



ACM40660 Practical 9

ICHEC

August 29, 2019

1 Overview

This week we shall read input from a file. Feel free to write the output to a file as well.

2 Exercises

- Magic-Square problem. A square is defined as a square matrix with integer elements.
 1. Implement function *isMagicSquare* in file *magic_square.h* to check whether a square is magic. The function takes the matrix and checks whether every row, column and main diagonals sum to the same value M .
 2. Also implement the main function in file *main.c* to receive the matrix.
 3. Read the matrix in from a file. Note that you will need to read in the size n of the matrix first, before reading in the elements. You can arrange the input how you want in the file, as long as it is read in correctly.
 4. Check to see if it is magic.
 5. Analyse the time complexity of the algorithm developed in function *isMagicSquare* and express it in Big-Theta notation as a function of the square side n . You may need to run the same calculations many times to get a significant time.