Mathematics 1266 (C Programming) Hilary 2019, fifth assignment

March 17, 2019

due by 5pm Friday 29/3/19

This assignment is a small modification of the fifth assignment, and the specification for the fifth asignment is repeated with the following difference.

The fourth assignment was to extract 'minor matrices' from a given matrix. This assignment is to compute the determinant of an $n \times n$ matrix *either* with a function

```
double det ( int n, double  ** a ) { }
relying on a NEW FUNCTION
double ** extract_minor ( int m, int n, int rr, int cc, double ** a ){}
which returns a new matrix each time, using
double ** create_matrix ( int m, int n ){}
```

or (the choice is yours)

```
typedef struct { int m,n; double ** entry; } MATRIX;
...
double det ( MATRIX * a ){}
using a NEW FUNCTION
MATRIX * extract_minor ( int rr, int cc, MATRIX * a ){}
which uses a new function
MATRIX * create_matrix ( int m, int n ){}
```

You need to extract minor matrices and *recursively* compute the determinant. The difference from the previous assignment is that the matrices are not all stored in 10×10 arrays.

- Comments are important and helpful, but please try to keep the lines in your program short — under 80 columns wide.
- Make sure your program works, ***on the maths machines,*** or at least that it 'compiles.' It is bad if a program is not working properly, but the ***worst*** thing you can do is to submit a program which does not compile on the maths machines.
- In programming, it is very important to follow a specification *exactly,* and for this reason you will always be expected to follow the specification *exactly.*