A chain of connected cells of two types A and B composes a *cellular structure* of some microorganisms of species APUDOTDLS.

If no mutation had happened during growth of an organism, its cellular chain would take one of the following forms:

- simple stage — O = A
- fully-grown stage — O = OAB
- mutagenic stage — O = BOA

Sample notation O = OA means that if we added to chain of a healthy organism a cell A from the right hand side, we would end up also with a chain of a healthy organism. It would grow by one cell A.

A laboratory researches a cluster of these organisms. Your task is to write a program which could find out a current stage of growth and health of an organism, given its cellular chain sequence.

Input

A integer n being a number of cellular chains to test, and then n consecutive lines containing chains of tested organisms.

Output

For each tested chain give (in separate lines) proper answers:

`SIMPLE`	for simple stage
`FULLY-GROWN`	for fully-grown stage
`MUTAGENIC`	for mutagenic stage
`MUTANT`	any other (in case of mutated organisms)

If an organism were in two stages of growth at the same time the first option from the list above should be given as an answer.

Sample Input

```
4
A
AAB
BAAB
BAABA
```

Sample Output

```
SIMPLE
FULLY-GROWN
MUTANT
MUTAGENIC
```