Midterm Take-home portion

AERO 552: Aerospace Information Systems

Fall 2023

You have until **11:59pm on Friday, November 17 (tomorrow)** to complete the coding portion of the exam and submit your solution on Canvas.

Exercise 5: Programming n-queens (20 points)

For this coding exercise (to do at home), remember the following guidelines:

- *For this exercise you may use the notes provided on Canvas.*
- **Do not use any C++ library, except** `vector`, `iostream` **and** `cmath`**.** *If you want to use a stack or queue library, please ask, but you shouldn't need it.*
- *All code from this homework will be graded on CAEN Linux using the* `g++` *compiler – please test it on CAEN prior to submission.*
- *Include your code along with the examples you have tested your code on. Examples would typically be in a function* `main`*. Please* **thoroughly test your code***: part of your grade will be based on how well you have tested your code, including corner cases. Moreover, many errors can be caught with good testing.*
- *Please submit code that compiles (on Linux)* **without any warning or error***, and runs right away. We will take off points if your code does not run or if it produces warnings.*
- *Be careful with pointer and memory management, and do not forget to* `delete` *your memory, even in your test cases. Points will be taken off for memory leaks (forgetting to* `delete`*).*
- *Please do not reference or utilize any online code.*
- *Post any question as a* **private post** *on Piazza.*

Implement an algorithm solving the n**-queens** problem using **iterative deepening**, for a given $n \geq 2$.

Pay attention to the formulation of the problem, and explain your work. User interface is left up to you, but should be explained and documented. Give the option to the user to generate several solutions (i.e., after a solution is displayed, an input from the user could generate another solution). If there are no solutions, or no more solutions, your implementation should say so.