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## Dynamic median

P37064\_en

Examen extraordinari d'Algorísmia, FME (2012-06-29)

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Given a sequence of words, print the median of all the words seen so far at every moment. Please recall that the median of a set of  $n$  elements is the element that would be in the position  $\lfloor (n + 1)/2 \rfloor$  if the set was ordered. For example, the median of five elements is the third smallest, and the median of six elements is also the third smallest.

### Input

Input consists of a sequence of different lowercase words ended in "END".

### Output

For every word in the input, print the median of the words read so far. Suppose that the words are sorted with the usual alphabetical order.

#### Sample input 1

```
hola
bye
adeu
hi
hello
END
```

#### Sample output 1

```
hola
bye
bye
bye
hello
```

#### Sample input 2

```
a
b
c
d
e
f
END
```

#### Sample output 2

```
a
a
b
b
c
c
```

#### Sample input 3

```
f
e
d
c
b
a
END
```

#### Sample output 3

```
f
e
e
d
d
c
```

### Problem information

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