Karte

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Recently, Pero has been into robotics, so he decided to make a robot that checks whether a deck of poker cards is complete.

He's already done a fair share of work—he wrote a programme that recognizes the suits of the cards. For simplicity's sake, we can assume that all cards have a suit and a number.

The suit of the card is one of the characters P, K, H, T, and the number of the card is an integer between 1 and 13. The robot labels each card in the format TXY where T is the suit and XY is the number. If the card's number consists of one digit, then $X = 0$. For example, the card of suit P and number 9 is labelled P09.

A complete deck has 52 cards in total—for each of the four suits there is exactly one card with a number between 1 and 13.

The robot has read the labels of all the cards in the deck and combined them into the string S. Help Pero finish the robot by writing a programme that reads the string made out of card labels and outputs how many cards are missing for each suit. If there are two exact same cards in the deck, output GRESKA (Croatian for ERROR).

Input

The first and only line of input contains the string S ($1 \leq |S| \leq 1\,000$), containing all the card labels.

Output

If there are two exact same cards in the deck, output "GRESKA". Otherwise, the first and only line of output must consist of 4 space-separated numbers: how many cards of the suit P, K, H, T are missing, respectively.

Sample Input 1

```
P01K02H03H04
```

Sample Output 1

```
12 12 11 13
```

Sample Input 2

```
H02H10P11H02
```

Sample Output 2

```
GRESKA
```

Sample Input 3

```
P10K10H10T01
```

Sample Output 3

```
12 12 12 12
```