Report

On

Programming Assignment 1

COEN 346 sect. YJ-X

Date of completion:

February 1st, 2023

Date of submission:

February 7th, 2023

By:

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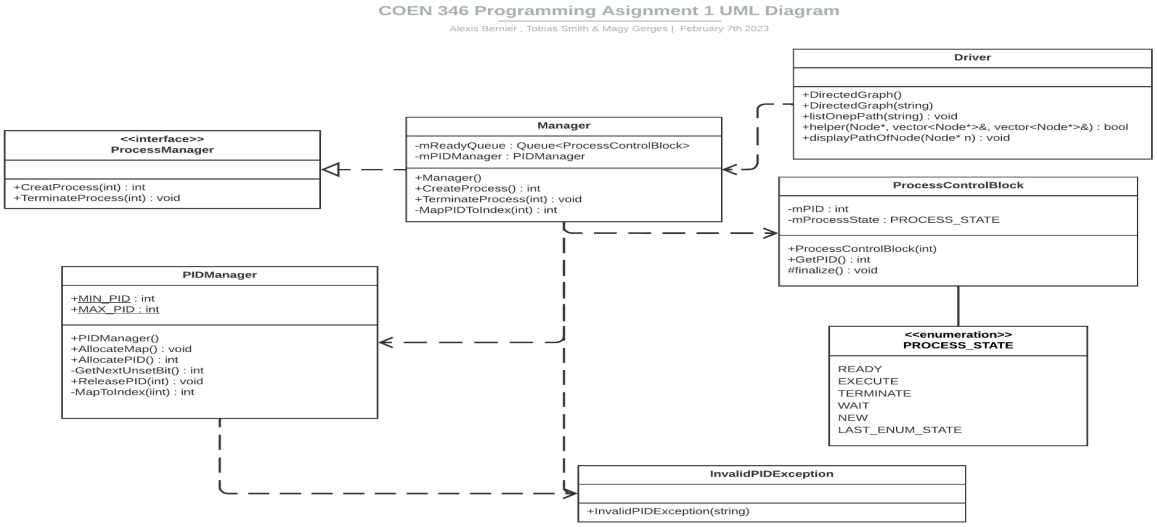
High Level Description Of The Program:

The PIDManager class attempts to allocate PIDs (Process IDs) in the range between 300 to 500. The PIDManager contains the three following functions. AllocateMap() which is used to create and initialize, in our case, an array to represent the PIDs and throws an exception if unsuccessful. The second function is AllocatePID() is used to allocate a PID and return it unless it's unable to allocate one then it throws an exception. The third function is ReleasePID(int aPID) which is used to release a PID once a process is terminated. The ProcessControlBlock class is used to represent any newly created process which contains the PID and the status for that process. The ProcessManager interface is used to allow operations on the processes which has two functions one to create a process and one which is used to terminate a process and they both throw an exception if they can't execute the operation. The Manager class implements the ProcessManager interface which is used to communicate with the PIDManager to request a PID when a process is created, it creates an object of the ProcessControlBlock class and adds it to the mReadyQueue queue and it would remove it from the queue and release the PID when the process is terminated. For all functions which needed to catch an exception, a custom exception class called InvalidPIDException which extends the Exception class.

We did not use a unit testing framework for the verification of the program. Instead, there is a very simple unit test implementation in the main function of Driver. The program ensures that none of the function calls fail (throw a custom InvalidPIDException) except for the function calls that should throw an exception.

UML Diagram:



A Detailed Conclusion:

The main difficulty of the assignment was re-familiarizing ourselves with Java. Certain parts of the assignment required specialized Java knowledge (Interfaces, etc). Structuring the program in a way that was logical and simple was difficult when there was a lot of required boilerplate relating to Java.

Issues that arose during this assignment are notably related to the formatting of the submission, the team found the description to be fairly confusing

Contributions:

Name	**Contribution**
Toby	Coded entire assignment (version used for the submission)
Magy	Coded entire assignment
Alexis	Coded entire assignment