CISC 3320 Homework 1 Description and Assumptions

Michael Rocco

Assignment 1 is to demonstrate a basic understanding of how a Process Identification (PID) manager works. A PID manager makes sure that only one process ID is active at a time. It is responsible for assigning new IDs as well as setting PIDs as inactive when the process that was using them is finished. Inactive PIDs can then be used again for new processes.

The assignment states I can use any data structure of my choice, so I will use the built in Java utility BitSet class. BitSet was included in the original 1.0 version of the Java Development Kit1, so it can be assumed it will function adequately. It is an automatically scaling vector of boolean values. The BitSet vector can be allocated when it is declared, but if the book wants a function it gets done in a function. The assignment assumes Process IDs between 0 and MIN\_PID are meant to still be available for other uses than this program and allocates them, but does not use them.

Since the book assumes this will be written in C++, there are a few parts that will have to be done differently. The BitSet will be passed to each function because variables cant and shouldn’t be global in Java. To conform to Java naming practices the functions should be renamed to capitalize the first letter of every word without underscores between. For example release\_pid should be either ReleasePID or ReleaseProcessIdentification, but the requested names were used. Testing and demonstration output will be printed directly to file output.txt by way of a PrintStream.

References:

1)

<https://docs.oracle.com/javase/7/docs/api/java/util/BitSet.html>

2)

<https://www.oracle.com/java/technologies/javase/codeconventions-namingconventions.html>