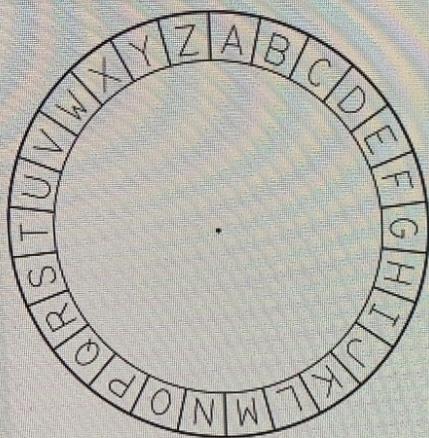


## 1. Code Question 1

As part of a Day 1 Challenge, your new team at Amazon has created a basic alphabet-based encryption and has asked members to test the cipher. A simple cipher is built on the *alphabet wheel* which has uppercase English letters [A'-Z'] written on it:



Given an encrypted string consisting of English letters [A'-Z'] only, decrypt the string by replacing each character with the  $k^{\text{th}}$  character away on the wheel in the counter-clockwise direction. Counter-clockwise is the opposite direction in which the hands on a clock usually move.

### Example

encrypted = 'VTAOG'

$k = 2$

Looking back 2 from 'V' returns 'T', from 'T' returns 'R' and so on. The decrypted string is 'TRYME'.

### Function Description

Complete the function `simpleCipher` in the editor below.

`simpleCipher` has the following parameter(s):

`encrypted`: a string

`k`: an integer

Returns

`string`: the decrypted string

### Constraints



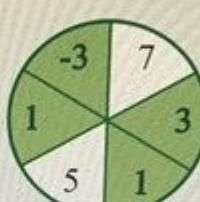
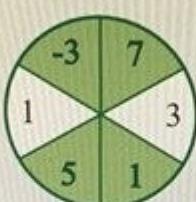
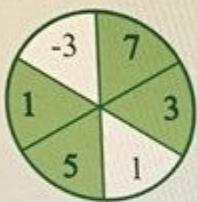
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## 2. Code Question 2

An Amazon seller is deciding which of their products to invest in for the next quarter to maximize their profits. They have each of their products listed as segments of a circle. Due to varying market conditions, the products do not sell consistently. The seller wants to achieve maximum profit using limited resources for investment. The product list is segmented into a number of equal segments, and a projected profit is calculated for each segment. The projected profit is the cost to invest versus the sale price of the product. The seller has chosen to invest in a number of contiguous segments along with those opposite. Determine the maximum profit the seller can achieve using this approach.

For example, the product list is divided into  $n = 6$  sections and will select  $k = 2$  contiguous sections and those opposite to invest in. The profit estimates are  $\text{profit} = [1, 5, 1, 3, 7, -3]$  respectively. The diagrams below show the possible choices with  $\text{profits}[0]$  at the 9 o'clock position and filling counterclockwise.



The profit levels, from left to right, are  $1 + 5 + 7 + 3 = 16$ ,  $5 + 1 + 7 + -3 = 10$ , and  $1 + 3 + -3 + 1 = 2$ . The maximum profit is 16.

### Function Description

Complete the function `maxProfit` in the editor below. The function must return the maximum profit achievable.

`maxProfit` has the following parameters:

`k`: an integer that denotes half of the needed number of products within the list  
`profit[profit[0],...,profit[n-1]]`: an array of integers that denote the profit from investing in each of the products

### Constraints

- $1 \leq k \leq n/2$
- $2 \leq n \leq 10^5$
- $n$  is even
- $0 \leq |\text{profit}[i]| \leq 10^9$ , where  $0 \leq i \leq n-1$

### Input Format For Custom Testing

#### Sample Case 0

Sample Input For Custom Testing

```
1  
2  
3  
-5
```

Sample Output

```
-2
```

## 2. Code Question 2

Your team at Amazon has been asked to help outline options for a hypothetical investment strategy. Imagine an investor opens a new account and wants to invest in a number of assets. Each asset begins with a balance of 0, and its value is stored in an array using 1-based indexing. Periodically, a contribution is received and equal investments are made in a subset of the portfolio. Each contribution will be given by *investment amount, start index, end index*. Each investment in that range will receive the contribution amount. Determine the maximum amount invested in any one investment after all contributions.

For example, start with an array of 5 elements: *investments* = [0, 0, 0, 0, 0]\*. The variables *left* and *right* represent the starting and ending indices, inclusive. Another variable, *contribution*, is the new funds to invest per asset. The first investment is at index 1.

	left	right	contribution	investments
1	2	10		[ 0, 0, 0, 0, 0]
2	4	5		[ 10, 10, 0, 0, 0]
3	5	12		[ 10, 15, 5, 5, 0]

				[ 10, 15, 17, 17, 12]
--	--	--	--	-----------------------

In the first round, a contribution of 10 is made to investments 1 and 2. In the second round, a contribution of 5 is made to assets 2, 3 and 4. Finally, in the third round, a contribution of 12 is added to investments 3, 4 and 5. The maximum invested in any one asset is 17.

\*Note: The *investments* array is not provided in the function. It is to be created after the number of assets available is known.

### Function description

Complete the *maxValue* function in the editor below.



*maxValue* has the following parameters:

*int n*: the number of investments available

*int rounds[0][3]*: each *rounds[i]* contains 3 integers, [*left*, *right*, *contribution*]

#### Returns:

*int*: the maximum invested in any one asset

### Constraints

- $3 \leq n \leq 10^7$
- $1 \leq o \leq 2 \times 10^5$
- $1 \leq \text{left} \leq \text{right} \leq n$
- $0 \leq \text{contribution} \leq 10^9$

### ► Input Format

### ▼ Sample Case 0

Sample Input 0



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hackerrank.com/test/4rcfkf9kit0/questions/51ee6lknsil

1h 3m left

ALL

## 2. Code Question 2

Amazon Web Services (AWS) is working on a new security feature to help encode text. Consider a string that consists of lowercase English alphabetic letters (i.e.,  $[a-z]$ ) only. The following rules are used to encode all of its characters into strings:

- $a$  is encoded as  $1$ ,  $b$  is encoded as  $2$ ,  $c$  is encoded as  $3$ , ..., and  $z$  is encoded as  $9$ .
- $j$  is encoded as  $10\#$ ,  $k$  is encoded as  $11\#$ ,  $l$  is encoded as  $12\#$ , ..., and  $z$  is encoded as  $26\#$ .
- If there are *two or more consecutive occurrences* of any character, then the character count is written within parentheses (i.e.,  $(c)$ ), where  $c$  is an integer denoting the count of consecutive occurrences being encoded) immediately following the encoded character. For example, consider the following string encodings:
  - String "abzx" is encoded as  $s = "1226\#24\#"$ .
  - String "aabccc" is encoded as  $s = "1(2)23(3)"$ .
  - String "baaj" is encoded as  $s = "2110\#(2)"$ .
  - String "wwxyzwww" is encoded as  $s = "23\#(2)24\#25\#26\#23\#(3)"$ .

Given an encoded string  $s$ , determine the character counts for each letter of the original, decoded string. Return an integer array of length  $26$  where index  $0$  contains the number of ' $a$ ' characters, index  $1$  contains the number of ' $b$ ' characters and so on.

**Function Description**  
Complete the *frequency* function in the editor below. It should return an array of  $26$  integers as

```
Language Python 3
Autocomplete Ready
1 > #!/bin/python3
10
11 #
12 # Complete the 'frequency' function below.
13 #
14 # The function is expected to return an INTEGER_ARRAY.
15 # The function accepts STRING s as parameter.
16 #
17
18 def frequency(s):
19
20     # Write your code here
21
22 > if __name__ == '__main__':

```

Test Results Custom Input Run Code Run Tests

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Language

1 > im  
9  
10  
11  
12  
13  
14  
15 >



## 2. Code Question 2

ALL



Kindle Direct Publishing, Amazon's e-book self-publishing platform, is working on a new feature to help authors track the use of text strings in different ways. A substring is a group of contiguous characters in a string. For instance, all substrings of *abc* are  $[a, b, c, ab, bc, abc]$ .

1

Given a binary representation of a number, determine the total number of substrings present that match the following conditions:

2

1. The 0's and 1's are grouped consecutively (e.g., 01, 10, 0011, 1100, 000111, etc.).
2. The number of 0's in the substring is equal to the number of 1's in the substring.

As an example, consider the string 001101. The 4 substrings matching the two conditions include [0011, 01, 10, 01]. Note that 01 appears twice, from indices 1-2 and 4-5. There are other substrings, e.g. 001 and 011 that match the first condition but not the second.

### Function Description

Complete the function *counting* in the editor below.

*counting* has the following parameter(s):

string *s*: a string representation of a binary integer

### Returns

int: the number of substrings of *s* that satisfy the two conditions



在这里输入你要搜索的内容



Test Results



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SAME AS

Count Binary Substrings - Leetcode 696 [DONE]

<https://leetcode.com/problems/count-binary-substrings/>

Coin Sequence [DONE]

<https://algo.monster/problems/amazon oa coin sequence>

Count Maximum Teams [DONE]

<https://algo.monster/problems/amazon oa count maximum teams>

Find Valid Discount Coupons [DONE]

<https://algo.monster/problems/amazon oa valid coupons>

Find Lowest Price [DONE]

<https://algo.monster/problems/amazon-oa-find-lowest-price>

Investment Max Value [DONE]

<https://algo.monster/problems/amazon-oa-investment-max-value>

Good Segment [DONE]

<https://algo.monster/problems/amazon-oa-good-segment>

Optimal Utilization [DONE]

<https://leetcode.com/discuss/interview-question/373202>

Beta Testing [DONE]

<https://leetcode.com/problems/minimum-difficulty-of-a-job-schedule/description/>

Maximum Element After Decreasing and Rearranging [DONE]

<https://leetcode.com/problems/maximum-element-after-decreasing-and-rearranging/>

Caesar Cipher Encryption [DONE]

<https://leetcode.com/discuss/interview-question/395045/Facebook-or-Phone-Screen-or-Caesar-Cipher>

<https://www.hackerrank.com/challenges/caesar-cipher-1/problem>

24 Game - Leetcode 679 [DONE]

<https://leetcode.com/problems/24-game/>

Swim in water [DONE]

<https://leetcode.com/discuss/interview-question/1397710/Amazon-OA-New-Grad-2022>

<https://leetcode.com/discuss/interview-question/1397698/Amazon-OA-2022-New-grad>

<https://leetcode.com/discuss/interview-question/1397739/Amazon-OA-2022-New-Grad>

K Closest Points to Origin - Leetcode 973 [DONE]

<https://leetcode.com/problems/k-closest-points-to-origin/>

Find Password Strength [DONE]

<https://leetcode.com/discuss/interview-question/1527679/amazon-oa-password-strength>

Grid Climbing - Number of Connections [DONE]

<https://leetcode.com/discuss/interview-question/1469651/amazon-oa-optimization-time-complexity-space-complexity>

Sliding Window Maximum - Leetcode 239 [DONE]

<https://leetcode.com/problems/sliding-window-maximum/>

Count of Smaller Numbers After Self - 315 [DONE]

<https://leetcode.com/problems/count-of-smaller-numbers-after-self/>

Fill the truck - Maximum Units on a Truck [DONE]

<https://cybergeeksquad.co/2021/06/fill-the-truck-maximum-units-on-a-truck-amazon-qa.html>

<https://leetcode.com/problems/maximum-units-on-a-truck/>

calculateValue

<https://leetcode.com/discuss/interview-question/1397739/Amazon-OA-2022-New-Grad>

turnstiles