CENG 3511
Artificial Intelligence
Project 3: Solving Knapsack using Genetic Algorithms
Deadline: Nov 30, 2019 2.29:59 pm

In this project, you are expected to solve the Knapsack problem using Genetic Algorithms. The program should implement the following methods for the corresponding task:

1. Representation
    a. Binary
2. Parent Selection
    a. Roulette-wheel
    b. k-Tournament (k value will be determined by user)
3. Crossover
    a. n-point (n value will be determined by user)
4. Mutation
    a. Bit-flip mutation (Mutation probability will be determined by user)
5. Survival Selection
    a. Age-based
    b. Fitness-based
6. Elitism
    a. will be determined by user.
7. Termination Criteria
    a. m-generation (the value m for maximum number of generation will be determined by user)

Submission
Your program will read 3 text files (c.txt, w.txt and v.txt) and generate a single output file (out.txt). Please check project folder for sample files and a starter Python code for the project.

- c.txt : capacity of knapsack
- w.txt: weights of items
- v.txt: value of items
- out.txt: solution (fittest chromosome, it's weight and value)

You should commit these files under ceng3511/p3/ folder in your git account until deadline.

NOTE: Your project will not be graded if you don't follow the submission rules.