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 = "RLRRLLRLRL"

   Output: 4

   Explanation: s can be split into "RL", "RRLL", "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.

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] != 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 prices where prices[i] is the price of a given stock on the ith 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: 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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