Operator

- Java operators are symbols that are used to perform operations on operands.
- There are following types of operators in Java:
    - Arithmetic Operators
    - Relational Operators
    - Logical Operators
    - Assignment Operators
    - Increment and Decrement Operators
    - Conditional Operators
    - Bitwise Operators
    - Special Operators

Arithmetic Operators

Operators	Description	Example
+	Addition or unary plus	1+2=3
-	Subtraction or unary minus	5-2=3
*	Multiplication	2*3=6
/	Division	10/2=5
%	Modulus (Remainder)	8%3=2

- When both the operands in a single arithmetic expression (e.g. a + b) are integers, the expression is called an '*Integer Expression*'. Integer arithmetic always yields an integer value.
- When both the operands in a single arithmetic expression (e.g. a + b) are real, the expression is called a '*Real Expression*'. Real arithmetic always yields value in decimal or exponential notation.
- When one of the operands in a single arithmetic expression (e.g. a + b) is real and the other is integer, the expression is called a '*Mixed mode Arithmetic Expression*'. If either operand is of real type, then the other operand is converted to real and the real arithmetic is performed.

Relational Operators

Operators	Description	Example
= =	Equal to	10==20 = false
!=	Not equal to	10!=20 = true
>	Greater than	20>10 = true
>=	Greater than or equal to	20>=10 = true
<	Less than	20<10 = false
<=	Less than or equal to	20<=10 = false

- The result of relational expression is either true or false.

Logical Operators

Operators	Description	Example
&&	Logical AND	(10==20 && 20==30) = false
||	Logical OR	(10==20 || 20==30) =false
!	Logical Not	! (10==20) =true

- An expression (such as a > b && x == 10) which combines two or more relational expression is termed as a '*Logical Expression*' or '*Compound Relational Expression*'.

Assignment Operator

Operators	Description	Example
=	Assignment	10+10=20

- It is used to assign the value of an expression to a variable.
- Java also supports shorthand assignment operators.

Statement with simple assignment operator	Statement with shorthand operator
a = a + b	a += b
a = a – b	a -= b
a = a *b	a *= b
a = a / b	a /= b
a = a % b	a %= b

Increment and Decrement Operators

Operators	Description	Example
++	Increment	var a=10; a++; Now a=11
--	Decrement	var a=10; a--; Now a=9

Conditional Operators

- The character pair ? : is a ternary operator in java. This operator is used to construct conditional expression of the form.

(condition) ? exp1 : exp2

- Where exp2 and exp3 are expressions.
- The operator ?: works as follows:
    - Exp1 is evaluated first.
    - If condition is true then the expression exp1 is evaluated and becomes the value of the conditional expression.
    - If condition is false then the expression exp2 is evaluated and becomes the value of the conditional expression.
- Note: Only one of the exp1 or exp2 is evaluated.
- This can be achieved by using the if-else statement.

Example
a=10; b=15;

x=(a>b)?a:b’
Result: x=15

Bitwise Operator

Operators	Description	Example
&	Bitwise AND	5 & 3= 1
|	Bitwise OR	5 | 3=7
^	Bitwise XOR	5^3=6
~	Bitwise NOT	(~10)=-11
<<	Bitwise Left Shift	5 << 2=20
>>	Bitwise Right Shift	5 >> 2=1
>>>	Bitwise Right Shift with Zero fill	5 >>> 2=1

- Bitwise operators are not be applied to float or double.

Special Operators

Operators	Description	Example
instanceof	○ The instanceof is an object reference operator and returns true if the object on the left hand side is an instance of the class given on the right hand side. ○ It allows us to determine whether the object belongs to a particular class or not.	person instanceof student

● (dot)	○ It is used to access the instance variable and methods of class objects.	○ person.age;
		//reference to the variable age
		○ person.salary();
		//reference to the method salary()

Questions asked in semester paper

No Questions