EE 6140 Final Project Fall 2023
Due on or before December 10th, 2023 for all sections.

The project involves coding PODEM. Your code is to be tested on the four circuit files that you have used in your earlier assignments. After you get your program to work, you should test it on a small circuit (the s27 circuit or another hand-coded circuit of your choice) against test vectors generated by hand.

Please report the test vectors generated by your program for the following faults:

For s27:
        Net 16 s-a-0, Net 10 s-a-1, Net 12 s–a-0, Net 18 s-a-1,
        Net 17 s-a-1, Net 13 s-a-0, Net 6 s-a-1, Net 11 s-a-0
For s298
        Net 70 s-a-1, Net 73 s-a-0, Net 26 s-a-1, Net 92 s-a-0,
        Net 38 s-a-0, Net 46 s-a-1, Net 3 s-a-1, Net 68 s-a-0
For s344
        Net 166 s-a-0, Net 71 s-a-1, Net 16 s-a-0, Net 91 s-a-1,
        Net 38 s-a-0, Net 5 s-a-1, Net 138 s-a-0, Net 91 s-a-0
For s349
        Net 25 s-a-1, Net 51 s-a-0, Net 105 s-a-1, Net 105 s-a-0,
        Net 83 s-a-1, Net 92 s-a-0, Net 7 s-a-0, Net 179 s-a-0

In each case above, list the bits of the test vector in the order of the input nets specified in the corresponding circuit file. If the fault is undetectable, you program should say so.

Verify that the test vector generated is indeed correct by using the deductive fault simulator that you wrote in the prior project assignment to perform fault simulation for the fault in question using the generated test vector.

These are the deliverables from your project:

1. You need to create a report titled "Report: PODEM", giving a short description of the flow of the program. Then for each of the faults indicated above, indicate the test vector generated by PODEM. Make sure that the vector is correct by running your deductive fault simulator with generated test vector.
2. Create an Appendix to your report starting on a new page. This is to be titled "User Manual: Fault Simulator and PODEM".   This must contain two subsections:
   (a) User Manual: deductive fault simulator:
       • Simulation environment to run the program (e.g. Python 3, C++, MATLAB, etc)
       • A README subsubsection for each step of running your program with screenshots of each step to help us run your program and verify its operability

(b) User Manual: PODEM:
- Simulation environment to run the program (e.g. Python 3, C++, MATLAB, etc)
- A README subsubsection for each step of running your program with screenshots of each step to help us run your program and verify its operability

With regard to 2 (a) and 2 (b) above:
Please specify in detail which tool you are using and how to run it, tool setup (if any) (explain clearly)

There should not be any extra communication needed apart from your readme file to run your program, points could be taken off if the steps are not very clear. For example:

1. Describe how to setup your tool (if any extra steps required) to test your program.
2. Describe how to run your program/how to take the input file and netlist in the program.
3. Describe the output file dumped by the program

The entire PODEM report must be typed and converted to pdf. Create a single zipped folder to upload to canvas. The zipped folder must contain two sub-folders with the names "Deductive_FS" and "PODEM" containing your code. The main folder must contain your PODEM report (including the README instructions in the Appendix) in pdf format.