Primitive data types

There are eight *primitive data types* in Java, but in AnyLogic models we typically use these four:

Type name	Represents	Examples of constants
int	Integer numbers	12 10000 -15 0
double	Real numbers	877.13 12.0 12. 0.153 .153 -11.7 3.6e-5
boolean	Boolean values	true false
String	Text strings	"AnyLogic" "X = " "Line\nNew line" ""

The word "*double*" means real value with double precision. In AnyLogic engine all real values (such as time, coordinates, length, speed, random numbers) have double precision. The type `String` is actually a class (a non-primitive type, notice that its name starts with a capital letter), but it is a fundamental class, so some operations with strings are built into the core of Java language.

Consider the *numeric constants*. Depending on the way you write a number, Java will treat it either as real or as integer. Any number with the decimal delimiter "." is treated as a real number, even if its fractional part is missing or contains only zeros (this is important for integer division). If integer or fractional part is zero, it can be skipped, so ".153" is the same as "0.153", and "12." is the same as "12.0".

Boolean constants in Java are `true` and `false` and, unlike in languages like C or C++, they are not interchangeable with numbers, so you cannot treat false as 0, or non-zero number as `true`.

String constants are sequences of characters enclosed between the quote marks. The empty string (the string containing no characters) is denoted as `""`. Special characters are included in string constants with the help of escape sequences that start with the backslash. For example the end of line is denoted by `\n`, so the string `"Line one\nLine two"` will appear as:

> *Line one*
>
> *Line two*

If you wish to include the quote character into a string, you need to write `\"`, for example the string constant `"String with \" in the middle"` will print as:

> *String with " in the middle.*

The backslash itself is included as double backslash: `"This is a backslash: \\"`.