**XX. Waves**

# **Program Name:** waves**.java Input File:** waves**.dat**

Baby Yoda wants to go surfing, but it’s raining so he cannot go outside. Luckily, the Mandalorean has an idea. Instead of riding the sea’s waves, they can create their own. He explains that they can simply start with a string of letters such as a name or sentence and create a wave pattern by finding the crests and troughs. Each letter’s value will depend on its position in the alphabet, so “a”<”b”<”c”…<”z” . A letter X is said to be a “crest” if the letters before and after it are both strictly lower than X. Conversely, a letter y is said to be a trough if the letters before and after it are both strictly higher than y. To make a wave diagram, simply write out the crests using uppercase letters and the troughs using lowercase letters. Every other letter will not be included in the diagram.

**Input**

Each input will start with a number n, where 1≤n≤50, followed by n lines of text. Each line will contain a non-empty string s, which is the string you must turn into a wave diagram. Any spaces should be ignored when making a wave. Repeated consecutive letters should count as a single letter.

**Output**

You will output a wave diagram for each test case. Print ”empty” if the wave diagram is empty. Print each diagram on a separate line.

**Example Input File**

4

bumblebee

super mario bros wii

cywoods is cool

baby yoda is the best

**Example Output to Screen**

4

UbLb

UeRaRiObRoW

YdSiScO

aYaTb