Say you have an array for which the *i*th element is the price of a given stock on day *i*.

Design an algorithm to find the maximum profit. You may complete as many transactions as you like (i.e., buy one and sell one share of the stock multiple times).

**Note:** You may not engage in multiple transactions at the same time (i.e., you must sell the stock before you buy again).

**Example 1:**

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

**Output:** 7

**Explanation:** 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.

**Example 2:**

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

**Output:** 4

**Explanation:** Buy on day 1 (price = 1) and sell on day 5 (price = 5), profit = 5-1 = 4.

  Note that you cannot buy on day 1, buy on day 2 and sell them later, as you are

  engaging multiple transactions at the same time. You must sell before buying again.

**Example 3:**

**Input:** [7,6,4,3,1]

**Output:** 0

**Explanation:** In this case, no transaction is done, i.e. max profit = 0.