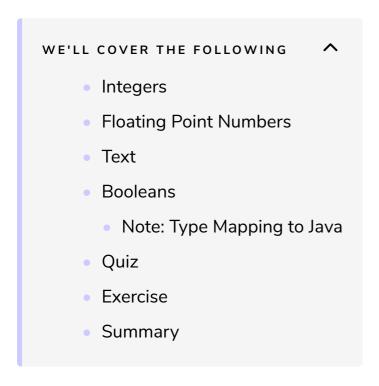
Basic Data Types

Learn how to represent and store numbers and text in Kotlin.



Kotlin is a statically typed language, meaning that the data type of every expression is known at compile time.

Integers

There are four basic data types to store integer numbers of different sizes in Kotlin:



Note: The values assigned to each variable above are the largest allowed for the corresponding data type. This gives you an indication of their

magnitude.

If you increase the assigned values even by one, the Kotlin compiler will complain because an overflow would occur at runtime (*try it!*).

Floating Point Numbers

Additionally, Kotlin has Float and Double to store floating point numbers up to different precision and sizes:



Here again, the assigned values are the maximum allowed for the corresponding type.

Two things to note:

- The e in both values denotes exponentiation, for instance 10e3 == 1000.
- In order to denote a Float value, you have to add the f suffix.

 Otherwise, Kotlin infers Double as the type of the number.

Text

Kotlin uses the Char type for single characters and String for arbitrary sequences of characters:

```
val character: Char = '#'
val text: String = "Learning about Kotlin's data types"
```

Single characters are denoted using single quotes ''', whereas basic strings use double quotes "".

However, you can also use multiline strings by wrapping your string into three double quotes: """<multiline string here>""".

Booleans

Finally, Kotlin uses Boolean to store either true or false:



These two are the only valid values for the Boolean type.

Note: Type Mapping to Java

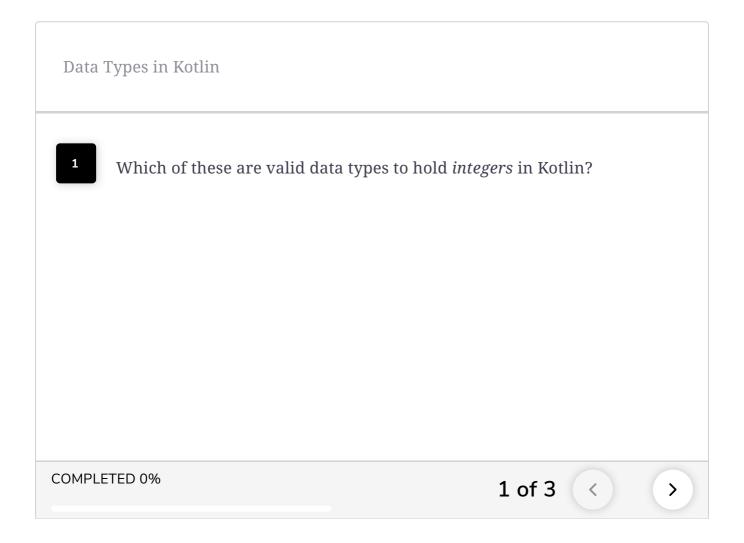
Since Kotlin transpiles to Java bytecode (if you're using it on the JVM), it's important to explore how language concepts translate to Java.

In contrast to Java, Kotlin has no primitive types. All types discussed in this lesson are objects at runtime. However, they do transpile to Java's primitive types in Java bytecode:

Kotlin Type	Type in Java Bytecode
Byte	byte
Short	short
Int	int
Long	long
Float	float
Double	double
Char	char
Boolean	boolean

The mapping is quite trivial, but note that this mapping only works because Kotlin's types cannot be null by default, just like Java's primitive types cannot hold null . Kotlin's approach to null safety is explained in detail later in the course.

Quiz#



Exercise

Create a variable favoriteMovie that stores the title of your favorite movie and a variable rating that contains your rating for it. Ratings range from 0.5 to 5.0 in increments of 0.5.



Summary

Here's what you should take away from this lesson:

- Kotlin has Byte, Short, Int, and Long as basic types for integer numbers.
- Kotlin uses Float and Double for floating point numbers. A Float is denoted with a trailing f, as in 17f.
- Kotlin has Char to store single characters and String to store strings of text.
- Kotlin's basic types map to Java's primitive types when targeting the JVM (and String maps to String).

In the following lesson, you'll understand how and when the Kotlin compiler can infer the types used in your code.