

**2004/2005 SOUTHERN CALIFORNIA REGIONAL
ACM INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST**

**Problem 1
MER Filenames**

The Mars Exploration Rovers (MER) have transmitted to earth over 50,000 images of the Martian surface. These images are available to the public via the Jet Propulsion Laboratory's web site. The images are stored in 31-character filenames: a 27-character long name and a 4-character **.JPG** extension. Groups of character positions within the name encode information about each image, such as Spacecraft ID, Camera, Spacecraft clock, Product type, Camera filter, and more.

Since most of this image information has limited variability, in a list of image filenames many of the filenames may be very similar. Given a list of MER image filenames, identify the smallest set of character positions that could be used to identify the filenames uniquely. For the name portion of the filename, the leftmost character position is 1, the rightmost is 27. If there are multiple smallest sets, highest precedence goes to leftmost character positions.

Input is a sequence of groups of MER filenames, one filename per line. Groups are separated by a separator line, "SEP". A group will have at least two and at most 1,000 filenames. Filenames are unique within a group. The name portion consists of only numeric digits and uppercase alphabetic characters.

Output one line for each group of filenames. On the line, list the highest precedence set of character positions that could be used to identify all the filenames uniquely in the group. List the characters' positions in increasing order, separated by exactly one space. Output "NO SET" if more than ten character positions are required to identify the filenames uniquely.

Sample Input

```
2F130885163EDN1000P1111R0M1.JPG
2F130887416EDN10AGF0006L0M1.JPG
SEP
2F130887416EDN10AGF0006R0M1.JPG
2F130887416EDN11AGF0006R0M1.JPG
2F130887416EDN20AGF0006R0M1.JPG
2F130887417EDN10AGF0006R0M1.JPG
2F130887426EDN10AGF0006R0M1.JPG
2F130887516EDN10AGF0006R0M1.JPG
2F130888416EDN10AGF0006R0M1.JPG
2F130897416EDN10AGF0006R0M1.JPG
2F130987416EDN10AGF0006R0M1.JPG
2F131887416EDN10AGF0006R0M1.JPG
2F140887416EDN10AGF0006R0M1.JPG
2F230887416EDN10AGF0006R0M1.JPG
SEP
2F130889129EDN10AYF0006L0M1.JPG
2F130889129EDN10AYF0006R0M2.JPG
2F130889139EDN10AYF0006L0M1.JPG
2F130889139EDN10AYF0006R0M2.JPG
2F130889329EDN10AYF0006L0M1.JPG
2F130889329EDN10AYF0006R0M2.JPG
```

Output for the Sample Input

```
8
NO SET
9 10 24
```