Mini Project

1. To make sure that you start with your team meetings and study for your next midterm on ATPG, we designed a mini team project. This project is mandatory.

- Each group will be assigned with two nodes in the attached circuits with four SS@ faults. Considering two ATPG algorithms (D-alg and PODEM) were taught in class, each group will be responsible for total of 8 tasks of ATPG (each per person will be doing one PODEM and one D-Alg).

- Every Power Point should be named with following format:
  `"EE658_MiniProject_⟨GroupNumber⟩_⟨CircuitName⟩_⟨NodeName@fault⟩_⟨DALG-or-PODEM⟩"`, for example: EE658_MiniProject_12_C1_g@0_DALG.

- You are responsible for making Power Points from the steps of the algorithm to detect these faults.

- The steps should be very precise, mentioning the elements in your data structures (like D-frontier) at each step. We provided an example for both D-alg and PODEM.

- While every single person is responsible for two tasks, the grade will be assigned to the group.

- Please find your nodes and circuits in the same google sheet file as the one you used for reporting your team members.

2. In order to ensure that you can complete the following projects, we need each group solve the Eight Queens Problem. This project is mandatory. The eight queens problem is a problem posed by chess player Max Bethel in 1848. It is a typical case of backtracking algorithm. The question is formulated as follows: Place 8 queens on an $8{\times}8$ chess board so that they cannot attack each other, that is, no two queens can be in the same row, column or slash. Ask how many kinds of placements are there.

- The coordinates of the bottom left corner of the chessboard are defined as (0,0). The coordinates of the top right corner of the chessboard are defined as (7,7). The abscissa increases from left to right. The ordinate increases sequentially from bottom to top.

- Write a piece of code named as queen.cpp to solve the above problem. Print out each queens' coordinate into queen.txt file.

- The result should in the following format.
  Total solutions: n (Total solution number)
  Solution 1: (x11,y11), (x12,y12), ..., (x18,y18)
  Solution 2: (x21,y21), (x22,y22), ..., (x28,y28)
  ... ...
  Solution n: (xn1,yn1), (xn2,yn2), ..., (xn8,yn8)

3. For submission and presentation

- For submission, there should be only one single folder (no sub-folders) named: "EE658_MiniProject_⟨GroupNumber⟩".
  It includes a text file named "members.txt" with USC netID (username) of your group members in separate lines (do NOT include @usc.edu suffix or any names). Also, it should include pdf files(turning Power Points into pdf version). queen.cpp and queen.txt and corresponding complie.sh should also be included. Please use standard zip for compressing your files.

- Only one person per group should submit the project.

- After the first submission, each group should present their work to the matched groups. For the second submission, please type in the number of the group you graded and corresponding grades for each group in grade.txt file.

- You can revise your Power Points based on other group's comments and resubmit them before the final deadline. We encourage you to use online zoom to talk with other groups.

- The first deadline will be Oct. 29th, and the final deadline is 31st. After the second deadline, we will regrade all the submissions. The grades will be aggregated by both TA and the graded teams.