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C07 Writeup

This assignment was an extension of C06. We had to add two new driver programs, corrupt\_data\_2d and detect\_data\_2d. Corrupt\_data\_2d is given an input file, a row index, a column index, a bit position, and an output file. This program will flip whatever bit is in the given position in row x col y.

Detect\_data\_2d takes an input file and determines if the file has been corrupted. If it has , it returns the row and column the corruption is located, or it prints no error detected if there is no corruption.

Below is the code for the new functions from utilities.c:

Corrupt() function:

A computer screen with text on it

Description automatically generated

Detect() function:

A screen shot of a computer program

Description automatically generated

Below are the two new driver programs passing valgrind:

Corrupt\_data\_2d:

A screenshot of a computer

Description automatically generated

Detect\_data\_2d:

A screen shot of a computer

Description automatically generated

Overall, this project was not too hard to implement. The hardest part for me was figuring out how to make the row, column and bit position default to something, because I thought I needed to know the rows and columns of the matrix beforehand. However, I realized I could initialize them to -1, and if it they were still -1 before calling the corrupt function, I could set them to the assumed value.

I also noticed when the bit to flip is 31, it makes a negative number, as shown below. The numbers above the matrices are the row position, column position and bit to flip in that order. I was going to make it so the bit could only be between 0 and 30, but the instructions say 0 and 31 so I left it.

A computer screen with white text

Description automatically generated