SE311: Software Architecture II

Lab 1: Pipe and Filter

Goal:

The objective of this lab is to practice Pipe and Filter architecture style and basic concurrent programming techniques.

Requirements:

Write an UpperCaseConverter system using Java and Eclipse. This system should include:

1. A generator that reads a file and puts lines into a pipe
2. A converter that transforms all the lines in the pipe to upper case. It should put the output to the screen and a file.

Instructions

You should use the attached files as part of your program, the Pipe.java, PipeImpl.java, Filter.java, and UpperCaseMain.java

You need to submit the following two parts:

Part 1: A UML class diagram showing the Pipe and Filter design

You can draw the UML class diagram using DIA, CClass or other tools, but you have to export the diagram into a **one-page pdf file.**

Part 2: Source code

You **have to using Eclipse** and Java, and submit the whole java project **as one zip file.**

Basic Naming Conventions

- Name entities with concatenated words as in *displayTime*
- Begin class names with capitals
- Name variables beginning with lowercase letters
- Name constants with capital as in I_AM_A_CONSTANT
- Use *get …, set…* and *is…* for accessor methods as in *getTime(), setName(), isBox()*(where the latter returns a Boolean value. Alternatively use *time* and *name* for attribute name.
- Name functions starting with a verb as in calculateWeight()
- Consider a convention for parameter. One convention is to use the prefix *a*, as in *sum(int anInteger1, int anInteger2)*