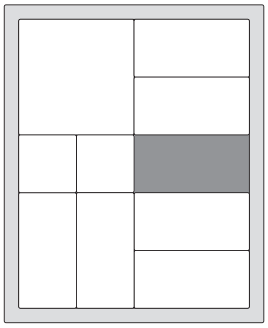
Algorithmic Programming Contest Announcement

The goal of this contest is to find interesting sliding-piece puzzles. The program which can assemble specified sets of pieces into the most difficult puzzles wins The Grand Prize: $100, plus a cool puzzle. Other contest entries that show originality, creativity, or higher-than-average performance will receive cash prizes and puzzles as well.

The contest is open to students in 6.046J/18.410J/SMA5503, but it is only for fun, not credit. Whether you participate or not will not in any way affect your final grade for the course. (Of course, outstanding entries may stick out in the Professors' minds if you ever need a recommendation.) Students may enter alone or in groups. The contest begins Monday, December 3, 2001, and it ends Monday, December 10, 2001. We provide you with sample code that is complete, but inefficient. To enter, all you need to do is improve the provided code. We expect a good submission can be prepared in an evening.

1 The Problem

One interesting category of puzzle is the *sliding-piece puzzle*. Typically, one is given a rectangular box containing several rectangular pieces, which may slide about in the box without rotating. The goal is usually to move a particular piece to a particular location in the box. For example, here is a classic puzzle known as *Dad's Puzzler*:



In this puzzle, the goal is to move the square piece in the upper left to the lower left. The shortest solution requires 59 moves.

We are going to consider puzzles where neither the box nor the pieces need be rectangular. The algorithmic challenge is to arrange a given set of pieces into as difficult a puzzle as possible.

2 Details

A complete specification of the contest requirements, as well as the sample code, will be available on the course website (`http://theory.lcs.mit.edu/classes/6.046`) at 12:00 noon EST, Monday, December 3, 2001.