

## Homework 5

Due date: 04/16/2025

### Exercise 1 (source leetcode):

You are given an integer array *prices* where *prices [i]* is the price of a given stock on the *i*th day.

On each day, you may decide to buy and/or sell the stock. You can hold at most one share of the stock at any time. However, you can buy it then immediately and sell it on the same day.

Find the maximum profit that you can achieve.

**Example:**

**Input:** prices = [ 7, 1, 5, 3, 6, 4 ]

**Output:** 7

Buy on day 2 (price = 1) and sell on day 3 (price = 5), profit =  $5 - 1 = 4$ .

Then buy on day 4 (price = 3) and sell on day 5 (price = 6), profit =  $6 - 3 = 3$ .

Total profit:  $4 + 3 = 7$ .

**Note:** the investor can see all the prices in the array *prices*.

### Exercise 2 (leetcode):

Given string *num* representing a non-negative integer *num*, and an integer *k*, return the smallest possible integer after removing *k* digits from *num*.

**Example:**

**Input:** num = "1432219", k = 3

**Output:** "1219", remove digits 4, 3, 2

## Extra credit

### Exercise 1 (leetcode):

Given a string *s* which consists of lowercase and uppercase letters, return the length of the longest palindrome that can be built with those letters. Letters are case sensitive, meaning that "Aa" is not a palindrome.

Input:  $s = \text{"abccccdd"}$

Output: 7, the longest palindrome that can be built is "dccaccd".

**Exercise 2 (leetcode):**

Given an array **nums**, display the triples of indices  $(i, j, k)$  such that  $i < j < k$  and **nums**  $[i] < \text{nums} [j] < \text{nums} [k]$ .

Input: **nums** = [ 1, 2, 3, 4, 5 ]

Any triplet of array **nums** meets the requirement.