CS206 Introduction to Data Structures

Lab 5

Stacks, Debugging in Visual Studio Code

Thursday, Feb 20

Debugging in VSC
VSC includes a debugging facility far superior to System.out.println.
This is well described in https://code.visualstudio.com/docs/java/java-debugging. Realistically, this article covers much more on debugging than you will need for this course, the sections on Breakpoints, Pause and Continue, Step In/Out/Over, Variables, and Call Stacks are more than enough (for today). Using the code from Part 1 (or any previous assignment) experiment with breakpoints and the other things described in this article. Be sure you understand how to set breakpoints (and why), how to view the value of variables, how to execute a program line by line, and how to resume execution.

I expect that you will never again use print statements for debugging :-) (I still use print statements a lot, but I use breakpoints a lot too)

After reading about debugging, get PriorityQHeap.java (on Powerpuff at /home/gtowell/Public/206/a6/PriorityQHeap.java) which was discussed in class today. You will also need PriorityQInterface.java and AbstractPriorityQueue.java) The code here is slightly different, but only in that several "private" were changed to "protected".) With this code, set a breakpoint that allow you to step line-by-line through the execution of the while loop within the removeTop method. When the while loop completes, resume normal program execution. (Quite quickly your breakpoint will be re-invoked when the program advances to the point that another item is removed from the stack.)

Answer the following questions:
1. At what line did you set the breakpoint ?
2. What is the contents of the method stack when the breakpoint is invoked (pauses the execution of you program)?

3. As you step through the program execution (inside the while loop) what are the decisions dwn1 or dwn2 for the first 2 times the remove top method is called.
4. How many times does your breakpoint pause the programs execution?