1.Eliminate number

00 : 13 : 20

chiragsuther236@gma...

Question 26

Max. score 50.00

Eliminate numbers

After passing class 10th, James moves to class 11th. On the first day, his maths teacher gives him an interesting problem which is as follows:

You are given a set of binary elements. You have to eliminate the binary numbers that contain 11 as a substring. The resultant sequence will be 1, 10, 100, 101, 1000, and so on.

Please help him to determine the K^{th} value of the new sequence.

Input format

- First line: T denoting the number of test cases
- Next T lines: A single integer K

Output format

Print T lines representing the code to display the K^{th} value.

Constraints

$1 \leq T \leq 10^5$

$1 \leq K \leq 10^9$

Sample input 1

```
2
3
```

Sample output 1

```
100
1001
```

00 : 13 : 11

chiragsuthar236@gma...

Output format

Print T lines representing the code to display the K^{th} value.

Constraints

$1 \leq T \leq 10^5$

$1 \leq K \leq 10^8$

Sample input 1

```
2
3
9
```

Sample output 1

```
100
10001
```

Explanation

Test case 1: The sequence is 1,10,100 and so on. So the 3rd element of sequence is 100

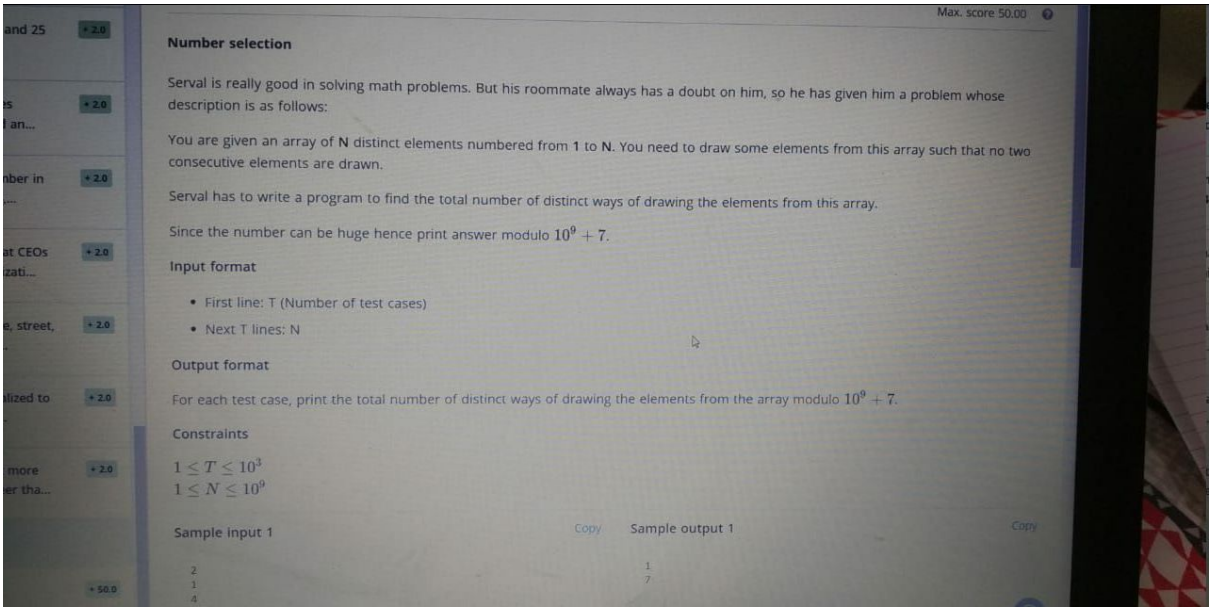
Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.

New Submission

All Submissions

https://www.geeksforgeeks.org/fibbinary-numbers-no-consecutive-1s-binary-o1-approach/amp/

2.Number Selection



Max. score 50.00

Number selection

Serval is really good in solving math problems. But his roommate always has a doubt on him, so he has given him a problem whose description is as follows:

You are given an array of N distinct elements numbered from 1 to N. You need to draw some elements from this array such that no two consecutive elements are drawn.

Serval has to write a program to find the total number of distinct ways of drawing the elements from this array.

Since the number can be huge hence print answer modulo $10^9 + 7$.

Input format

- First line: T (Number of test cases)
- Next T lines: N

Output format

For each test case, print the total number of distinct ways of drawing the elements from the array modulo $10^9 + 7$.

Constraints

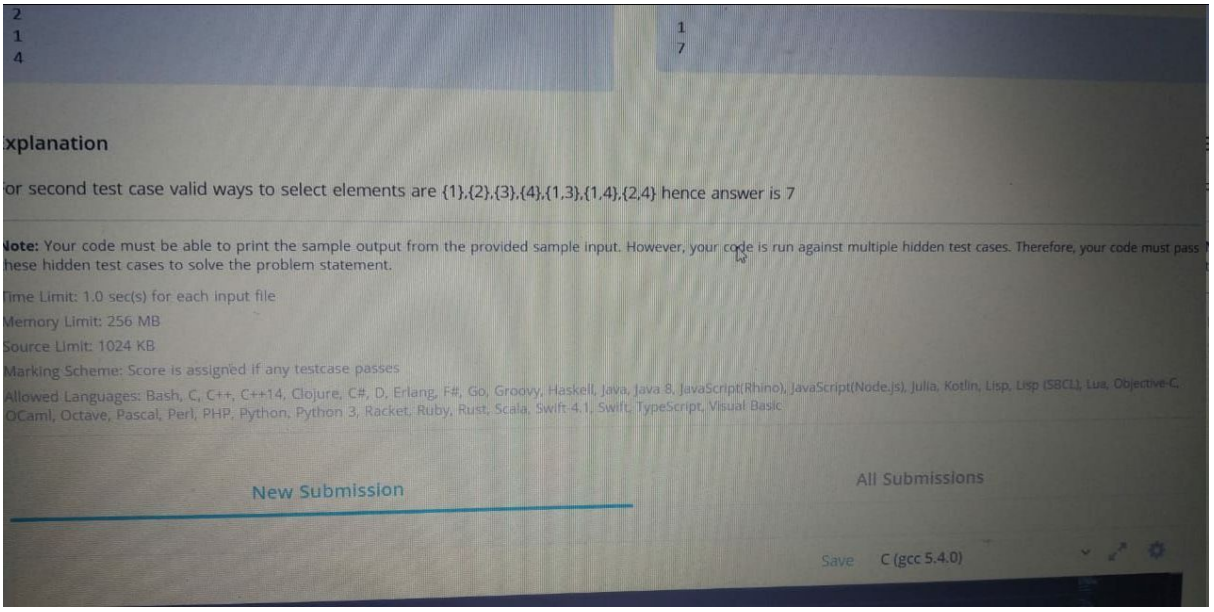
$1 \leq T \leq 10^3$
$1 \leq N \leq 10^9$

Sample input 1 Copy

```
2
1
4
```

Sample output 1 Copy

```
1
7
```



```
2
1
4
```

```
1
7
```

xplanation

or second test case valid ways to select elements are {1},{2},{3},{4},{1,3},{1,4},{2,4} hence answer is 7

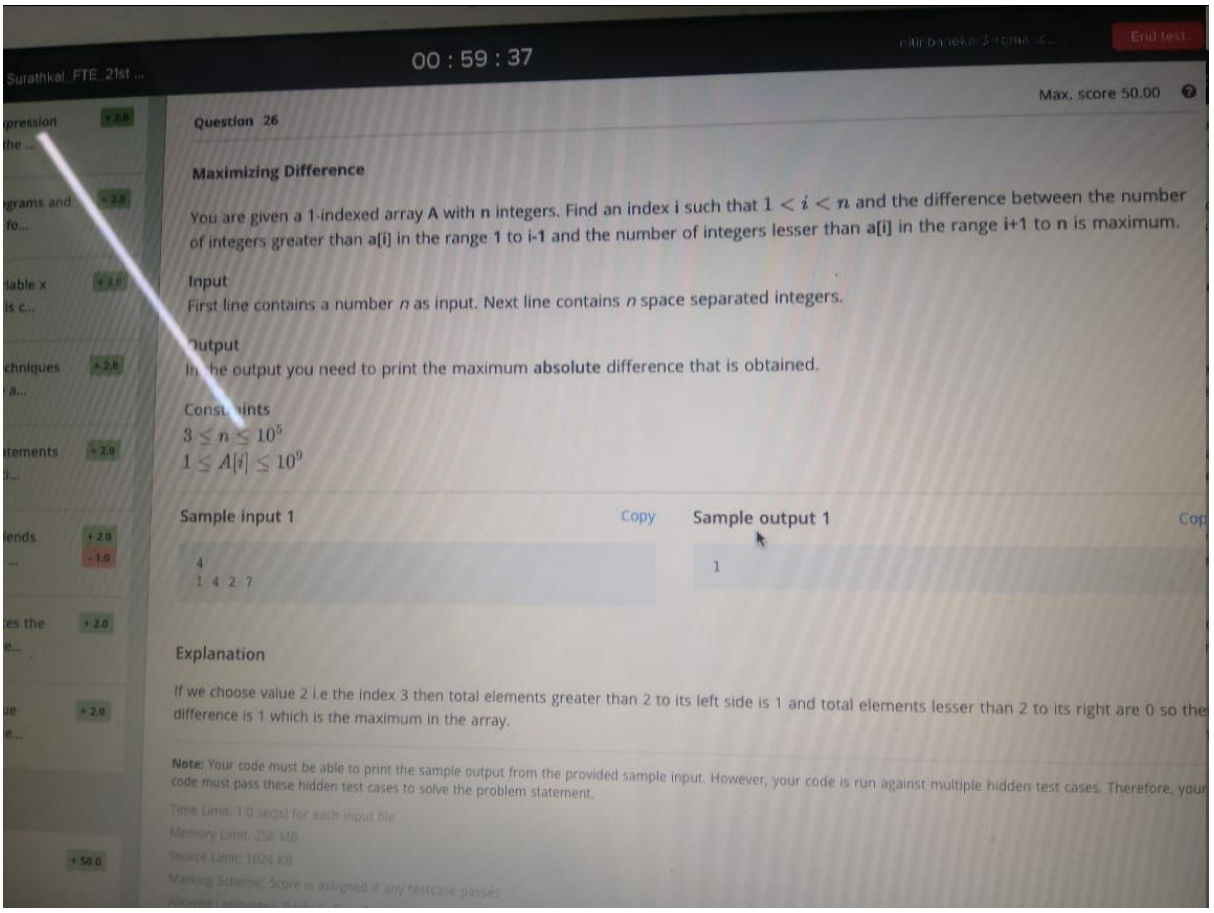
lote: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass hese hidden test cases to solve the problem statement.

Time Limit: 1.0 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB
Marking Scheme: Score is assigned if any testcase passes
Allowed Languages: Bash, C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Racket, Ruby, Rust, Scala, Swift 4.1, Swift, TypeScript, Visual Basic

New Submission | All Submissions

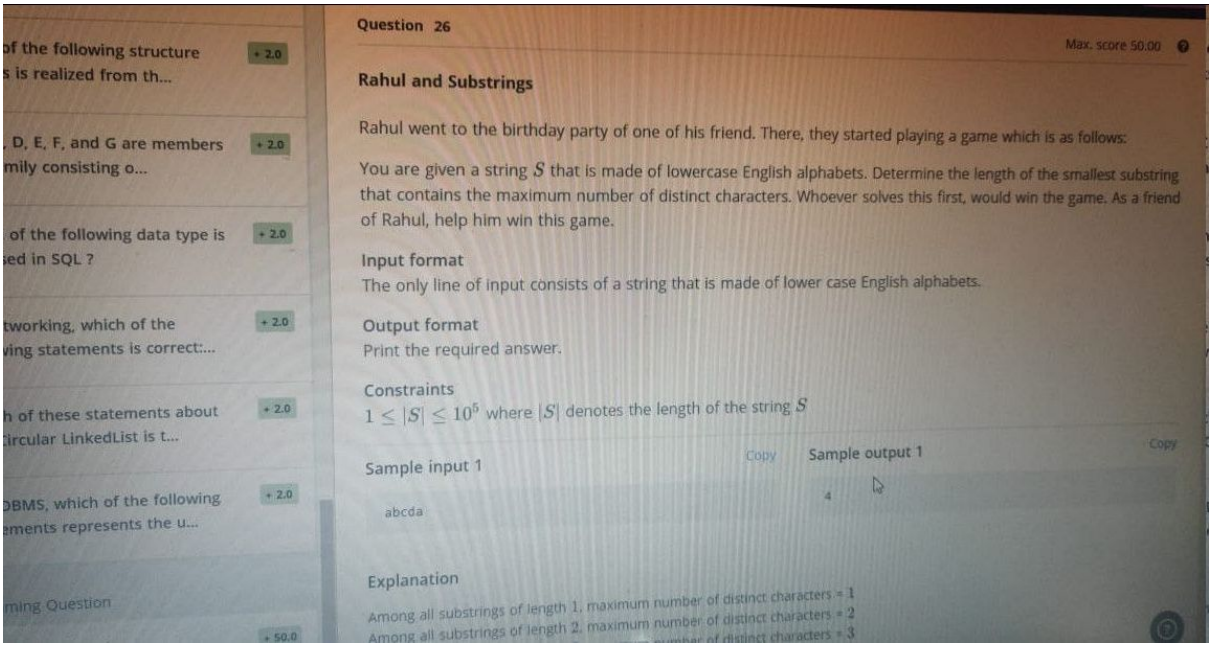
Save C (gcc 5.4.0)

3.Maximizing Difference

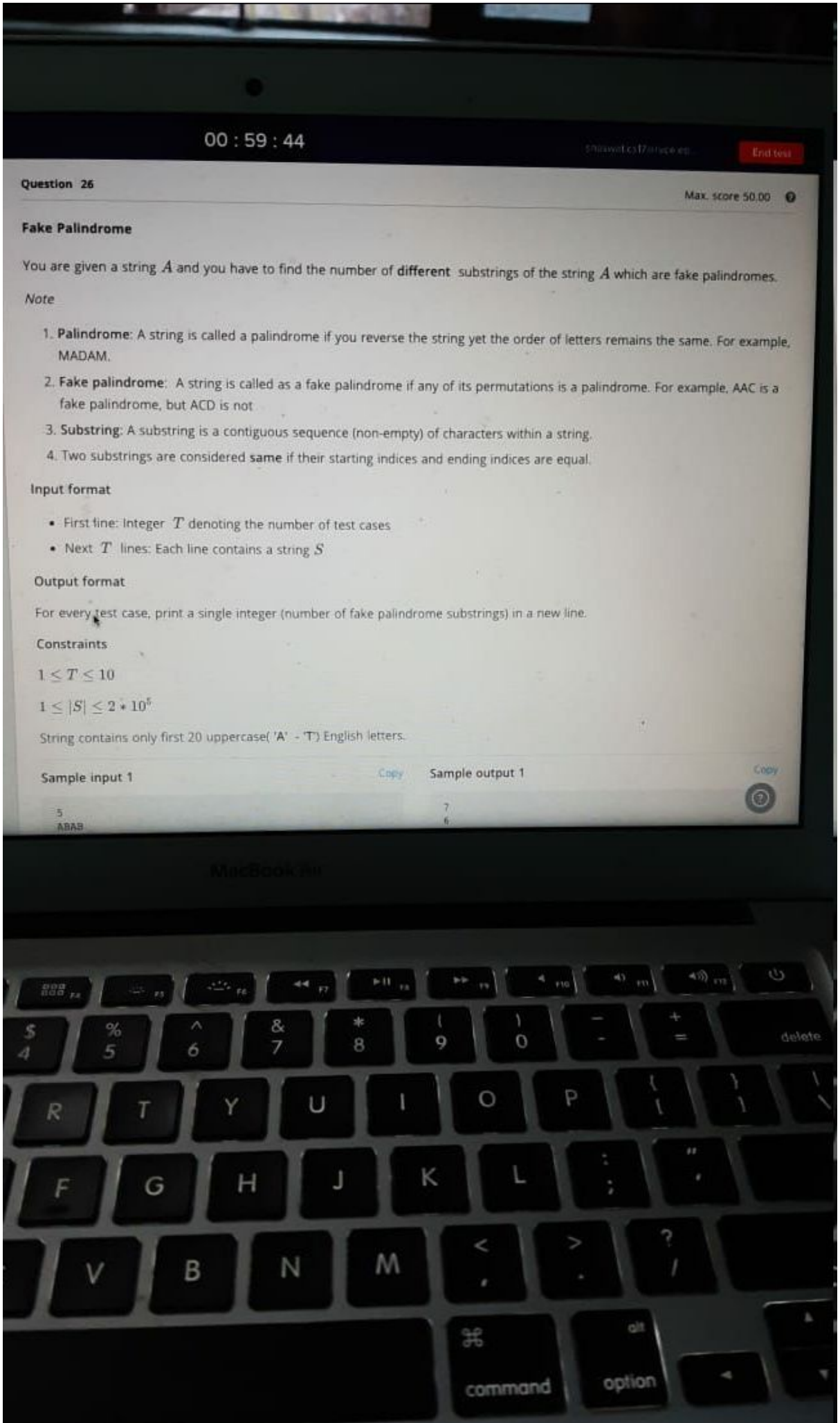


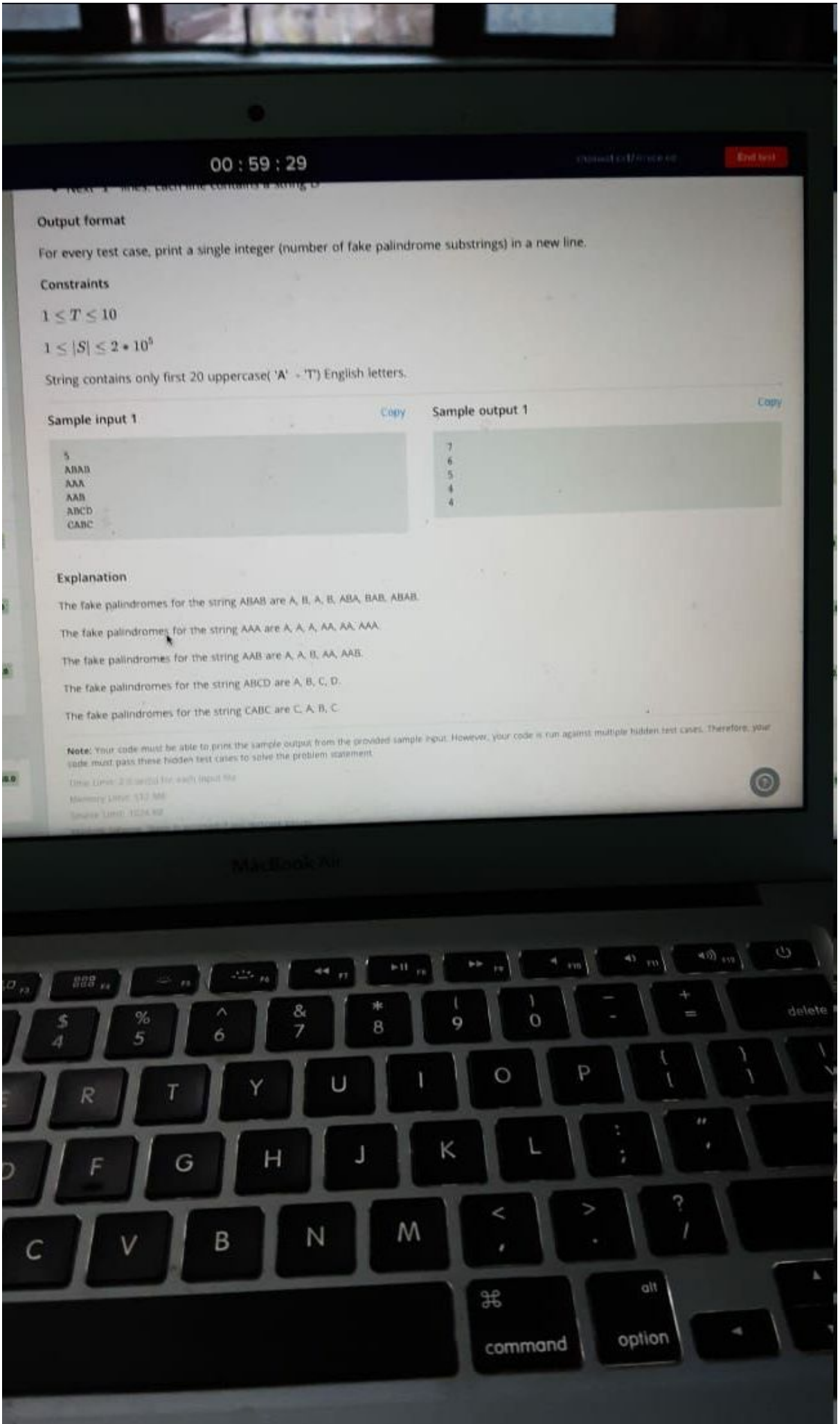
https://www.geeksforgeeks.org/maximum-difference-between-two-elements-in-an-array/

4.Rahul and Substring

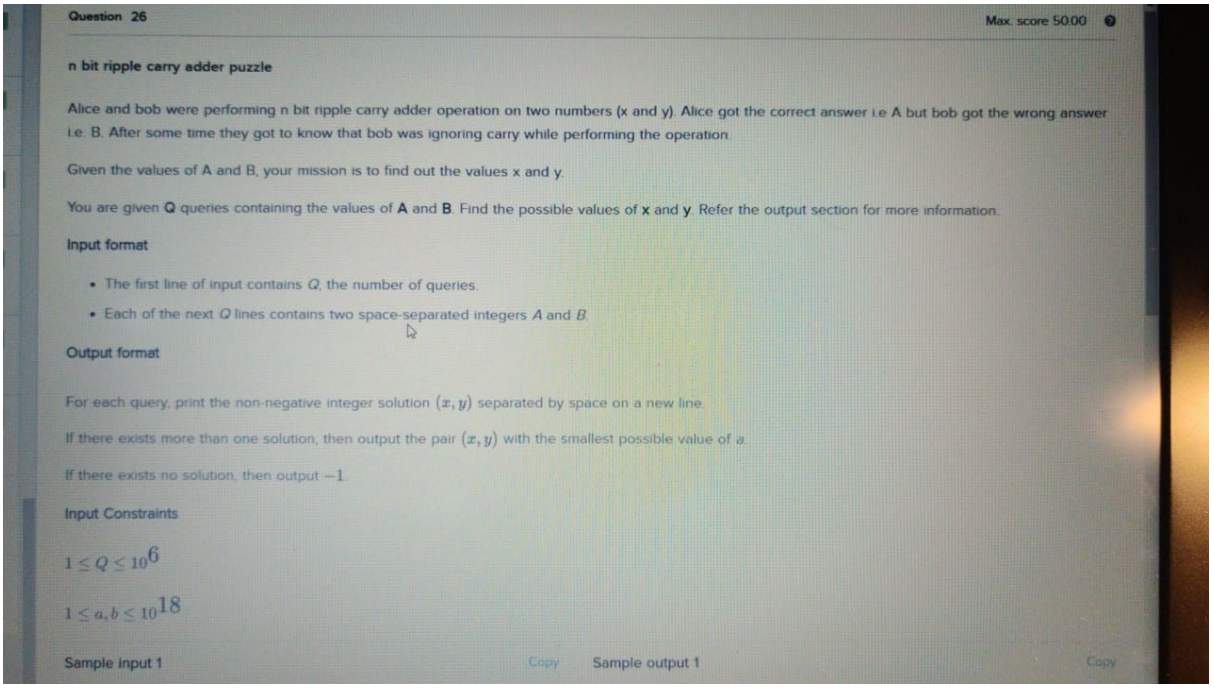


5.Fake Palindrome


00 : 59 : 44
End test
Question 26
Max. score 50.00
Fake Palindrome
You are given a string A and you have to find the number of different substrings of the string A which are fake palindromes.
Note
1. Palindrome: A string is called a palindrome if you reverse the string yet the order of letters remains the same. For example, MADAM.
2. Fake palindrome: A string is called as a fake palindrome if any of its permutations is a palindrome. For example, AAC is a fake palindrome, but ACD is not
3. Substring: A substring is a contiguous sequence (non-empty) of characters within a string.
4. Two substrings are considered same if their starting indices and ending indices are equal.
Input format
• First line: Integer T denoting the number of test cases
• Next T lines: Each line contains a string S
Output format
For every test case, print a single integer (number of fake palindrome substrings) in a new line.
Constraints
$1 \leq T \leq 10$
$1 \leq |S| \leq 2 * 10^5$
String contains only first 20 uppercase('A' - 'T') English letters.
Sample input 1
Copy
5
ABAB
Sample output 1
Copy
7
6
MacBook Air
command
option
delete


00 : 59 : 29
Output format
For every test case, print a single integer (number of fake palindrome substrings) in a new line.
Constraints
$1 \leq T \leq 10$
$1 \leq |S| \leq 2 * 10^5$
String contains only first 20 uppercase('A' - 'T') English letters.
Sample input 1
Copy
5
ABAB
AAA
AAB
ABCD
CABC
Sample output 1
Copy
7
6
5
4
4
Explanation
The fake palindromes for the string ABAB are A, B, A, B, ABA, BAB, ABAB.
The fake palindromes for the string AAA are A, A, A, AA, AA, AAA.
The fake palindromes for the string AAB are A, A, B, AA, AAB.
The fake palindromes for the string ABCD are A, B, C, D.
The fake palindromes for the string CABC are C, A, B, C.
Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.
command
option

6.N bit ripple carry adder puzzle



Question 26

Max. score 50.00

n bit ripple carry adder puzzle

Alice and bob were performing n bit ripple carry adder operation on two numbers (x and y). Alice got the correct answer i.e A but bob got the wrong answer i.e. B. After some time they got to know that bob was ignoring carry while performing the operation.

Given the values of A and B, your mission is to find out the values x and y.

You are given **Q** queries containing the values of **A** and **B**. Find the possible values of **x** and **y**. Refer the output section for more information.

Input format

- The first line of input contains Q, the number of queries.
- Each of the next Q lines contains two space-separated integers A and B.

Output format

For each query, print the non-negative integer solution (x, y) separated by space on a new line.

If there exists more than one solution, then output the pair (x, y) with the smallest possible value of a.

If there exists no solution, then output -1.

Input Constraints

$1 \leq Q \leq 10^6$

$1 \leq a, b \leq 10^{18}$

Sample input 1 Copy

Sample output 1 Copy

7.Count of Alphabets

Question 26

Max. score 50.00

Count of alphabets

You are given a string Str of size N comprising lowercase English alphabets that are indexed from 1 to N. The answer to the following Q queries on the string can be of either type:

1. L ch K: Find the largest index I such that there are exactly K repetitions of character ch in the range 1 to I of string Str.
2. S ch K: Find the smallest index I such that there are exactly K repetitions of character ch in the range 1 to I of string Str.

Input format

- The first line contains a single integer T denoting the number of test cases.
- The first line of each test case contains two space-separated integers N and Q denoting the length of the string and the number of queries respectively.
- The second line of each test case contains string Str.
- Each of the next Q lines of each test case contains the description of a query that can be of either of the 2 types as described in the problem statement.

Note: The values of K and ch are such that the answer always exists.

Output format

The output must contain exactly Q lines where the i^{th} line must correspond to the answer to the i^{th} query.

Constraints

$1 \leq T \leq 50$

$1 \leq N, Q \leq 10000$

either of the 2 types as described in the problem statement.

Note: The values of K and ch are such that the answer always exists.

Output format

The output must contain exactly Q lines where the i^{th} line must correspond to the answ

$_i th$ query.

Constraints

$1 \leq T \leq 50$

$1 \leq N, Q \leq 10000$

Sample input 1 Copy

```
1
6 2
abaaba
L a 1
5 a 3
```

Sample output 1

```
2
4
```

Explanation

- For the first query, the count of alphabet 'a' from the beginning of string remains 1 up to index 2, hence answer is 2.
- For the second query, the count of alphabet 'a' from the beginning of string becomes 3 at index 4, hence answer is 4.

Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multipl hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.