

COMP 2355
Winter 2012
Homework #3
Due at midnight, February 28, 2012

For this assignment you need to modify the code from Homework #2. An official solution to Homework #2 will be posted on the course web page after the deadline for Homework #2. The following changes should be made:

1. Move all your code for the peg boards into a class (get moves, apply moves, etc):
 - a. Put all the common code into a single class.
 - b. Put custom code for different board sizes into different classes that inherit from the base class.
 - c. Modify the BFS so that you pass in a pointer to the peg board class that is being solved. This will allow you to pass either the large board or the small board and use the same code to solve either.
2. Modify your code for the BFS to reduce the memory requirements as follows:
 - a. Split the memory used by the BFS into 4 segments. (Each 1/4 the size of the state space.)
 - b. Add an extra loop in the BFS that successively loads one of the 4 segments into memory.
 - c. Each time you want to write a state into memory, you must check whether the state is in the current segment. (You will need to subtract the offset of the currently loaded segment from the location that you want to write.)
 - i. If it is, update the state as in Homework #2.
 - ii. If it isn't, write the state into a file associated with the segment for which the state belongs. (This file should be opened once at the beginning of the search and only closed when the main search is done.)
 - d. When you are done with a segment, write that segment back to disk and continue with the next segment.
 - e. After all segments are processed, there will be some states left on disk. Go through the segments one more time, loading the states that were written previously in step 2.c.ii and writing them to memory.
 - i. At this time also convert the states which are "*next depth*" to "*current depth*".
3. Test your code on the small and large boards, verifying that your answers are correct.

Submit your final assignment, including a text file containing the results of your program running on both board sizes, to your SVN repository in a folder entitled "HW3".