Homework 7

1 Longest Common Subsequence (50')

Finish the LCS problem on `https://www.educoder.net/classrooms/9025/shixun_homework`.

2 Genetic Algorithm (50')

Use genetic algorithm to find x^* that

$$x^* = \arg\min_x x \cdot \sin(x)$$
$$x \in (-1, 15)$$

Use 16-bit binary digits to represent the chromosome of an individual.

- Implement your code in a *.cpp* file. Print the individual x with the best fitness score in each generation.
- Describe the implementation details, such as the stopping criterion, the selection method, the crossover method, the mutation method and so on, in a README file.

Hint: $x^* = \arg\min_x x \cdot \sin(x) \approx 11.0857$

3 Bonus (Voluntary) (50')

Answer the question 15-5 (a) in book *Introduction to Algorithm (3rd Edition), chapter 15*. Write down the dynamic progamming pseudo-code.

4 Due

1. Due is Nov. 15th, 23:59.
2. Pack a ZIP file for Q2 (and Q3, if finished), and submit it on the canvas.