

HW #3

Homework exercises should be done individually (You should write the solution by yourself). Solutions must be prepared in python programming language and submitted electronically before **11.59 pm on Sunday, December 18**. No credit will be given to solutions obtained verbatim from the Internet or other sources. **To get full credit for each question, you need to provide a brief explanation of your codes and the efficiency analysis with comments. Also, you need to provide the proof for the correctness of algorithm with comments.**

4. Ali is planning to visit a store to buy $2n$ specific items. The store offers a sale: for every pair of items one buys, the cheaper of the two is free.

Devise a greedy algorithm that pairs up the items Ali wants to buy, to save as much money as possible.

For example, if Ali buys six items that 22, 7, 15, 12, 5, 17. The pairs (22, 7), (15, 12), and (5, 17) will cost $22 + 15 + 17 = 54$. On the other hand, the pairs (22, 15), (7, 17), and (12, 5) will cost $22 + 17 + 12 = 51$.