Homework Assignment 2

(250 points)

Assigned Date: Thursday, September 11, 2008

Due Date: 4:00 PM Thursday, September 25, 2008

Educational Goal

Become familiar with uninformed search strategies.

Requirements

- Implement the Vacuum World example (Lecture "Solving Problem by Searching", slides 13 and 14). Goal states are either State 7 or State 8. A vacuum could be in any state, initially. Write a program that takes any number between 1 and 8 as a valid initial state, and output the states it visits and calculate total path cost for breadth-first search and depth-first search, respectively. Notice that the program should be able to void repeated state in order to find the goal state.
- Based on your experimental results, write a one-page report with minimum 200 words to discuss what an appropriate search strategy is for this Vacuum World example (they could be equally good).

Submission Requirements

1. Follow the language requirements for programming assignments posted at http://www.cs.umb.edu/~ding/classes/470_670/student.htm
2. Your program should be well-documented. Variable names and function names should be self-descriptive. Major functions should be explained clearly in comments.
3. Test your program thoroughly using 9 inputs one by one. The 9 inputs are number 1, 2, 3, 4, 5, 6, 7, 8, and 100. Here 100 is an invalid input and the program should inform that it is an incorrect input. Submit the outputs of the 9 test cases.
4. Turn in the paper copy and soft copy of all the files of this assignment. Submit a single zipped file of all the files of this assignment through your UMassOnline account at http://boston.umassonline.net/index.cfm. Submit the paper copy along with the cover page in class. Paper copy should be bound firmly together as one pack (for example, staple, but not limited to, at the left corner). 5 points will be deducted for unbounded homework.
5. Name your file with AI_ lastname_firstname_hw2. For example, student John Smith should name his file as AI_Smith_John_hw2.zip.
6. No hard copies or soft copies results in 0 points.