

Round B APAC Test 2016

[A. Travel](#)

[B. gWheels](#)

[C. gNumbers](#)

D. Albocede DNA

[Questions asked](#)

Submissions

Travel	
6pt	Not attempted 503/1288 users correct (39%)
12pt	Not attempted 365/493 users correct (74%)
gWheels	
5pt	Not attempted 1062/1588 users correct (67%)
14pt	Not attempted 244/873 users correct (28%)
gNumbers	
8pt	Not attempted 259/1020 users correct (25%)
16pt	Not attempted 78/181 users correct (43%)
Albocede DNA	
16pt	Not attempted 31/139 users correct (22%)
23pt	Not attempted 18/23 users correct (78%)

Top Scores

kcm1700	100
LeeSin	100
johngs	100
Taradheesh	100
Eyelids	100
BrianKuo	100
huangxi	100
sgtlaugh	100
yaray	84
alecsyde	84

Problem D. Albocede DNA

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
16 points

Solve D-small

Large input
23 points

Solve D-large

The DNA of the Albocede alien species is made up of 4 types of nucleotides: a, b, c, and d. Different Albocedes may have different sequences of these nucleotides, but any Albocede's DNA sequence obeys all of the following rules:

- It contains at least one copy of each of a, b, c, and d.
- All as come before all bs, which come before all cs, which come before all ds.
- There are exactly as many 'a's as 'c's.
- There are exactly as many 'b's as 'd's.

For example, abcd and aabbbccddd are valid Albocede DNA sequences. acbd, abc, and abbcd are not.

The Albocede-n is an evolved species of Albocede. The DNA sequence of an Albocede-n consists of one or more valid Albocede DNA sequences, concatenated together end-to-end. For example, abcd and aaabccdaabbbccdddabcd are valid Albocede-n DNA sequences. (Observe that a valid Albocede-n DNA sequence is not necessarily also a valid Albocede DNA sequence.)

From one of your alien expeditions, you retrieved an interesting sequence of DNA made up of only as, bs, cs, and ds. You are interested in how many of the different [subsequences](#) of that sequence would be valid Albocede-n DNA sequences. (Even if multiple different selections of nucleotides from the sequence produce the same valid subsequence, they still all count as distinct subsequences.) Since the result may be very large, please find it modulo 1000000007 ($10^9 + 7$).

Input

The first line of the input gives the number of test cases, **T**. Each of the next **T** lines contains a string **S** that consists only of the characters a, b, c, and d.

Output

For each test case, output one line containing "Case #x: y", where x is the test case number (starting from 1) and y is the output of the x^{th} test case.

Limits

$1 \leq T \leq 20$.

Small dataset

$1 \leq \text{length of } S \leq 50$.

Large dataset

$1 \leq \text{length of } S \leq 500$.

Sample

Input	Output
5	Case #1: 1
abcd	Case #2: 4
aaaabcd	Case #3: 28
aaaabbbcd	Case #4: 71
abcdabcbdaabcccd	Case #5: 0
b	

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