STUDENT REPORT

DETAILS

Name

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KUB23CSE131

EXPERIMENT

Title

PEAK ELEMENT FINDER

Description

Description: You are given an N- dimensional array arr[]. A peak element in the array is defined as an element whose value is greater than or equal to its neighboring elements (if they exist). Your task is to find the index of any peak element in the given array

Note: use 0-based indexing

Input:

An integer representing the number of elements in the array. N space-separated integers, denoting the elements of the array.

N space-separated integers ,denoting the elements of the array arr[]

Sample Input:

5

1 3 20 4 1

Sample Output:

2

Source Code:

```
def find_peak(arr):
    n = len(arr)

    # Check if the array is empty
    if n == 0:
        return -1

    # Check the first element
    if n == 1 or arr[0] >= arr[1]:
        return 0

    # Check the last element
    if arr[n - 1] >= arr[n - 2]:
        return n - 1

    # Check the middle elements
    for i in range(1, n - 1):
        if arr[i] >= arr[i - 1] and arr[i] >= arr[i + 1]:
            return i

    return -1  # If no peak is found (though there should be at least one)

# Sample input
input_data = "5\n1 3 20 4 1"
lines = input_data.split("\n")
n = int(lines[0])  # Number of elements
arr = list(map(int, lines[1].split()))  # The elements of the array

# Find and print the index of a peak element
peak_index = find_peak(arr)
print(peak_index)
```

RESULT

3 / 5 Test Cases Passed | 60 %