

## CIT 260 | Java Naming Conventions

Java, much like C and C++, upholds a series of naming conventions that are used by the compiler. These naming conventions may seem strange to those unacquainted with Java or the C languages, and can cause some confusion, especially for those who have programed in HTML or other similar languages. However, understanding these conventions will not only make your code more readable to those who have to use it, but will also reduce bugs.

First and foremost, it is important to understand that Java is case sensitive - meaning that `time`, `int Time`, `int TIME`, `int timeE`, and `int tImE` would all represent different variables in Java. In referring to a function named `timer()`, for example, you would receive a compile error if you were try and call this function with the command `Timer()` in your `Main()` function.

Secondly, functions and variables are restricted to starting with and containing a specific set of characters. In Java a variable, function, or class can only start with or contain:

- Upper and lower case letters (A-Z and a-z)
- Single digit numbers (0-9)
- The underscore symbol ( `_` )
- The dollar sign symbol ( `$` )

Anything other than these characters will cause a compiler error.

Another thing to note, is that variable, function, and class names cannot contain spaces. Because of this requirement programmers have developed stylistic ways of differentiating between words in Java. The rules are slightly different for a variable, class and constant, but over time, you will get used to these conventions and they will start to feel second nature to you when programming.

### Multi-word Variable, Class, Function, and Constant Names

#### Functions and Variables

When naming functions and variables, you should start the name of the variable with a lower case letter, then use camel case or underscores to delineate between the different words. Camel case is the convention of uppercasing the first letter of each word, for example: `camelCase`, `getUserName()`, or `timeInSecondsVar`, note that even when using camel case, the first letter of the function and variable name is still lower case. Good examples of function or variable names would be: `timeSpent`, `get_user_score()`, `user_name`, `displayMenu()`, etc.

#### Classes

Classes are similar to functions and variables in that it too uses camel case or underscores, however, when you are naming a class, you will want to capitalize the first letter of the class name. Good examples of class names would be: `Time`, `ProgrammerOptions`, `Menu_Screen`, etc.

## Constants

In Java, like in C or C++, constants are named using only capitalized letters (as well as the dollar sign, numbers, and the underscore). Words are delineated using underscores. Some good constant names would be: GALLONS\_TO\_LITERS\_CONVERSION, NUM\_STUDENTS, ENCRYPTION\_KEY, etc.

Understanding these naming techniques will make your code easier to read as well as less error prone.

## Self-Check Exercises

- 1.) Which of the following variable and function names is valid according to the Java naming conventions?
  - a) ProgrammingVar
  - b) getUserInfo()
  - c) timeinandout
  - d) #hashtagVariable
  - e) user name
  - f) ringSize
- 2.) Which of the following is a valid class name according to the Java naming conventions?
  - a) classDesc
  - b) UserTime
  - c) &ComputerData
  - d) Desk Contents
  - e) gameGraphics
- 3.) Which of the following is a valid constant name according to the Java naming conventions?
  - a) METRIC\_CONVERSION
  - b) startTime
  - c) ^CARROT\_COUNT^
  - d) Constant var
  - e) BaseValue

## Self-Check Answers

- 1.) B, F
- 2.) B
- 3.) A