UNIVERSIDAD DE LAS FUERZAS ARMADAS ESPE
PROGRAMACION ORIENTADA A OBJETOS

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PRIMITIVE DATA IN JAVA.

Java is a statically typed language. That is, the data type of the variable is defined when defining it. That is why all variables will have a data type assigned. This correspondence determines the values that a data can take and the operations that can be performed with it.

The Java language is based on a series of primitive data types.

- Byte
- Short
- Int
- Long
- Float
- Double
- Boolean
- Char

It is important to know that these are language data types and that they do not represent objects. Things that do happen with the rest of the elements of the Java language.

- Byte.

Represents a signed 8-bit data type. So you can store numeric values from -128 to 127 (inclusive).

- Short

Represents a signed 16-bit data type. This way it stores numeric values from -32,768 to 32,767.

- Int.

It is a signed 32-bit data type for storing numeric values. Whose minimum value is -231 and the maximum value of 231-1.

- Long

It is a signed 64-bit data type that stores numeric values between -263 to 263-1.

- Float

It is a data type for storing 32-bit single precision floating point numbers. Whose minimum value is + -3.4020E + 38 and the maximum value is + -1.4023E-45.

- Double.

It is a data type for storing 64-bit double precision floating point numbers. Whose minimum value is + -1.7976E + 308 and whose maximum value is + _4.9406E-324.

- Boolean.

Used to define Boolean data types. That is, those that have a value of true or false. It occupies 1 bit of information.

Valores por defecto de los tipos de datos primitivos.

In the case that we define a variable and that we do not give it any value, by default they will carry the following values.

Primitive Data	Default Value
Byte	0
Short	0
Int	0
Long	0L
Float	0.0f
Double	0.0d
Char	'u0000'
String(o cualquier tipo)	Null
Boolean	false

The String is not a primitive data type of the Java language. But its use is just as important as the previous data types, the String element is an immutable data type. That is, once created, its value cannot be changed.

Primitive Data in Python

Python is a weakly typed programming language, which means that any variable can contain any type of data at any time, without specifying it in the creation of the variable.

The basic Python data types are Boolean, numeric (integer, floating point, and complex), and character strings.

Numerical Types.

Integer Numbers.

The type of the integers is int. This type of data comprises the set of all integers, but since this set is infinite, in Python the set is really limited by the available memory capacity. There is no representation limit imposed by language.

Integers can also be represented in binary, octal, or hexadecimal format. Octal numbers are created by prepending 0o to a sequence of hexadecimal digits (0 through 9 and A through F). For binary numbers, 0b is prepended to a sequence of binary digits (0y1).

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Floating point numbers.

They are represented in computer hardware as base 2 (binary) fractions. And the problem is that most decimal fractions cannot be represented exactly as binary fractions because they have infinite decimal numbers.

As with whole numbers, real numbers are infinite and therefore it is impossible to represent the entire set of real numbers with a computer.

Complex numbers.

Complex numbers have a real part and an imaginary part, each of which is represented as a float. To create a complex number, the following structure is followed <real_part> + <imaginary_part> j. and the real and imaginary part can be accessed through the real and imag attributes.

Boolean Type.

This class can only be instantiated with two values / objects; true to represent true and False to represent false. A particularity of the language is that any object can be used in a context where it is required to check if something is true or false.

Character String Type.

This type is known as string although its class is true is str. Single or double quotes can be used interchangeably, with a particularity. If you need to use a single quote in the string of characters, you have two options: use double quotes to enclose the String, or use single quotes, but prepend the \ character to the single quote inside the string.

Links:

- https://www.arkaitzgarro.com/java/capitulo-3.html
- http://www.manualweb.net/java/tipos-datos-primitivos-java/
- http://blog.espol.edu.ec/ccpg1001/files/2017/05/PYTHON_PROGRAMACION_V3_0.pdf
- https://j2logo.com/python/tutorial/tipos-de-datos-basicos-de-python/