# University of Denver
# Introduction to Artificial Intelligence
# HW #1; Due midnight April 21

1. Download the free minion CSP solver (http://minion.sourceforge.net/). Pre-built binaries are available for many platforms, or you can compile the source yourself.

2. Read the manual to find information about minion's input format. A sample cryptarithmetic problem is included; it is suggested that you try running this and use it as a basis for part 3. Many other samples are also in the manual. (You won't need many of the available language constructs to solve this assignment.)

3. Find a hard and easy sudoku problem on the web. Encode them as a CSP and solve them. Compare the running times.

4. Test to see if your sudokus start with a minimum representation by iteratively removing one number from the constraints and then testing to see if there is still a unique solution to the sudoku. (The -findallsols flag will do this, however, for easier problems it may still only return one solution.)

5. Write up and turn in your solution. Your write up should:
   - Define what a CSP is.
   - Discuss what a sudoku is.
   - Show why sudoku's are instances of CSPs.
   - Provide your solution in an "appendix" page (not directly in the writeup).
   - Provide the results from #3 and #4 above along with any observations.

6. E-mail your solution to the TA (Zachary Azar <zachazar@cs.du.edu>) and instructor (sturtevant@cs.du.edu) by midnight on April 21.