CECS 451
Assignment 2
Total: 50 Points

General Instruction

- Submit your work in the Dropbox folder via BeachBoard (Not email or in class).

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1. (50 points) Implement a 5-queens problem solver with `Python 3` by using the **hill-climbing algorithm** and the **genetic algorithm**.

   i. I strongly recommend you follow the object-oriented programming style.

   ii. Find `n-queens.zip`.

   iii. Follow the specification

   - The program should use the as **the number of nonattacking pairs** as the **heuristic/fitness function**.
   - `hill_climb.py` should perform the **Hill-Climbing algorithm**.
   - `genetic.py` should perform the **Genetic algorithm** including the three operations, i.e., **selection, crossover, mutation** to find a solution.
   - The program should track the number of required steps (`self.no_steps`) to solve a problem.
   - The program should output a solution and be terminated.
   - An expected output format.

   ```
   The number of required steps: 5
   1 - - - -
   - - - 1 -
   - 1 - - -
   - - - - 1
   - - 1 - -
   ```

   iv. Submit `n-queens.zip` that includes your solutions, i.e., `hill_climb.py` and `genetic.py`.