

# CSCI 2990 ASSIGNMENT 5 SPRING 2009

DUE APRIL 2

1. Create an array that contains the first 90 Fibonacci numbers, where  $\text{fibonacci}(1)=1$ ,  $\text{fibonacci}(2)=1$ , and for  $n \geq 3$   $\text{fibonacci}(n)=\text{fibonacci}(n-1)+\text{fibonacci}(n-2)$ .
2. Use this array that shows that  $\text{fibonacci}(n+1)/\text{fibonacci}(n)$  approaches the value of the Golden Ratio,  $(1+\text{the square root of } 5)/2$ .
3. Use a two-dimensional array to prove that the following is a magic square.

2 7 6  
9 5 1  
4 3 8

4. Show that if you replace each number in a magic square by the corresponding Fibonacci number, the sum of products of the rows equals the sum of products of the columns.