

Introductory Java 3

J3

Naming

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Java Packages



Which Mary?

Mary Queen of Scots

‘Queen of Scots’ provides a namespace within which ‘Mary’ is well defined. In Java a **package** provides a namespace.

Java Variables

- Instance (non-static fields, object-local)
 - Each object has its own version (instance) of the field
- Class (static fields, global)
 - Exactly one version of the field exists
- Local
 - Temporary state, limited to execution scope of code
- Parameters
 - Temporary state, limited to execution scope, passed from one method to another

Java Naming

- Java names are case-sensitive
 - Whitespace not permitted
 - \$, _ to be avoided
 - Java keywords and reserved words cannot be used
- Capitalization conventions
 - Class names start with capital letters (Bike)
 - Variable names start with lower case, and use upper case for subsequent words (currentGear)
 - Constant names use all caps and underscores (MAX_GEAR_RATIO)

Java's Primitive Data Types

In addition to *objects*, Java has 8 special, built-in '*primitive*' data types.

type	Description	Range	Default
byte	8-bit signed 2's complement integer	-128 - 127	0
short	16-bit signed 2's complement integer	-32768 - 32767	0
int	32-bit signed 2's complement integer	-2^{31} - $2^{31}-1$	0
long	64-bit signed 2's complement integer	-2^{63} - $2^{63}-1$	0L
float	single precision 32-bit IEEE 754 floating point number		0.0f
double	double precision 64-bit IEEE 754 floating point number		0.0d
boolean	logically just a single bit: true <i>or</i> false	true, false	false
char	16-bit Unicode character	0 - 65535	0

Java Literals

- When a numerical value (eg '1') appears, the compiler normally knows exactly what it means.
- Special cases:
 - An integer value is a `Long` if it ends with 'l' or 'L'
 - The prefix `0x` indicates hexadecimal, `0b` is binary:
 - `0x30` // 48 expressed in hex
 - `0b110000` // 48 expressed in binary
 - An 'f' indicates a `float`, while 'd' indicates `double`.
 - Underscores may be used to break up numbers:
 - `long creditCardNumber = 1234_5678_9012_3456L;`