Operators in Java

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- Operators in Java are symbols that are used to perform operations on variables and values.

Types:-

1. Unary Operator,
2. Arithmetic Operator,
3. Relational Operator,
4. Shift Operator,
5. Bitwise Operator,
6. Logical Operator,
7. Ternary Operator and
8. Assignment Operator

Java Operator Precedence

Operator	Category	Precedence
Unary	postfix	*expr*++ *expr*--
	prefix	++*expr* --*expr*
Arithmetic	multiplicative	* / %
	additive	+ -
Shift	shift	<< >> >>>
Relational	comparison	< > <= >=
	equality	== !=
Bitwise	AND	&
	OR	|
	XOR	^
Logical	AND	&&
	OR	||
Ternary	ternary	? :
Assignment	assignment	= += -= *= /= %= &= ^= |= <<= >>=

1. Java Unary Operator

- The Java unary operators require only one operand.
- Unary operators are used to perform operations like
  - incrementing/decrementing a value by one
  - negating an expression

Operator	Meaning	Work
a++ a--	postfix	Print + operation
++a --a	prefix	Operation + print

2. Java Arithmetic Operators

- Java arithmetic operators are used to perform addition, subtraction, multiplication, and division.
- They act as basic mathematical operations.

Operator	Meaning	Work
+	Addition	To add two operands.
-	Subtraction	To subtract two operands.
*	Multiplication	To multiply two operands.
/	Division	To divide two operands.
%	Modulus	To get the area of the division of two operands.

3. Relational operators

- The **Java Relational operators** compare between operands and determine the relationship between them.
- The output of the relational operator is (true/false) boolean value

Operator	Meaning
==	Is equal to
!=	Is not equal to
>	Greater than
<	Less than
>=	Greater than or equal to

<=	Less than or equal to

4. Shift Operator

- It is used to shift all bits in value to left/right side of specified number in times
- **Left Shift Operator**
  - The Java left shift operator **<<** is used to shift all of the bits in a value to the left side of a specified number of times.
- **Java Right Shift Operator**
  - The Java right shift operator **>>** is used to move the value of the left operand to right by the number of bits specified by the right operand.

5. Logical Operators

- These operators are used to perform logical "AND", "OR" and "NOT" operation.
- They are used to combine two or more conditions.

Operator	Meaning	Working
&&	AND	True --- All conditions need true False --- any one condition will be false
||	OR	True --- any one condition is True False -- all condition false
!	Not	Invert conditions

6. Bitwise Operators

Operator	Meaning	Work
&	AND Operator	True - All condition true False - Any one condition false
|	OR Operator	True - any one condition is true False - all condition false
^	XOR Operator	False - Both condition same / T or F True - Have different values of conditions

7. Assignment Operators

- The **Java Assignment Operators** are used when you want to assign a value to the expression. The assignment operator denoted by the single equal sign =.
- In a Java assignment statement, any expression can be on the right side and the left side must be a variable name.

Operator	Example
=	C = A + B will assign value of A + B into C
+=	C += A is equivalent to C = C + A
-=	C -= A is equivalent to C = C – A
*=	C *= A is equivalent to C = C * A
/=	C /= A is equivalent to C = C / A
%=	C %= A is equivalent to C = C % A
<<=	C <<= 2 is same as C = C << 2
>>=	C >>= 2 is same as C = C >> 2
&=	C &= 2 is same as C = C & 2
^=	C ^= 2 is same as C = C ^ 2
|=	C |= 2 is same as C = C | 2

8. Java Ternary Operator

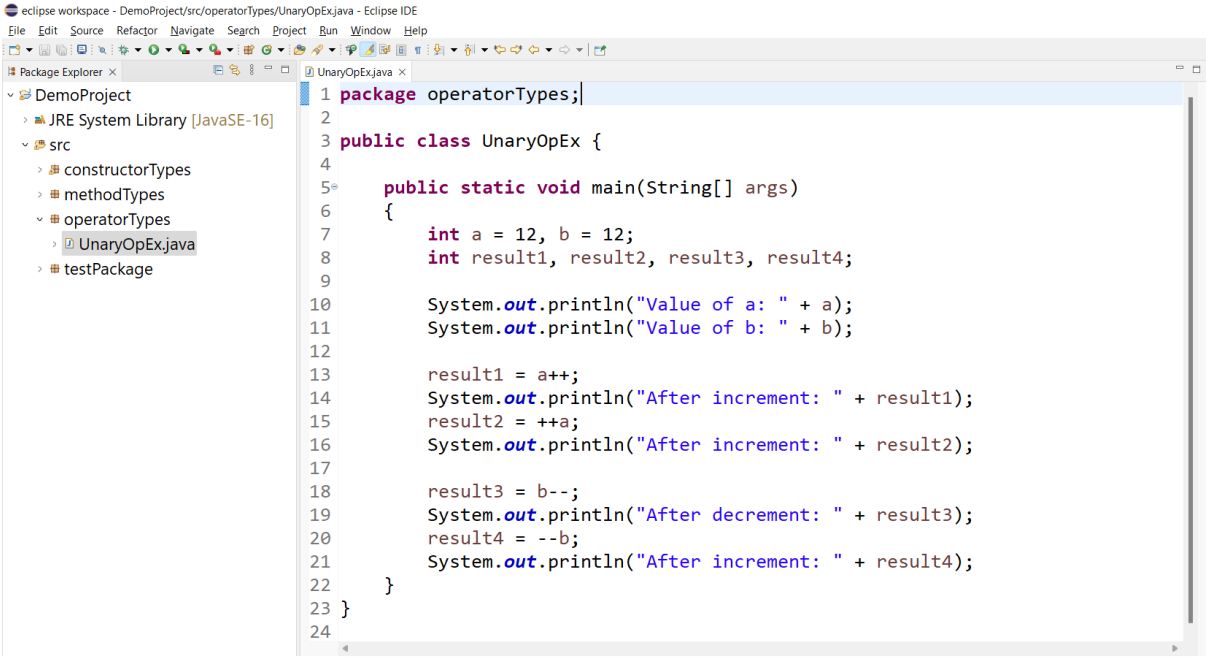
- The ternary operator (conditional operator) is shorthand for the if-then-else statement.

  variable = Expression ? expression1 : expression2

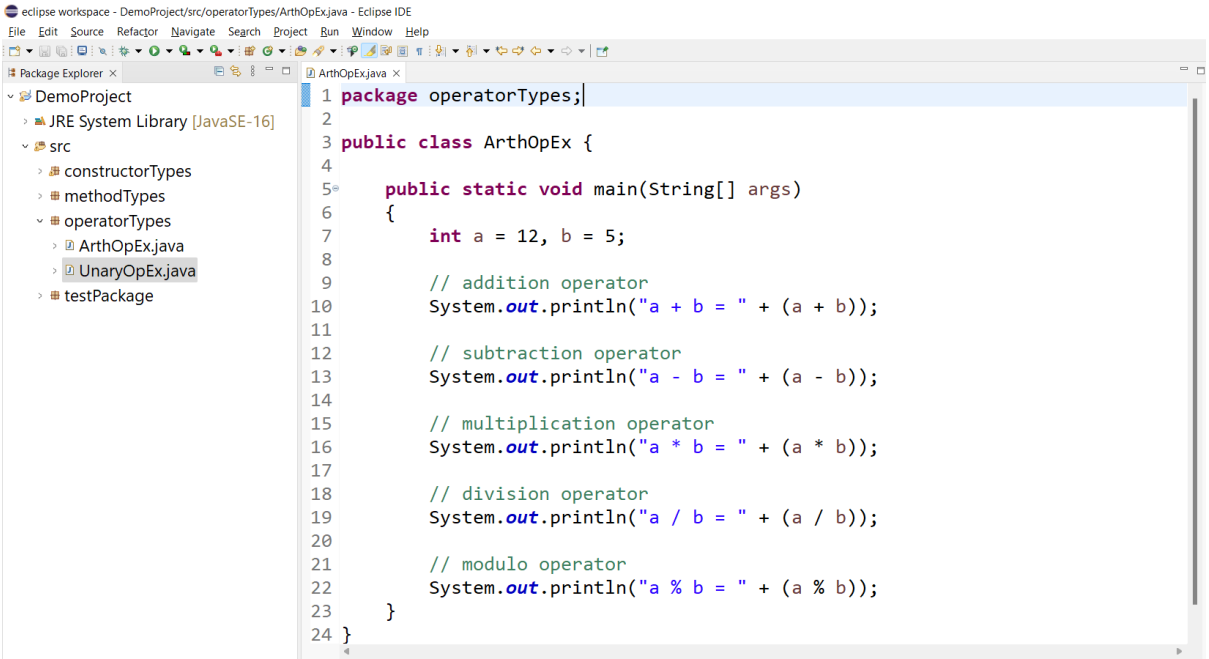
Here's how it works.

- If the Expression is true, expression1 is assigned to the variable.
- If the Expression is false, expression2 is assigned to the variable

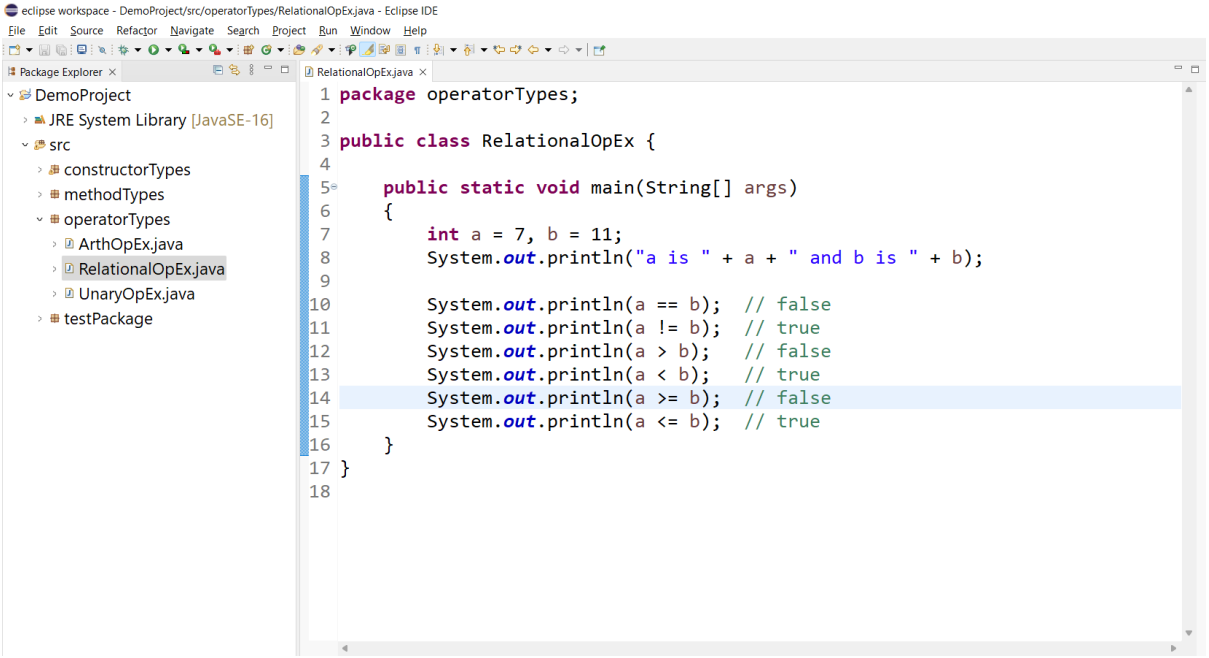
Unary Operator



Arithmetic Operator



Relational Operator



Logical Operator

Bitwise Operator

Shift Operator

Ternary Operator

Assignment Operator