1.5 Basic Operators

Java provides a rich set of operators to manipulate variables. We can divide all the Java operators into the following groups:

1. Arithmetic Operators
2. Relational Operators
3. Bitwise Operators
4. Logical Operators
5. Assignment Operators
6. Miscellaneous Operators

❑Arithmetic Operators:

Arithmetic operators are used in mathematical expressions in the same way that they are used in algebra. The following table lists the arithmetic operators:

Operator	Description
+	Addition
−	Subtraction
*	Multiplication
/	Division
%	Modulus
++	Increment
——	Decrement

❑Relational Operators:

When comparison of two quantities is performed depending on their relation, certain decisions are made. These comparisons can be performed with the help of relational operator. There are following relational operators supported by Java language.

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

❑Bitwise Operators:

Java defines several bitwise operators, which can be applied to the integer types, long, int, short, char, and byte.
Bitwise operator works on bits and performs bit-by-bit operation.

Operator	Description
<<	Binary Left Shift Operator
>>	Binary Right Shift Operator
>>>	Shift right zero fill operator
~	Binary One's Complement Operator
&	Binary AND Operator
^	Binary XOR Operator
|	Binary OR Operator

❑Logical Operators:

Logical operators are the operators which are used to form multiple conditions by combining two or more relations.
The following table lists the logical operators:

Operator	Description
&&	And operator. Performs a logical conjunction on two expressions.(if both expressions evaluate to True, result is True. If either expression evaluates to False, result is False)
||	Or operator. Performs a logical disjunction on two expressions.(if either or both expressions evaluate to True, result is True)
!	Not operator. Performs logical negation on an expression.

❑Assignment Operators:

Assigned operators are used to assign the value of an expression to a variable. Following are the assignment operators supported by Java language:

Operator	Description
=	Assign
+=	Increments then assigns
-=	Decrements then assigns
*=	Multiplies, then assigns
/=	Divides then assigns
%=	Modulus then assigns

<<=	Left shift and assigns
>>=	Right shift and assigns
&=	Bitwise AND assigns
^=	Bitwise exclusive OR and assigns
|=	Bitwise inclusive OR and assigns

❑Miscellaneous Operators:

Java supports some special operators such as:

Operator	Description
Conditional(Ternary) Operator (? :)	Operator is used to decide which value should be assigned to the variable.
instanceOf Operator	Object reference variables