ESE 549 Project 3 Report

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Part1:

1) In this part, I wrote 4 functions:
   a) podemRecursion(Circuit* myCircuit)
   b) getObjective(Gate* &g, char &v, Circuit* myCircuit)
   c) updateDFrontier(Circuit* myCircuit) and
   d) backtrace(Gate* &pi, char &piVal, Gate* objGate, char objVal, Circuit* myCircuit)

2) To write them I used the pseudocode mentioned in class note and in the comments.
3) While debugging, I followed the ex1 and ex2 examples stepwise figuring out couple of mistakes that I had made while writing the code.
4) I ran this code for all the testbenches and all fault files.
5) For the bigfault c432 file, the tests were generated in **22:42 minutes**.
6) To verify its correctness I used the diff function.

Part2:

1) For this part I wrote eventDrivenSim(Circuit* myCircuit, queue<Gate*> q).
2) I followed the algorithm mentioned in the comments and passed the queue as argument in the eventDrivenSim function call. (Somehow I had missed to pass it as an argument and was simply creating queue in the eventDrivenSim function itself)
3) I also had not changed the second simFullCircuit function call to eventDrivenSim function call. (There are 2 simFullCircuit function calls in podemRecursion function). As a result my algorithm was giving correct test results, but in 14 minutes!
4) After fixing all these mistakes, my code gave correct tests after **4:47 minutes** for c432.bigfault file. So I got around **5x** performance improvement over part1.

For both parts, the run-time for test generation was within the limits given by the Professor.

Note- I did not try any other optional optimizations.