

## Greedy Algorithms

### (Assignment Questions)

#### **Question 1 : Split a String in Balanced Strings**

Balanced strings are those that have an equal quantity of 'L' and 'R' characters.

Given a balanced string s, split it into some number of substrings such that: Each substring is balanced.

Return the maximum number of balanced strings you can obtain. [ [Go to Qs](#) ]

Examples :

*Input:* s = "RLRRRLLRRL"

*Output:* 4

*Explanation:* s can be split into "RL", "RRL", "RL", "RL", each substring contains the same number of 'L' and 'R'.

#### **Question 2 : Largest Odd Number in String**

You are given a string num, representing a large integer. Return the largest-valued odd integer (as a string) that is a non-empty substring of num, or an empty string "" if no odd integer exists.

A substring is a contiguous sequence of characters within a string. [ [Go to Qs](#) ]

Examples :

*Input:* num = "52"

*Output:* "5"

*Explanation:* The only non-empty substrings are "5", "2", and "52". "5" is the only odd number.

#### **Question 3 : Smallest String With A Given Numeric Value**

The numeric value of a lowercase character is defined as its position (1-indexed) in the alphabet, so the numeric value of a is 1, the numeric value of b is 2, the numeric value of c is 3, and so on.

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The numeric value of a string consisting of lowercase characters is defined as the sum of its characters' numeric values. For example, the numeric value of the string "abe" is equal to  $1 + 2 + 5 = 8$ .

You are given two integers  $n$  and  $k$ . Return the lexicographically smallest string with length equal to  $n$  and numeric value equal to  $k$ .

Note that a string  $x$  is lexicographically smaller than string  $y$  if  $x$  comes before  $y$  in dictionary order, that is, either  $x$  is a prefix of  $y$ , or if  $i$  is the first position such that  $x[i] \neq y[i]$ , then  $x[i]$  comes before  $y[i]$  in alphabetic order. [[Go to Qs](#)]

*Example :*

*Input:*  $n = 3, k = 27$

*Output:* "aay"

*Explanation:* The numeric value of the string is  $1 + 1 + 25 = 27$ , and it is the smallest string with such a value and length equal to 3.

#### Question 4 : Best Time to Buy and Sell Stock

You are given an array  $\text{prices}$  where  $\text{prices}[i]$  is the price of a given stock on the  $i$ th day. You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock.

Return the maximum profit you can achieve from this transaction. If you cannot achieve any profit, return 0. [[Go to Qs](#)]

*Example :*

*Input:*  $\text{prices} = [7,1,5,3,6,4]$

*Output:* 5

*Explanation:* Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit =  $6 - 1 = 5$ .

*Note that buying on day 2 and selling on day 1 is not allowed because you must buy before you sell.*

**Note :** This question was already covered in class lectures of previous chapters.

**Question 5 : Split Array Largest Sum**

Given an integer array `nums` and an integer `k`, split `nums` into `k` non-empty subarrays such that the largest sum of any subarray is minimized. Return the minimized largest sum of the split. (A subarray is a contiguous part of the array.) [ [Go to Qs](#) ]

*Example :*

*Input:* `nums` = [7,2,5,10,8], `k` = 2

*Output:* 18

*Explanation:* There are four ways to split `nums` into two subarrays.

The best way is to split it into [7,2,5] and [10,8], where the largest sum among the two subarrays is only 18.

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