Homework #2

1. Devise an exhaustive search algorithm that takes a sequence of integers as input, and outputs a partition of the sequence as two disjoint subsets such that the sum of the elements in each set will be same (*Hint: think about the Pluses and Minuses problem*).

2. Devise an exhaustive search algorithm that takes a sequnce of orderable items as input, and sorts them in nondecreasing order.

3. Devise a brute-force algorithm that takes a string of n characters as input, and outputs the number of palindromic substrings in the given string.

4. There is a sequence of n tasks $[t_1, t_2, \ldots, t_n]$ where every task has a deadline d_i and an associated profit p_i. Every task takes a single unit of time and only one task can be scheduled at a time. Also, the profit p_i can only be earned if the associated task is finished before the deadline d_i. Under these constraints, devise a brute-force algorithm that takes such sequence as input, and outputs a scheduling of tasks having the maximum possible total profit.