

Candidate Assessment

Outlined below are 3 programming tasks for you to demonstrate your approach to problem solving.

Please complete as many tasks as you can in no more than **one hour**. Do not worry if you're unable to solve them all in this time, partial solutions or pseudo code are still welcome.

Each task should be completed in separate files.

Task 1

Consider a sequence of integers A_1, A_2, \dots for which $A_n = A_{(n-1)} + A_{(n-2)}$ for all $n > 2$. You are given the first two elements of the sequence A_1 and A_2 , and the index n .

Write a function to output the n -th element of the sequence. The function will take a single argument consisting of a single string which contains integers A_1, A_2 and n separated by single spaces.

Example: Input '1 2 5'
 Output 8

Task 2

You are given an array of strings. Each array element contains one or several words separated with single spaces.

Write a function to reverse the order of the words in each element of the array. Additionally where a word contains a sequence of the same character, replace the sequence with $*$ characters of the same length.

Example: Input ['Hello World', 'Bye World', 'Useless World']
 Output ['World He**o', 'World Bye', 'World Usele**']

Task 3

To see if a number is divisible by 3, you need to add up the digits of its decimal notation, and check if the sum is divisible by 3.

To see if a number is divisible by 11, you need to split its decimal notation into pairs of digits (starting from the right end), add up corresponding numbers and check if the sum is divisible by 11.

Given an array of integers, write a function that tests each integer for their divisibility into 3 and 11 using the above methods.

The function must return a new array containing the results:

- If the integer is divisible by 3, the result is 'fizz'
- If the integer is divisible by 11, the result is 'buzz'
- If the integer is divisible by both 3 and 11, the result is 'fizzbuzz'
- If the integer isn't divisible by 3 or 11, the result is 'baz'

Example: Input [2, 3, 10, 11, 12, 22, 297]
 Output ['baz', 'fizz', 'baz', 'buzz', 'fizz', 'buzz',
 'fizzbuzz']