Artificial Intelligence: Assignment 2

Due date: September 20 (Thursday)

Problem 1 (3 points)
Read Chapter 3 of the textbook and identify two important concepts that have not been presented in class. Give a brief description of these concepts and discuss their significance.

Problem 2 (2 points)
(a) Give an example of search space in which breadth-first search takes much more time than depth-first search. You may use an *artificial example,* that is, your space may not correspond to any real problem.

(b) Give an example of search space in which depth-first search is likely to take much more time than breadth-first search.

Problem 3 (5 points)
Suppose that the cost of a move in the 8-puzzle is equal to the number of the moved tile. That is, the cost of moving tile 1 is $1, the cost of moving tile 2 is $2, and so on. Implement a program that finds a *cheapest* solution; it should read a start state from a file, and print out a cheapest sequence of moves that leads to the goal state given in Figure 3.4 of the textbook. If there is no solution, it should output an appropriate message.