

CECS 451  
Assignment 2  
Total: 50 Points

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General Instruction

- Submit uncompressed file(s) in the Dropbox folder via BeachBoard (Not email).
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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. Find `n-queens.ipynb`.

ii. Follow the specification

- The program should use the as **the number of nonattacking pairs** as the **heuristic/fitness function**.
- `HillClimb` class should perform the **Hill-Climbing algorithm**.
- `Genetic` class should perform the **Genetic algorithm** with 8 states including the three operations, i.e., **selection, crossover, mutation** to find a solution.
- The programs should track the number of required steps (`self.no_steps`) to solve a problem.
- The programs should output a solution and be terminated.
- An expected output format.

The number of required steps: 5

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1 - - - -  
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```

iii. Submit both `n-queens.ipynb` and `n-queens.html`.