

**Computational Logic: CS 6374**  
**HW 7**

**Problem 1:** Program the N-Queen problem from the book.

**Problem 2:** Write a Prolog program to solve cryptarithmic addition problems such as

$$\begin{array}{r} \text{S E N D} \\ + \text{M O R E} \\ \hline \text{M O N E Y} \end{array}$$

The solution is  $D = 7$ ,  $E = 5$ ,  $M = 1$ ,  $N = 6$ ,  $O = 0$ ,  $R = 8$ ,  $S = 9$ ,  $Y = 2$ . Each letter should stand for a unique digit. If there is a solution, Prolog should return the list of letters and corresponding digits. If there is no solution, Prolog should report 'no'.

**Problem 3:** Program the block worlds. Assume that you have 5 blocks called **a**, **b**, **c**, **d**, and **e**. The goal is to find a sequence of moves from one configuration to another. A configuration is represented as a list of lists, e.g.,  $[[\mathbf{a}, \mathbf{b}, \mathbf{c}], [\mathbf{e}, \mathbf{d}]]$  denotes that block **c** is on top of block **b**, which is on top of block **a**, which is on the floor and that block **d** is on top of block **e**, which is on the floor.

**Problem 4:** Exercise 14.1 (i) pg. 261

**Problem 5:** Solve the stable marriage problem in Exercise 14.1 (ii) pg. 261