expressions and returns false if both the boolean expressions are false, else returns true if any one of the boolean expression is true.



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