

Basic Elements of Java

Java 2

Lesson 3 ICS2602 (1CSC)

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Type Casting in Java (or type conversion)

- It is a method or process that converts a data type into another data type in both ways manually and automatically.
- The automatic conversion is done by the compiler and manual conversion performed by the programmer

Two types of type casting:

It is very important to keep in mind the following points:

1. Widening Type Casting

- Converting a lower data type into a higher one.
- It is also known as implicit conversion. $\frac{1}{2}=0$ $\frac{1}{2}.0=0.5$
- It is done automatically.
- It is safe because there is no chance to lose data.

Java Group of Operators

- Arithmetic Operators
- Relational Operators
- Logical Operators
- Bitwise Operators
- Assignment Operators
- Miscellaneous Operators

Increment (++) and Decrement (--)

- used to increase or decrease the value by 1
- unary operator
- can only be applied to variables

Two kinds of increment and decrement operators:

- **Post-increment/decrement**

Bitwise Operators

int a = 10, b = 2 for all examples below

Operator	Meaning	Example	Result
~	Bitwise unary NOT	~a	-11
&	Bitwise AND	a&b	2
	Bitwise OR	a b	10
^	Bitwise Ex-OR	a^b	8
>>	Shift right	a>>1	5
>>>	Shift right zero fill	a>>>1	5
<<	Shift left	a<<1	20
&=	Bitwise AND assignment	a &= b	2
=	Bitwise OR assignment	a = b	10
^=	Bitwise Ex-OR assignment	a ^= b	8
>>=	Shift right assignment	a >>= 1	5
>>>=	Shift right zero fill assignment	a >>>=1	5
<<=	Shift left assignment	a <<= 1	20

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Relational Operators

- Compare between operands and determine the relationship between them.
- The output of the relational operator is true or false (boolean value).
- These operators are mainly used when applying control statements in the program.

Relational Operators

int a = 10, b = 2 for all examples below

Operator	Meaning	Example	Result
==	Equal to	a == b	false
!=	Not equal to	a != b	true
<	Less than	a < b	false
<=	Less than or equal to	a <= b	false
>	Greater than	a > b	true
>=	Greater than or equal to	a >= b	true

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Logical Operators

- More complex conditions can be created using logical operators.

Parts of a method definition

- modifier – defines the access type of the method and this is optional; some modifiers are public, private, protected, static, abstract, and final.
- static - means that the method belongs to the ClassName class and not an object of the ClassName class
- returnType – return type of the method(if method does not return a value, the returnType is void)
- nameOfMethod –name of the method(this is an identifier, follow rules in naming an identifier)
- parameter list – the type, order, and number of parameters of the method. Some method does not have a parameter.
- method body – block of statements that performs the task

Formal parameter

- A variable declared in the method header, within the parentheses

Return statement

- a value-returning method uses a return statement to return its value; that is, it passes a value back when the method completes its task.

Method call

- is a statement that causes a method to execute.

Local Variable

- Variables declared inside the method.
- These variables are considered local to the method (local scope), they can only be used inside the method.
- These variables are hidden from other methods, which makes it impossible for other methods to access it.

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