IS MSc Artificial Intelligence Programming II

Exercise 8
Issued: week 8

February 12, 2002

1. For the 8-puzzle problem, design a state representation. You will need to think about issues like:

   - What *needs* to be known i.e. what is the important information in a state?

   - What is it neccessary to represent explicitly, and what is it sufficient to have represented implicitly?

   - Are there any heuristics you could use to decide if one state is better (i.e. closer to the goal state) than another?

   - How do these heuristics impact on how you represent a state?

   - What is the goal state? Given your representation, how do you recognise it?

   - In what sense do you wish to recognise two states as being the same, even if their representations are different? Is "sameness" of states more complicated than simple equality?

   - What does the initial state look like? How do you derive it from the input to the problem?

2. Implement **isgoal, nextfrom, samestate** for the 8-puzzle and explore the behaviour of the general state space search program given in the lecture.