CS 635 Advanced Object-Oriented Design & Programming
Fall Semester, 2018
Assignment 1

San Diego State University -- This page last updated 8/27/18

Assignment 1

Due Sept 6, 2018
Version 1.1

Produce code with the following functionality:

1. Implement a priority queue. Your queue needs to support adding new elements, return the element with the highest priority and removing the element with highest priority. Adding an element and removing the element with the highest element should be at most **O(log(N))** where N is the size of the queue.
2. Your queue needs to be able to hold Student objects. A student has a name, red id, email address, a GPA and number of units taken. GPAs are between 0.0 and 4.0. Units taken are between 0 and 150.
3. A students priority is determined 70% by the number of units taken and 30% by their GPA .
4. You need to be able to print out the elements in the queue in priority order. Print out the red id and name of the student.

You are to write your own priority queue code. Do not use any existing priority queue library.

Grading

Item	Percent of Grade
Working Code	30%
Unit Tests	20%
Comments	20%
Quality of Code	30%

Working Code. How well your code meets the functional requirements listed above accounts for 30% of the grade for the assignment.

Unit Tests. Having unit tests that cover the functionality of your code accounts for 20% of your grade. The unit tests are to be scalable. Tests using just print statements are not scalable.

See http://www.eli.sdsu.edu/courses/spring09/cs580/notes/SourceControlTesting.pdf for notes on unit testing (JUnit) in Java. See http://www.junit.org/ for more information about JUnit.

For Python there is unittest. For C++ there is CppUnit.

Comments. Having the appropriate comments in your code will count for 20% of the grade.

Quality of Code. Having good quality of code counts for 30% of the grade. Quality of code includes formatting, names and modularity.

For more information about comments and quality of code see the lecture notes of past CS535 courses. For even more information see The Art of Readable Code, Boswell & Foucher, O'Reilly, 2011.

What to Turn in

Turn in hard copy of your code and unit tests. On your assignment indicate if you are currently enrolled in the class or are trying to crash the class.

Late Policy

An assignment turned in 1-7 days late, will lose 5% of the total value of the assignment per day late. Once a solution to an assignment has been posted or discussed in class, the assignment will no longer be accepted. Late penalties are always rounded up to the next integer value.

Version History

1.1 Changed the performance of the queue from O(N) to O(log(N))