COLBY COLLEGE
Computer Science Department

CS115 **Allen B. Downey**
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Homework 1: Java compilation and execution

Reading: Chapter 1.

The purpose of this assignment is to allow you to practice using CodeWarrior, which is the Java interactive development environment (IDE) we will be using in this class. Also, you will practice writing and debugging small Java programs.

In general, I will hand out assignments during lab time on Wednesdays and they will be due the following Wednesday at the beginning of lab time. You should start the assignment during lab, but you should not feel pressure to finish it. If there is more than one part, it is sometimes a good idea to do a little work on each part and come back to it later.

Some people may finish some assignments during the lab (especially the first one), but in general it is expected that you will finish on their own time during the week. You should plan to spend about 6 hours per week in the lab (including the lab time). If you schedule this time, it will be easier to keep up. Also, you will probably find that several 1-2 hour sessions is more effective than one marathon session.

Create and run "Hello, World!"

The CodeWarrior IDE provides a simple way to create a new program using an existing program as a template. The templates are called "stationery," and there is one on the machines in the Olin Lab that is similar to the "Hello, World!" program in the book. We will use this program as the starting place for the first few projects.

1. Find a happy iMac and start by shutting down any applications that are running. If you click in the upper-right corner of the screen, you will get a list of the things that are running. Whittle it down until only the Finder is left.

2. From the Apple menu (upper-left corner) go to `Programming` and select `CodeWarrior IDE 4.0`. The menu bar should change to indicate that CodeWarrior is now running.

3. From the `File` menu select `New...`. A dialog box will appear.

4. In the text field named `Project Name` type the name `Hello.prj` (the suffix `prj` indicates that this is a project file).

5. Double-click on the stationery named `cs151HelloStationery`, which is all the way at the bottom of the stationery list. Two things should happen: a folder named `Hello` should appear on the desktop, and a project window should appear in the middle of the screen.

6. In the project window, click on the little triangle next to the word `Sources`. This will reveal the source code files that make up the project. There should be only one, named `cs151.java`

7. Double-click on `cs151.java`. It will open a source code window that contains the program. Look over the program and compare it with the one in the book. There may be superficial differences.

8. From the `Project` menu, select `Run`. A window will appear telling you that your program is being compiled, and then a console window will appear with the output of the program, which is the single line of text, "Hello, World."

9. If you look at the list of running application (in the upper right corner), you will see that you are now running something called `JBoundApp`. This is the new program that was created when you ran the compiler.

10. BEFORE RETURNING TO THE CODEWARRIOR IDE, YOU MUST QUIT FROM THE RUNNING APPLICATION (JBoundApp). Type Command-Q to quit. You should get dumped back into the IDE.

11. Close the source code window and the project window. Now switch to the Finder and open the folder named `Hello`. It should contain five files:

    JBoundApp This is your compiled and ready-to-run program. You can double-click on it to run it any time (it doesn't need CodeWarrior any more, I think).

    Hello Data This is a folder, but I don't really know what's in it. You can delete it with impunity.

    cs151.java This is your source code. You can double-click to open it, but it is usually a better idea to open the project file instead.

    Hello.prj This is your project file. The best way to reopen your project is to double-click on the project file; it will start CodeWarrior if it is not already running.

    AppClasses.jar You don't want to know.

12. Double-click on `cs151.java`. Your program will appear, but the project window will not. You can modify the program, but you will not be able to run it unless the project window is open.

13. Double-click on `Hello.java`. It will open the project window, and you should now be able to run the program.

14. DON'T FORGET TO QUIT THE APPLICATION AFTER EVERY TIME IT RUNS. You might notice, though, that if there is a compile-time error, and the program doesnt run, you don't have to quit, because you will still be in the IDE.

Edit the program

1. Read Section 1.5 of the textbook so you understand what each line of the program does.

2. Add a comment line to the program (anywhere) and recompile it. Run the program again. The new comment should not affect the execution of the program.

3. Add a second print statement that prints a second message after the "Hello, world!". Something witty like, "How are you?"

4. Run the program again.

Make mistakes

It is a good idea to commit as many errors as you can think of with this program, so that you see what error messages the compiler produces. Sometimes the compiler will tell you exactly what is wrong, and all you have to do is fix it. Sometimes, though, the compiler will produce wildly misleading messages. You will develop a sense for when you can trust the compiler and when you have to figure things out yourself.

1. Remove one of the open squiggly-braces.
2. Remove one of the close squiggly-braces.
3. Instead of `main`, write `mian`.
4. Remove the word `static`.
5. Remove the word `public`.
6. Remove the word `System`.
7. Replace `println` with `pintln`.
8. Replace `println` with `print`.
9. Delete one of the parentheses. Add an extra one.

   How many of the syntax rules of Java can you guess just by the error messages from the compiler? If you are ever unsure whether something is legal in Java or not, ask the compiler!

What to hand in

1. Add a comment to the beginning of the program that includes your name and the words "cs151 homework 1".
2. Print a hardcopy of the program.
3. Write your name in the upper-right corner of the page, with the words "cs151 homework 1."
4. Draw a picture of something somewhere on the page and label it with a noun that names the depicted object.
5. Give the piece of paper to me (Allen Downey).