**Note: This problem shares similarities with Chapter 2. The solution to either chapter may help with solving the other, so please consider reading both first.**

Connie received a string $S$ for her birthday, consisting entirely of uppercase letters (each between `"A"` and `"Z"`, inclusive).

However, Connie really only likes nice, *consistent* strings. She considers a string to be consistent if and only if all of its letters are the same.

Each second, Connie may choose one letter in $S$ and replace it with a different letter. **If her chosen letter is a vowel, then she may replace it with any consonant of her choice. On the other hand, if her chosen letter is a consonant, then she may replace it with any vowel of her choice.** The $5$ letters `"A"`, `"E"`, `"I"`, `"O"`, and `"U"` are considered vowels, while the remaining $21$ letters of the alphabet are considered consonants. If a letter appears multiple times in $S$, she may only replace a single occurrence per second.

Help her determine the minimum number of seconds required to change $S$ into any consistent string. Note that $S$ might already be consistent, in which case $0$ seconds would be required.

### Constraints

$1 \leq T \leq 45$
$1 \leq |S| \leq 100$
$\texttt{"A"} \leq S_i \leq \texttt{"Z"}$

The sum of $|S|$ across all test cases is at most $4{,}500$.

### Input

Input begins with an integer $T$, the number of birthdays Connie has had. For each birthday, there is a single line containing the string $S$.

### Output

For the $i$th string, print a line containing *"Case #i: "* followed by the minimum number of seconds required to change $S$ into any consistent string.

### Sample Explanation

In the first case, Connie could replace the second and third letters (`"B"` and `"C"`) each with `"A"`, yielding the string `"AAA"` in $2$ seconds.

In the second case, `"F"` is already consistent.

In the third case, Connie could replace the first, third, and fifth letters (`"B"`, `"N"`, and `"N"`) each with `"A"`, yielding the string `"AAAAAA"` in $3$ seconds.

### Sample Input

```
6
ABC
F
BANANA
FBHC
```

### Sample Output

```
Case #1: 2
Case #2: 0
Case #3: 3
Case #4: 4
```

```
FOXEN
CONSISTENCY
```

```
Case #5: 5
Case #6: 12
```

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