121. Best Time to Buy and Sell Stock

Difficulty	easy
☑	☑
Finished	@July 8, 2023
Problem	array
Previously asked company	Goldman Sachs
website	leetcode

Question:

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

You want to maximize your profit by choosing a **single day** to buy one stock and choosing a **different day in the future** to sell that stock.

Return *the maximum profit you can achieve from this transaction*. If you cannot achieve any profit, return `0`.

Example 1:

```
Input: prices = [7,1,5,3,6,4]
Output: 5
Explanation: Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit = 6-1 = 5.
Note that buying on day 2 and selling on day 1 is not allowed because you must buy before
 you sell.
```

Example 2:

```
Input: prices = [7,6,4,3,1]
Output: 0
Explanation: In this case, no transactions are done and the max profit = 0.
```

Optimal solution:

Time complexity: O(n)

Space complexity: O(1)

```
class Solution(object):
    def maxProfit(self, prices):
        buy = 0
        maxProfit = 0
        n = len(prices)
        for sell in range(1,n):
            if prices[sell] > prices[buy]:
                profit = prices[sell] - prices[buy]
                if profit > maxProfit:
```

```
                    maxProfit = profit
            else:
                buy = sell
        return maxProfit
```