Due data: 5/13/2020, end of the day. **Please submit** a **.ipynb** file (Python jupiter notebook file).

Question 1 – Programming (30 points):

Design a genetic algorithm to solve the polynomial fitting problem that we did in Homework #1.

Lecture 10 page 35 gives the pseudo-code for a **mutation**-only algorithm. You can simply implement this algorithm. Plot the original noisy data, the polynomial you obtained in Homework #1, and the polynomial you obtained from the genetic algorithm in the same figure for comparison.

[Bonus: 5 points] Implement the genetic algorithm with BOTH **mutation** and **crossover** operations (you decide the mutation rate and crossover rate). Plot the original noisy data, the polynomial obtained from this implementation, and the polynomial from the mutation-only genetic algorithm for comparison.

[Hint: Please refer to Lecture 10 page 33 – 36 and Mitchell textbook section 9.2]