

Assignment 03 – Java Concepts, Chapter 01: Introduction  
Due: Wednesday, Oct 1st.

Exercise P1.6 pg 29 (modified)

Write a program called **Sum10Reciprocals** that computes the sum of the reciprocals  $1/1 + 1/2 + \dots + 1/10$ . (Note: page 19 has an example that shows how to print out the sum of two numbers; if you need more help getting started, jump to the end of this document). Getting the correct answer may turn out to be trickier than it seems. After writing the program, check the results with a calculator & make a note of the results. Check your code, change the denominators to floating point numbers (1.0, 2.0, ..., 10.0) and check the new results. In some sort of text document, write a brief paragraph that attempts to explain the results – your explanation should include the following:

1. A description of the results from the incorrect & correct versions of your program.
2. A clearly identified hypothesis as to the cause of the difference.
3. Any evidence you have that might back up your hypothesis.

Here's an example of what I'm looking for applied to R1.12 b & c on page 28:

1. `System.out.println(3 + 4)` prints 7  
`System.out.println(3 + "4")` prints 34
2. My hypothesis is that using quotes around the 4 changes the operation of +.
3. Without the quotes around a number, + behaves like normal addition. When quotes are used around a number, + joins the numbers together.

Note: I'm not necessarily looking for a correct hypothesis; rather, I'm looking for a reasonable hypothesis backed by evidence & observations. We'll examine the mechanics of this problem later in Chapter 4.

Save your document as **CS125-A03-Hypothesis-YOURNAME**, replacing **YOURNAME** with your actual first and last name. Put a copy of your source code (**Sum10Reciprocals.java**) & your hypothesis document into a **.zip** file named **CS125-A03-YOURNAME.zip**. Note: if you have trouble creating zip files in the labs, refer to my tutorial on my CS104 course page.

Upload the **.zip** file to Moodle.

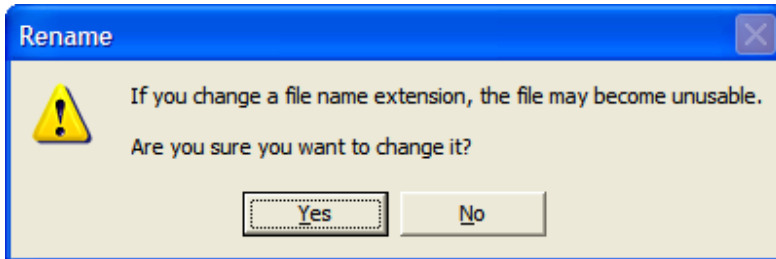
The following rubric will be used for grading:

Description	Points
Correct filename(s) are used	3
Source code content	3
Source code compiles without errors	3
Program executes	2
Program output is correct	3
Output is documented	2
Hypothesis is presented	2
Supporting argument(s) are provided	2
<b>TOTAL POSSIBLE POINTS:</b>	<b>20</b>

Appendix: More help getting started.

1. Recall that Java has rules about file & folder names. First, you'll need to make a folder called **Sum10Reciprocals**. Spelling & capitalization count. Also, there should be no spaces in the name. I'd recommend creating it on the X: drive or a portable jump drive if you have one.

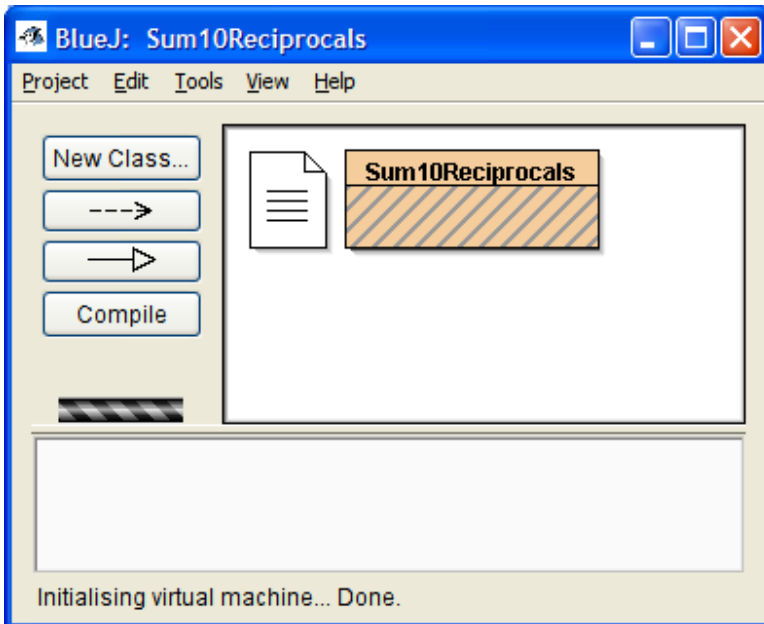
2. Go into the folder & right click to create a new text document. Rename the file **Sum10Reciprocals.java** – as before spelling and capitalization must be the same & don't put in any spaces. The OS might complain: it means well, really it does, but everything is okay, so click **Yes**.



3. Fire up BlueJ. Click **Project &** then select **Open Non BlueJ**. Later, if you want to reopen the project to work on your code, you'll select **Open Project** instead, but this first time, since you haven't used BlueJ on it yet, you'll need the non BlueJ option.

4. Browse to where ever you created your **Sum10Reciprocals** folder. Don't go into the folder! If you did, browse back out of it. With the **Sum10Reciprocals** folder selected, click **Open in BlueJ**.

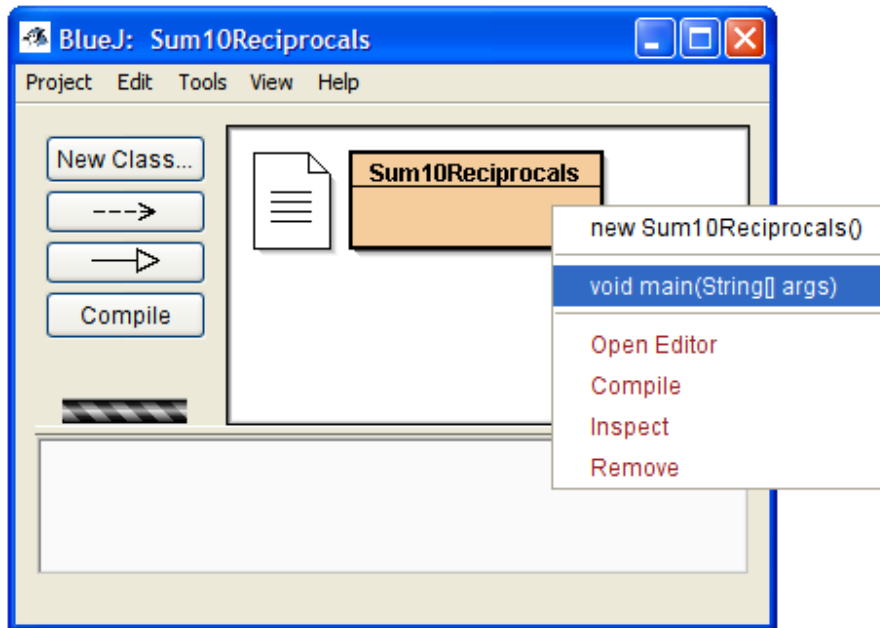
5. You should now have something that looks like this:



6. Double click the **Sum10Reciprocals** item. It should open up a code editing window.

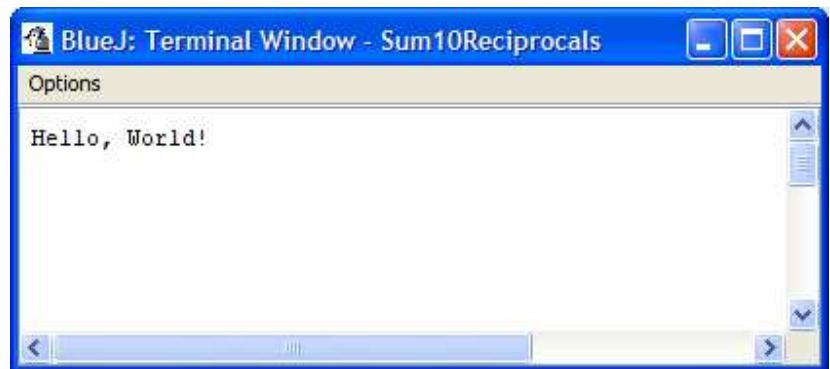
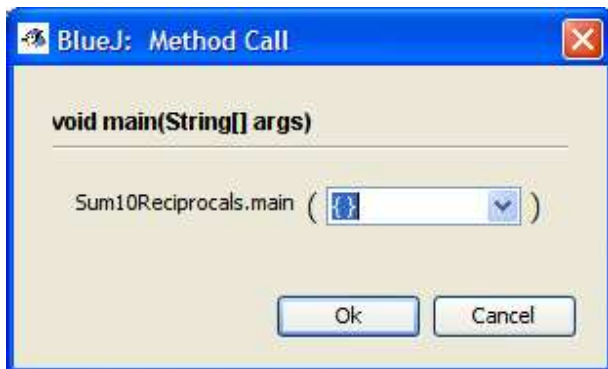
7. Inside the code editing window, type in the HelloPrinter program from page 15 of the text, but change **public class HelloPrinter** to **public class Sum10Reciprocals**. Remember that we need to have a class with the same name as the .java file & the .java file needs the same name the folder it's in.

8. Click **Compile**. If you have syntax errors, you'll need to correct them and recompile before you can continue.



9. Go back to the BlueJ project window. Your **Sum10Reciprocals** item should now look like this one (the crazy stripes are gone). Right click the **Sum10Reciprocals** item & select **void main(String[] args)**.

10. The BlueJ Method Call window will pop up (Shown below on the left). Later, we'll use this to pass all sorts of parameters to our method calls, but right now, we don't need to change anything so just click **Ok**. A BlueJ Terminal Window should pop up (shown below on the right) with your hello world message.



11. So now you've got a working program! Unfortunately, it prints hello world rather than the sum of 10 reciprocals, but at least you have something to work with now. Go back up to the assignment instructions and carry on.