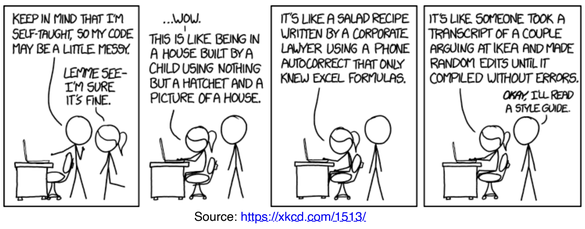
```
/**
 * CS139 - Programming Fundamentals
 * Department of Computer Science
 * James Madison University
 * @version Spring 2016
 */
```

CS139 Style Guide



Source: https://xkcd.com/1513/

Background

Virtually every organization that does software development has strict guidelines on how to format source code. Here are two examples of widely used Java style guides:

- Sun Java Code Conventions (April 1997)
- Google Java Style (March 2014)

This course will more or less follow a simplified version of these guidelines. Rather than memorize a long list of rules, you should develop good habits and intuition when it comes to style.

Style Guide

A. Comments

1. Every class must contain a Javadoc comment with the following three elements.

```
/**
  * Overall description of the class goes here.
  *
  * @author Your name goes here
  * @version Due date goes here
  */
```

2. Every programming assignment must contain the following statement or must cite any sources used (such as a TA). This code must come directly beneath the class comment.

```
/*
 * References and Acknowledgments: I received no outside help with this
 * programming assignment
 *
 */
```

   OR

```
/*
 * References and Acknowledgments: TA Glenn helped me with the foo method.
 *
 */
```

3. All methods (including `main`) must contain an applicable Javadoc comment.

```
/**
 * Overall description of the method goes here.
 *
 * @param paramterName describe each input parameter
 * @param anotherParam use a separate line for each
 * @return describe the value that this method returns
 */
```

4. All comments should use normal English spelling and grammar. Phrases are okay.
5. In-line Comments must come before the code that they are describing or on the same line.

B. Names

1. All names should be descriptive and readable. (`subTotal` rather than `s`, `grade` rather than `grd`)
2. Multiple-word names should use capital letters to separate words. (`subTotal`, not `sub_total`)
3. Variable and method names should begin with a lowercase letter, and:
   - Variable names should be nouns or noun phrases. (`studentName` or `subTotal`)
   - Method names should be verbs or verb phrases. (`printLine` or `addColumn`)
4. Class names should begin with a capital letter and use title case. (`HelloWorld`)
5. Constant names should be all caps with an underscore separator. (`PI` or `INTEREST_RATE`)

C. Declarations

1. All constants should be named and initialized at the top of the method in which they are used.

```
final double CENTIMETERS_PER_INCH = 2.54;
centimeters = inches * CENTIMETERS_PER_INCH;    // NOT inches * 2.54;
```

2. All variables should also be declared at the top of the method, directly after any constant declarations.
3. It is strongly recommended (in CS 139) to separate variable declaration and initialization statements.

```
Scanner input = new Scanner(System.in);    // discouraged

Scanner input;
input = new Scanner(System.in);
```

4. There should be at most one variable declaration per line. Comment to the right if the name is not self-explanatory.

D. Literals

1. Numeric literals should be of the correct type for the context in which they are used.

```
// integer expressions should use integer literals
int count;
double value;
count = 2;
value = 2.0;

// double expressions should use double literals
double x;
double y;
double average;
average = (x + y) / 2.0;    // NOT 2, which is an integer
```

E. Indentation and Whitespace

1. Subsections of code should be indented consistently with three spaces. (Four spaces would be more standard. We are using three because that's the default behavior of jGRASP.)
2. Always use three space characters, not tab characters, for indentation.
3. Statements too long for one line should be indented on subsequent lines.
4. There should be a space after cast operators, commas, and //'s.
5. Use whitespace to separate logical segments of code. There should be a blank line after variable declarations.
6. Binary operators should be separated from their operands by a single space. (`sum = myGrade + yourGrade;`)
7. One exception is the dot (`.`) operator, which should not have space surrounding it. (`System.out.println();`)
8. Unary operators should not be separated by a space. (`myGrade++;`)

F. Structure

1. Lines should be kept short (< 80 chars). You should be able to see the full line in your text editor.
2. All blocks of code (even if one line) should be surrounded by curly braces.
3. Left braces must appear on the same line as the structure header.
4. If a method returns a value, it should have a single return statement.
5. Break statements should not be used except in the case of a switch.
6. You must *not* have any unused variables or constants or lines of code that do nothing (like `a = a;`)
7. You must *not* have any empty if/else blocks:

```
if (condition) {
    // This block is empty.  Not OK.
}
else {
   System.out.println("Condition not true!");
}
```