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GE23131-Programming Using C-2024

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Started	Sunday, 12 January 2025, 10:49 PM
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Question **1**

Correct

Marked out of 1.00

Flag question

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

$1 \le n \le 100$

$0 < arr[i] \le 100$

Input Format For Custom Testing

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

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

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

```
/*
 * Complete the 'reverseArray' function below.
 *
 * The function is expected to return an INTEGER_ARRAY.
 * The function accepts INTEGER_ARRAY arr as parameter.
 */

/*
 * To return the integer array from the function, you should:
 *     - Store the size of the array to be returned in the result_co
 *     - Allocate the array statically or dynamically
 *
 * For example,
 * int* return_integer_array_using_static_allocation(int* result_cou
 *     *result_count = 5;
 *
 *     static int a[5] = {1, 2, 3, 4, 5};
 *
 *     return a;
 * }
 *
 * int* return_integer_array_using_dynamic_allocation(int* result_co
 *     *result_count = 5;
 *
 *     int *a = malloc(5 * sizeof(int));
 *
 *     for (int i = 0; i < 5; i++) {
 *         *(a + i) = i + 1;
 *     }
 *
 *     return a;
```

```
#include<stdio.h>
#include<stdlib.h>
int* reverseArray(int arr_count, int *arr, int *result_count) {
    int* result=(int*)malloc(arr_count * sizeof(int));
    if(result==NULL)
    {
        return NULL;
    }
    for (int i=0;i<arr_count;i++)
    {
        result[i]=arr[arr_count-i-1];
    }
    *result_count=arr_count;
    return result;
}

```

	Test	Expected	Got	

✓	`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));`
		5
		4
		2
		3
		1
			5
			4
			2
			3
			1
				✓

Passed all tests! ✓

Question **2**

Correct

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

Flag question

Example

n = 3

lengths = [4, 3, 2]

minLength = 7

The rod is initially *sum(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 *sum(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.

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

- $2 \le n \le 10^5$
- $1 \le t \le 10^9$
- $1 \le lengths[i] \le 10^9$
- *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 $0 \le i < n$) contains an integer, *lengths[i]*.

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

Sample Case 0

```
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
```

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

```
/*
 * Complete the 'cutThemAll' function below.
 *
 * The function is expected to return a STRING.
 * The function accepts following parameters:
 *  1. LONG_INTEGER_ARRAY lengths
 *  2. LONG_INTEGER minLength
 */

/*
 * To return the string from the function, you should either do stat
 *
 * For example,
 * char* return_string_using_static_allocation() {
 *     static char s[] = "static allocation of string";
 *
 *     return s;
 *  char* return_string_using_dynamic_allocation() {
 *     char* s = malloc(100 * sizeof(char));
 *
 *     s = "dynamic allocation of string";
 *
 *     return s;
 * }
 *
 */
#include<stdio.h>
char* cutThemAll(int lengths_count, long *lengths, long minLength) {
long t=0,i=1;
for(int i=0;i<=lengths_count-i;i++)
{
    t+=lengths[i];
}
do
{
    if(t-lengths[lengths_count-1]<minLength)
    {
        return "Impossible";
    }
    i++;
}while(i<lengths_count-i);
return"Possible";
}

```

	Test	Expected	Got	

✓	`long lengths[] = {3, 5, 4, 3};`
	`printf("%s", cutThemAll(4, lengths, 9))`
		Possible	Possible	✓

✓	`long lengths[] = {5, 6, 2};`
	`printf("%s", cutThemAll(3, lengths, 12))`
		Impossible	Impossible	✓

Finish review