Homework 2 – Introduction to Kepler
Due: Thursday August 10

The purpose of this assignment is to introduce you to some important features of Kepler and give you experience building simple workflows (and to prepare you for the more complicated workflow you will build in your next assignment).

Part 1- Getting started

You can download and install Kepler for Linux, Mac or Windows from the Kepler website at http://www.kepler-project.org.
The newly released beta version (recommended) is available for a variety of platforms at:
http://www.kepler-project.org/Wiki.jsp?page=Downloads

IMPORTANT: Since this is a beta version there are likely to be bugs. If something doesn't work the way you expect it to, email bright@cs.pdx.edu ASAP so I can determine if it's a bug and suggest a workaround.

The beta Windows version seems to work fine, and is recommended if you have access to a Windows machine.

I had trouble getting the beta Linux version to run. If you have problems, I suggest either trying the latest Linux alpha version (not as well documented) or using Windows instead.

I have not tested the Mac version, but feel free to give it a try.

Part 2 – Kepler user guide

Once you have successfully installed Kepler on your preferred platform, read the Kepler user guide (available at: http://kepler-project.org/dist/kepler-1.0.0beta1-getting-started-guide.pdf)
Note: you may also find the old version of the user guide to be useful (although a bit out-of date).
It is available at:
http://cvs.ecoinformatics.org/cvs/cvsweb.cgi/kepler-docs/user/KeplerEndUserDoc.pdf

Construct and run the "hello world" workflow shown in Example 1 on page 21.

Question 1 (5 points): What happens when you run the workflow? Be as specific as possible.

Replace the Constant actor with an Expression actor. Right click on the expression actor and type PI as the expression. Right click on the SDF director and change the top field "iterations" from 0 to 5. Run the new workflow.

Question 2 (5 points): What happens when you run the workflow? Again, be specific.

Workflow assignment 1 (15 points): Modify the above workflow so it plots the function y=x^2 for x = 0 to 4.

(Hint: Try using the Ramp actor. Right click on the Expression actor and select “Configure ports” to add an input port).

Save the XML file of this workflow and email it to bright@cs.pdx.edu by the deadline.

Workflow assignment 2 (25 points): Build your own workflow

Construct a workflow that opens a given file and counts the number of times a given word appears in that file. You can display the number any way you'd like, for example by using a Display actor. (Hint: You may find the String Splitter actor and one or more of the Array actors useful, however, any correct workflow using other actors is also acceptable). You can access a sample text file to test your workflow at http://www.cs.pdx.edu/~howe/cs410/warandpeace.txt.

Email the XML files of Workflows 1 and 2 to bright@cs.pdx.edu before class on August 10. Please name the files something like <your_name>1.xml and <your_name>2.xml.
Turn in written answers to Questions 1 and 2 at the beginning of class on August 10.