CS1110 - In-Lab Exercises #1

A – Use Java & NetBeans (on LAB workstation, with partner)

1. Go to course webpage: https://homepages.wmich.edu/~kaminski/1110
   Click the `ToDo` link for Tuesday of the 2nd week. Download **`Arithmetic.zip`** to your desktop *(NOT Arithmethic.java file)*:
   right-click file, choose "Save link as…" (or similar, depending on your browser), save it to your desktop.
2. Unzip file: *right-click file on desktop, choose 7-zip, choose "Extract here" (or…)*
3. Start NetBeans: *Start / All Programs / Development / NetBeans*
4. Open Arithmetic project: *File / Open Project / . . .*
5. Load the .java code file into text editor window*: in Projects window, expand +'s for Arithmetic / Source Packages / <default packages> then double-click on Arithmetic.java*
6. Run the program by clicking the green arrow. See output in "console window".
7. Close the Arithmetic project. Exit NetBeans.
8. Examine the `Arithmetic` project FOLDER on desktop. Look in **`src`** subfolder to find the actual Java program, **`Arithmetic.java`**. It's a plain text file. Open it in a text editor like WordPad (on Windows). *(If double-clicking the .java file doesn't open it in WordPad, then right-click file, select OpenWith, select WordPad). (To eliminate wrap-around, SelectAll, then change font size to 8 or 9).* This is what you saw in NetBeans IDE (Integrated Development Environment) text editor window. Try opening it in NotePad *(right-click file, select OpenWith, select NotePad)* – note that it's 1-long long line of code – more on why this is later.

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B – Move project around (on LAB workstation, with partner)

1. Download `WinHelloWhoever.java` to your desktop, which your Lab Instructor emailed you or posted on eLearning (or download it from course website, ToDo link for Tuesday of 2nd week). Open it in WordPad*, (eliminate wrap-around by changing font size to 8-9)*, resize WordPad window & move it to side of your screen.
2. Open NetBeans & resize its window so you can also see WordPad window.
3. Start a NEW project in NetBeans, giving it the name **`WinHelloWhoever`** and choose to save it to your desktop.
4. In NetBeans text editor, type in the program code you see in WordPad - excluding COMMENTS to save time. *(2 types of comments: 1) top 6 lines, starting with /* and ending with */ and 2) partial lines from // to the end-of the line).* Don't just cut & paste the code – type it in yourself to help you see what goes where & indentation/alignment issues & matching { } 's.
5. "Compile" (Build) the program to check for "compilation errors". If there are errors, examine the program carefully, comparing it to the WordPad version & correct the errors.
6. Run the program by clicking the green arrow.
7. Put some spaces & tabs in front of the bottom 2 } 's. Looks sloppy! To easily fix this, do *Source (drop-down menu) / Format.*
8. When thing's work correctly, save project. (Always do SaveAll, not Save).
9. On desktop, port your project to other devices by trying each of these:
   a. Copy `WinHelloWhoever` FOLDER file to your & your partner's thumb-drives.
   b. Zip project FOLDER *(right-click it, choose 7-zip, choose Add To Archive, choose .zip for archive format, click OK).* Email ZIPPED project (as an attachment) to both people in the team. (Do NOT email the `WinHelloWhoever` FOLDER though).
   c. Upload ZIPPED project to ELearning for both people in the team so that you can download it later to your own laptop.

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C – Introduce compile errors to see symptoms (on LAB workstation, with partner)

1. Back in NetBeans, working with `WinHelloWhoever`, introduce some errors in the code in NetBeans' text editor. Then "compile" (Build) it to see what the resulting symptoms are. You'll see error message(s) in the console window AND indicators appearing in the code itself in the text editor. Then correct code again right away before introducing another error. Try these kinds of things:
   a. "comment out" this line near the top: `String name;`
   *(There's an icon at the top of text editor on right end to easily "comment out" a high-lighted chunk of code, as well as to later un-comment a high-lighted chunk). T*hen un-comment it again & re-run program to make sure it's back to a working state.
   b. Delete the final `}` at end of the code. Observe the symptoms. Put it back & re-run program to make sure it's back to working right again.
   c. Comment out line near top:
   ```
   import javax.swing.JOptionPane;
   ```

Observe symptoms. Fix program & re-run it to make sure it works.

d. Remove ending ; from line: …. ("What is your name?");
Observe… Re-fix… Check…

e. Remove " after the ? from that line. Observe… Re-fix… Check…

f. Remove) near end of that line. Observe… Re-fix… Check…

g. Add a multi-line comment at top of code starting with /* but leaving off the */ at end of comment. Observe… Re-fix… Check…

2. Close Project and exit NetBeans.

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D – Install JDK (Java Development Kit) & NetBeans (on YOUR laptop & your PARTNER's laptop)

1. Download & install NetBeans & Java JDK on your & your partner's laptops. For help, see: http://homepages.wmich.edu/~kaminski/1110/GenCourseInfo.html
2. Set up a nice Java Template for future work on your laptop on both your & your partner's machines. (See instructions on above webpage).
3. Go to your email & find the email you sent yourself in section B-9-b above. Save attachment to your desktop for `WinHelloWhoever.zip`
4. Unzip file.
5. Start NetBeans. Load project and run program.
6. Close NetBeans.

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E – Learn how to submit an asgn on E-Learning

Your instructor will show how to SUBMIT a completed assignment to ELearning so you'll know what to do when you finish A1.

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F – Start Assignment1 planning (on lab workstation OR your laptop)

YOU MUST WORK ON YOUR OWN for section F, SINCE THIS IS AN ASSIGNMENT !!! (However, you can ask your partner or the lab instructor questions).

1. Download & read A1 Specifications from E-Learning
2. Start NetBeans. Create a NEW project for A1, using descriptive project name, *(NOT JavaApplication1)* and store it on your desktop *(NOT the default NetBeansProjects folder in your Documents folder)*.
3. Write an appropriate top comment
4. Add these 4 comments (to act as "section labels" and "dividers") to your code to give a basic outline to your program:

```
// ***************** DECLARE VARAIBLES ******************
// ***************** GET INPUT **************************
// ***************** DO CALCULATIONS ********************
// ***************** SHOW OUTPUT ************************
```

So you're:

- separating the DECLARATIVE code from the PROCEDURAL code
- using the IPO (Input / Processing / Output) model for the procedural part.

5. Add more detailed COMMENTS to each section to plan out:
   - what storage (variables) you'll need, including intermediate results
   - what input data you'll need from the user (specific items)
   - what output you need to present to the user (specific items)
   - what calculations you'll need to convert input & intermediate results into output
6. Save your un-finished project to your desktop. If you're doing this on a lab machine, zip your project & email the .zip project to yourself as an attachment so you can continue it as homework later (or copy the project folder to your thumb-drive).
7. Finish the project as HOMEWORK, and submit the finished project (which must be working totally correctly, according to Assignment 1 specs) on ELearning before the specified due date and time.