

# Almost Sorted **■**



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Given an array with n elements, can you sort this array in ascending order using only one of the following operations?

- 1. Swap two elements.
- 2. Reverse one sub-segment.

# **Input Format**

The first line contains a single integer, n, which indicates the size of the array.

The next line contains n integers separated by spaces.

# **Constraints**

 $2 \le n \le 100000$  $0 \le d_i \le 1000000$ 

All  $d_i$  are distinct.

#### **Output Format**

- 1. If the array is already sorted, output yes on the first line. You do not need to output anything else.
- 1. If you can sort this array using one single operation (from the two permitted operations) then output yes on the first line and then:
  - **a.** If you can sort the array by swapping  $d_l$  and  $d_r$ , output swap lr in the second line. l and r are the indices of the elements to be swapped, assuming that the array is indexed from l to r.
  - **b.** Else if it is possible to sort the array by reversing the segment d[l...r], output *reverse l r* in the second line. l and r are the indices of the first and last elements of the subsequence to be reversed, assuming that the array is indexed from l to l.
  - $d[l \dots r]$  represents the sub-sequence of the array, beginning at index l and ending at index r, both inclusive.

If an array can be sorted by either swapping or reversing, stick to the swap-based method.

2. If you cannot sort the array in either of the above ways, output no in the first line.

# Sample Input #1

2 4 2

# Sample Output #1

yes swap 1 2

#### Sample Input #2

```
3
3 1 2
```

# Sample Output #2

no

# Sample Input #3

```
6
1 5 4 3 2 6
```

# Sample Output #3

```
yes
reverse 2 5
```

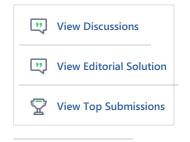
# **Explanation**

For #1, you can both swap(1, 2) and reverse(1, 2), but if you can sort the array using swap, output swap only. For #2, it is impossible to sort by one single operation (among those permitted).

For #3, you can reverse the sub-array d[2...5] = "5 4 3 2", then the array becomes sorted.



# Need Help?



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f ⊌ in

```
Current Buffer (saved locally, editable) & 🗸
                                                                                    C++14
                                                                                                                     Ö
 1 ▼ #include <iostream>
 2 #include <vector>
   #include <algorithm>
 3
 5
   int main()
 6 ▼ {
        int Size; std::cin >> Size;
 7
 8
        std::vector<int> vec(Size);
 9
        for(auto &it: vec) std::cin >> it;
10
11
        if(std::is_sorted(vec.begin(), vec.end()))
             std::cout << "yes" << std::endl;
12
13
        else
14 ▼
```

```
15
             std::vector<std::pair<int,int>> Front;
16
             std::vector<std::pair<int,int>> Back;
17
18
             int rev = Size - 1;
             for(int i = 0; i < Size-1; ++i)</pre>
19
20 ▼
             {
                 if(vec[i] > vec[i+1])
21 ▼
                     Front.emplace_back(std::make_pair(vec[i], i+1));
22 ▼
23
24 ▼
                 if(vec[rev] < vec[rev-1])</pre>
25 ▼
                     Back.emplace_back(std::make_pair(vec[rev], rev+1));
26
27
28
             }
29
             if(Front.size() <= 2 && Back.size() <= 2)</pre>
30 ▼
31 ▼
                 std::swap(vec[Front[0].second-1],vec[Back[0].second-1]);
32
                 if(std::is_sorted(vec.begin(), vec.end()))
33 ▼
34
                      std::cout << "yes\n" ;</pre>
                     std::cout << "swap " << Front[0].second << " " << Back[0].second <<"\n";
35 ▼
36
                 else std::cout << "no" << std::endl;</pre>
37
38
             }
39
             else
40 ▼
             {
41 ▼
                 Front.emplace_back(std::make_pair(Back[0].first, Back[0].second));
                 if(std::is_sorted(Front.rbegin(), Front.rend()))
42
43 ▼
                      //if( (Front.size() == vec.size())
44
                     std::cout << "yes\n" ;</pre>
45
                     std::cout << "reverse " << Front[0].second << " " << Back[0].second <<"\n";</pre>
46 ▼
47
                 }
48
                 else std::cout << "no" << std::endl;</pre>
49
             /*for(const auto &it: Front) std::cout<<it.first<<" "<<it.second<<"\n";</pre>
50 ▼
51
             std::cout<<std::endl;</pre>
52
             for(const auto &it: Back) std::cout<<it.first<<" "<<it.second<<"\n";*/</pre>
53
54
        return 0;
55 }
56
                                                                                                                 Line: 56 Col: 1
```

<u>**1**</u> <u>Upload Code as File</u> ☐ Test against custom input

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✓ Test Case #24

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