

GE23131-Programming Using C-2024

Quiz navigation



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Question 1

Correct

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Status	Finished
Started	Monday, 13 January 2025, 1:50 PM
Completed	Monday, 13 January 2025, 1:58 PM
Duration	7 mins 58 secs

Given an array of integers, reverse the given array in place using an index and loop rather than a built-in function.

Example

arr = [1, 3, 2, 4, 5]

Return the array [5, 4, 2, 3, 1] which is the reverse of the input array.

Function Description

Complete the function `reverseArray` in the editor below.

`reverseArray` has the following parameter(s):

`int arr[n]`: an array of integers

Return

`int[n]`: the array in reverse order

Constraints

$1 \leq n \leq 100$

$0 < arr[i] \leq 100$

Input Format For Custom Testing

The first line contains an integer, n , the number of elements in `arr`.

Each line i of the n subsequent lines (where $0 \leq i < n$) contains an integer, `arr[i]`.

Sample Case 0

Sample Input For Custom Testing

5
1
3
2
4
5

Sample Output

5
4
2
3
1

Explanation

The input array is [1, 3, 2, 4, 5], so the reverse of the input array is [5, 4, 2, 3, 1].

Sample Case 1

Sample Input For Custom Testing

4
17
10
21
45

Sample Output

45
21
10
17

Explanation

The input array is [17, 10, 21, 45], so the reverse of the input array is [45, 21, 10, 17].

Answer: (penalty regime: 0 %)

Reset answer

```
1. /*
2.  * Complete the 'reverseArray' function b
3.  *
4.  * The function is expected to return an
5.  * The function accepts INTEGER_ARRAY arr
6.  */
7.
8. /*
9.  * To return the integer array from the f
10.  *   - Store the size of the array to b
11.  *   - Allocate the array statically or
12.  *
13.  * For example,
14.  * int* return_integer_array_using_static
15.  *   *result_count = 5;
16.  *
17.  *   static int a[5] = {1, 2, 3, 4, 5};
18.  *
19.  *   return a;
20.  * }
21.  *
22.  * int* return_integer_array_using_dynamic
23.  *   *result_count = 5;
24.  *
25.  *   int *a = malloc(5 * sizeof(int));
26.  *
27.  *   for (int i = 0; i < 5; i++) {
28.  *       *(a + i) = i + 1;
29.  *   }
30.  *
31.  *   return a;
32.  * }
33.  *
34.  */
35. int* reverseArray(int arr_count, int *arr
36.     *result_count = arr_count;
37.     static int rev[100];
38.     int i,j=0;
39.     for(i = arr_count-1;i>=0;i--)
40.         rev[j++] = arr[i];
41.     return rev;
42.
43. }
44.
```

Test



```
int arr[] = {1, 3, 2, 4, 5};
int result_count;
int* result = reverseArray(5, arr, &result_count);
for (int i = 0; i < result_count; i++)
    printf("%d\n", *(result + i));
```

Passed all tests! ✓

An automated cutting machine is used to cut rods into segments. The cutting machine can only hold a rod of *minLength* or more, and it can only make one cut at a time. Given the array *lengths[]* representing the desired lengths of each segment, determine if it is possible to make the necessary cuts using this machine. The rod is marked into lengths already, in the order given.

Example

n = 3
lengths = [4, 3, 2]
minLength = 7

The rod is initially $\text{sum}(\text{lengths}) = 4 + 3 + 2 = 9$ units long. First cut off the segment of length $4 + 3 = 7$ leaving a rod $9 - 7 = 2$. Then check that the length 7 rod can be cut into segments of lengths 4 and 3. Since 7 is greater than or equal to *minLength* = 7, the final cut can be made. Return "Possible".

Example

n = 3
lengths = [4, 2, 3]
minLength = 7

The rod is initially $\text{sum}(\text{lengths}) = 4 + 2 + 3 = 9$ units long. In this case, the initial cut can be of length 4 or $4 + 2 = 6$. Regardless of the length of the first cut, the remaining piece will be shorter than *minLength*. Because $n - 1 = 2$ cuts cannot be made, the answer is "Impossible".

Function Description

Complete the function *cutThemAll* in the editor below.

cutThemAll has the following parameter(s):

int lengths[n]: the lengths of the segments, in order

int minLength: the minimum length the machine can accept

Returns

string: "Possible" if all $n-1$ cuts can be made. Otherwise, return the string "Impossible".

Constraints

- $2 \leq n \leq 10^5$
- $1 \leq l \leq 10^9$
- $1 \leq \text{lengths}[i] \leq 10^9$
- The sum of the elements of *lengths* equals the uncut rod length.

Input Format For Custom Testing

The first line contains an integer, *n*, the number of elements in *lengths*.

Each line *i* of the *n* subsequent lines (where $0 \leq i < n$) contains an integer, *lengths[i]*.

The next line contains an integer, *minLength*, the minimum length accepted by the machine.

Sample Case 0

Sample Input For Custom Testing

STDIN Function

— —

4 → lengths[] size n = 4

3 → lengths[] = [3, 5, 4, 3]

5

4

3

9 → minLength = 9

Sample Output

Possible

Explanation

The uncut rod is $3 + 5 + 4 + 3 = 15$ units long. Cut the rod into lengths of $3 + 5 + 4 = 12$ and 3. Then cut the 12 unit piece into lengths 3 and $5 + 4 = 9$. The remaining segment is $5 + 4 = 9$ units and that is long enough to make the final cut.

Sample Case 1

Sample Input For Custom Testing

STDIN Function

— —

3 → lengths[] size n = 3

5 → lengths[] = [5, 6, 2]

6

2

12 → minLength = 12

Sample Output

Impossible

Explanation

The uncut rod is $5 + 6 + 2 = 13$ units long. After making either cut, the rod will be too short to make the second cut.

Answer: (penalty regime: 0 %)

Reset answer

```
1. /*
2.  * Complete the 'cutThemAll' function below
3.  *
4.  * The function is expected to return a string
5.  * The function accepts following parameters:
6.  * 1. LONG_INTEGER_ARRAY lengths
7.  * 2. LONG_INTEGER minLength
8.  */
9.
10. /*
11.  * To return the string from the function
12.  *
13.  * For example,
14.  * char* return_string_using_static_allocation()
15.  * {
16.  *     static char s[] = "static allocation of string";
17.  *     return s;
18.  * }
19.  *
20.  * char* return_string_using_dynamic_allocation()
21.  * {
22.  *     char* s = malloc(100 * sizeof(char));
23.  *     s = "dynamic allocation of string";
24.  *     return s;
25.  * }
26.  *
27.  *
28.  */
29. char* cutThemAll(int lengths_count, long
30.     int s=0;
31.     for(int i=0;i<lengths_count-1;i++)
32.     {
33.         s +=*(lengths + i);
34.     }
35.     if(s >=minLength)
36.     {
37.         return "Possible";
38.     }
39.     else
40.     {
41.         return "Impossible";
42.     }
43. }
44.
45.
```

	Test	Expected
✓	long lengths[] = {3, 5, 4, 3}; printf("%s", cutThemAll(4, lengths, 9))	Possible
✓	long lengths[] = {5, 6, 2}; printf("%s", cutThemAll(3, lengths, 12))	Impossible

Passed all tests! ✓