

World Finals 2011

A. Runs[B. Rains Over Atlantis](#)[C. Program within a Program](#)[D. Ace in the Hole](#)[E. Google Royale](#)[Contest Analysis](#)[Questions asked](#) **1**

Submissions

Runs

14pt Not attempted
11/12 users correct
(92%)16pt Not attempted
10/11 users correct
(91%)

Rains Over Atlantis

7pt Not attempted
17/18 users correct
(94%)23pt Not attempted
3/7 users correct
(43%)

Program within a Program

15pt Not attempted
1/1 users correct
(100%)

23pt Not attempted

Ace in the Hole

20pt Not attempted
8/14 users correct
(57%)

22pt Not attempted

Google Royale

20pt Not attempted
20/22 users correct
(91%)40pt Not attempted
1/1 users correct
(100%)

Top Scores

rng..58	90
mystic	77
meret	77
RAD.	77
misof	70
g201513	60
pashka	57
vepifanov	57
eatmore	50
winger	50

Problem A. Runs

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
14 points

Solve A-small

Large input
16 points

Solve A-large

Problem

I have a string **S** consisting of lower-case alphabetic characters, 'a' - 'z'. Each maximal sequence of contiguous characters that are the same is called a "run". For example, "bookkeeper" has 7 runs. How many different permutations of **S** have exactly the same number of runs as **S**?

Two permutations **a** and **b** are considered different if there exists some index **i** at which they have a different character: $a[i] \neq b[i]$.

Input

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each contains a single non-empty string of lower-case alphabetic characters, **S**, the string of interest.

Output

For each test case, output one line containing "Case #x: y", where **x** is the case number (starting from 1) and **y** is the number of different permutations of **S** that have exactly the same number of runs as **S**, modulo 1000003.

Limits

$1 \leq T \leq 100$.
S is at least 1 character long.

Small dataset

S is at most 100 characters long.

Large dataset

S is at most 450000 characters long.
S has at most 100 runs.
The input file will not exceed 1 megabyte in size.

Sample

Input	Output
2	Case #1: 24
aabcd	Case #2: 7200
bookkeeper	

