

1 Cut Number Cards

Assume a card contains a sequence of numbers, treated as string, **s**. That string **s** is beautiful if it can be split into a sequence of two or more positive integers, $a[1], a[2], \dots, a[n]$, satisfying the following conditions:

1. $a[i] - a[i-1] = 1$ for any $1 < i \leq n$ (i.e., each element in the sequence is one more than the previous element).
 2. No $a[i]$ contains a leading zero. For example, we can split **s=10203** into the sequence **{1, 02, 03}**, but it is not beautiful because **02** and **03** have leading zeroes.
 3. The contents of the sequence cannot be rearranged. For example, we can split **s=312** into the sequence **{3, 1, 2}**, but it is not beautiful because it breaks our first constraint (i.e., **1-3** is not equal to 1).
- **Samples of beautiful strings**
 1. **"1234" = "1" + "2" + "3" + "4"**
 2. **"91011" = "9" + "10" + "11"**
 3. **"99100" = "99" + "100"**

Given a card with integer string, write a program to print whether or not the integer string is beautiful on a new line. If it is beautiful, print **YES x**, where **x** is the first number of the increasing sequence. If there are multiple such values of **x**, choose the smallest. Otherwise, print **NO**

Input/Output

Input	Output	Comments
1234	YES 1	
91011	YES 9	•
99100	YES 99	•
101103	NO	• For s=101103 , all possible splits violate the first and/or second conditions.
010203	NO	• For s=010203 , it starts with a zero so all possible splits violate the second condition.
13	NO	• For s=13 , the only possible split is {1, 3} , which violates the first condition.
1	NO	• For s=1 , there are no possible splits because s only has one digit

2 Suggest Email Ids (Usernames)

An email company wants to have unique email ids for its users. As a policy, it wants to suggest usernames to new users. If a username already exists, then the system must add an integer to the end of the username to make it unique. The numbering begins with 1 and is incremented by 1 for each new instance per username.

As an example, if the username requests were for [raj, raj, seema, seema, seema], the system should assign/suggest usernames [raj, raj1, seema, seema1, seema2]

Given the number of usernames and the list of usernames one in each row, write a program to print the list of updated username one in each row.

Input/Output

Input	Output	Comments
6 srinu lakshmi srinu srinu lakshmi srikanth	srinu lakshmi srinu1 srinu2 lakshmi1 srikanth	<ul style="list-style-type: none"> The first line 6 represents total number of usernames The next 6 lines represent the usernames The name srinu repeats thrice. So, the system adds 1 and 2 to the second and third repetition. The name lakshmi repeats twice. So, the system adds 1 to the second repetition.
4 pandya patel pandya patel	pandya patel pandya1 patel1	

3 Find Card Game Winner

Andrea and Maria each have a deck of numbered cards in a pile face down. They play a game where they each alternately discard and flip the cards on the pile from top to bottom.

At the beginning of the game, someone will call out “Even” or “Odd”. The first move depends on which is called. If “Even” is called, the players top cards are flipped so they can see the face value. If instead “Odd” is called, the top card is removed from each deck and discarded, then each flips her next card.

Andrea subtracts the value of Maria’s card from her own and adds the result to her score. Likewise, Maria subtracts the value of Andrea’s card from her own and adds the result to her score.

From this point forward, each alternately discards then flips a card. Each time two cards are flipped, the players scores are computed as before. Once all the cards have been played, whoever has the most points wins.

As an example,

Maria’s cards, face down are [3,5,6] and Andrea’s are [4,5,7]. After calling “Even” at random, they each compare their first cards. Maria’s points are $3-4=-1$, and Andrea’s are $4-3=1$. They discard the 5’s and turn over their third cards. Maria receives $6-7=-1$ point and Andrea receives $7-6=1$ point. Maria’s score is -2, Andrea’s is +2 so Andrea wins.

You must determine the name of the winner if there is one, otherwise they tie. Return Andrea, Maria or Tie.

Input	Output	Comments
3 1 2 3 3 2 1 3 Even	Maria	<ul style="list-style-type: none"> The first line (3), represents number of cards of Andrea. The next three lines represent the face value of each card. The fifth line (3), represents number of cards of Maria. The next three lines represent the face value of each card. In this game, andrea =[1,2,3] and maris=[2,1,3]. Because s=Even, the only cards flipped are at indexes 0 and 2. When i=0, Andrea gets $a[0]-m[0]=1-2=-1$ point and Maria gets $m[0]-a[0]=2-1=1$ point. When i=2, Andrea gets $a[2]-m[2]=3-3=0$ points and Maria gets $m[2]-a[2]=3-3=0$ points. At the end of play, Andrea’s cumulative score is -1 and Maria’s is 1 so Maria wins.