

Squaring a Sorted Array

Σ SR Score	505
🔗 Link	https://www.educative.io/courses/grokking-the-coding-interview/R1ppNG3nV9R
📅 Last Reviewed	@April 3, 2022
# Time	1
# Score	1
≡ DS	arrays
≡ Algo	two pointers
▼ Stated	easy
▼ Perceived	medium
▼ List	REPEAT
☑ Needs Review	☑
☑ Repeat Offender	☐
☑ Confident	☐
Σ C_Date	1
Σ C_Solution	5
Σ C_Time	100
▼ Frequency	

▼ Problem Statement

Problem Statement

Given a sorted array, create a new array containing **squares of all the numbers of the input array** in the sorted order.

Example 1:

Input: [-2, -1, 0, 2, 3]

Output: [0, 1, 4, 4, 9]

Example 2:

Input: [-3, -1, 0, 1, 2]

Output: [0, 1, 1, 4, 9]

▼ Intuition

-

▼ Time & Space Considerations





- Time: $O(2n) \rightarrow O(n)$
 - bc of the array reversing at the end
- Space: $O(1)$ (not counting output)

▼ Review Notes

- ▼ [4/3/22]
 - didn't know how to deal with the negative case [-4, -3, 0, 1, 3], but got the two pointer logic
 - literally all I needed to do was reverse the array at the end (see second solution in `squaring_sorted_array.py`)

▼ Tracking

Scores			
📅 Date	# Time	# Score	📝 Notes
@April 3, 2022	1	1	https://www.notion.so/Squaring-a-Sorted-Array-6e0bcf489fc243b09cb91e07f4e1d8de#f975ecfd0759468a966b382020f1f90e

 Date	 Time	 Score	 Notes
			<u>Untitled</u>
			<u>Untitled</u>

▼ Solutions

```
# 4/3/22
# NS (no solution)
# had right idea of left + right pointers from start to end; couldn't figure out how to handle negative case with 0 in middle of array
def make_squares(arr):
    squares = []
    left, right = 0, len(arr) - 1
    while left <= right:
        if abs(arr[left]) > abs(arr[right]):
            squares.append(arr[left] * arr[left])
            left += 1
        else:
            squares.append(arr[right] * arr[right])
            right -= 1


    return squares[::-1]


def main():
    print("Squares: " + str(make_squares([-2, -1, 0, 2, 3])))
    print("Squares: " + str(make_squares([-3, -1, 0, 1, 2])))


main()
# -----
```

▼ Resources

Squares of a Sorted Array - Leetcode 977 - Python


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 https://www.youtube.com/watch?v=FPCZsG_AkUg



Interview Question


Squares of a Sorted Array



▼ GitHub

GCI-master-list/Pattern 2 - Two Pointers/Squaring a Sorted Array at main · psdev30/GCI-master-list

Contribute to psdev30/GCI-master-list development by creating an account on GitHub.

 <https://github.com/psdev30/GCI-master-list/tree/main/Pattern%202%20-%20Two%20Pointers/Squaring%20a%20Sorted%20Array>

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maste

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