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Primitive data Python and Java

What types of data does Python bring with it?

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

Numeric types

Python defines three basic numeric data types: integers, floating point numbers (it would simulate the set of real numbers, but we will see that this is not the case at all), and complex numbers.

Integer numbers

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

Representation of floating point numbers

In order to represent as many of the real numbers as possible within the memory limitations (32-bit and 64-bit word sizes), the scientific notation for representing real numbers was adapted to the binary system (which is the system used in programming to represent data and instructions).

In this scientific notation, numbers are represented as follows:

Número	Notación científica
101,1	$1{,}011 * 10^{2}$
0,032	$3{,}2 * 10^{-2}$

Floating point numbers 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. One consequence is that, in general, the decimal floating-point numbers you use in your applications are an approximation of the binary floating-point numbers actually stored in the machine.

Boolean type

In Python the class that represents Boolean values is bool. This class can only be instantiated with two values/objects: True to represent true and False to represent false.

Character string type

Another basic type of Python, and essential, are the sequences or character strings. This type is known as string although its true class is str.

Formally, a string is an immutable sequence of characters in Unicode format.

Python primitive data:

Tipos de Datos	Memoria que ocupa	Rango de valores
boolean	1 byte	0 o 1 (True o False)
byte / unsigned char	1 byte	0 – 255
char	1 byte	-128 – 127
int	2 bytes	-32.768 – 32.767
word / unsigned int	2 bytes	0 – 65.535
long	2 bytes	-2.147.483.648 – 2.147.483.647
unsigned long	4 bytes	0 – 4.294.967.295
float / double	4 bytes	-3,4028235E+38 - 3,4028235E+38
string	1 byte + x	Array de caracteres
array	1 byte + x	Colección de variables

Java

In Java there are eight types of primitive data that can be classified into:

Integer numbers (byte, short, int, long).

Real numbers (float, double).

Character (char).

Boolean or logical (boolean).

Of all of them, except for the boolean type that can only be true or false, the following table shows their possible minimum and maximum values:

VARIABLES DE TIPOS PRIMITIVOS.					
Nombre	**Tipo**	**Tamaño**	**Valor por defecto**	**Forma de inicializar**	**Rango**
Boolean	Lógico	1 bit	False	Boolean a=true	True-false
Char	Carácter	16 bits	Null	Char a='Z'	Unicode
Byte	Numero entero	8 bits	0	Byte a =0	-128 a 127
Short	Numero entero	16 bits	0	Short a =12	-32.768 a 32.767
Int	Numero entero	32 bit	0	Int a= 1250	-2.147.483.648 a 2.147.483.649
Long	Numero entero	64 bits	0	Long a= 125000	-9*10^18 a 9*10^18
Float	Numero real	32 bits	0	Float a =3.1	-3,4*10^38 a 3,4*10^38
Double	Numero real	64 bits	0	Double a = 125.2333	-1,79*10^308 a 1,79*10^308