**String Connection**

**Time limit: 2 seconds**

**Problem Description**

Write a program to connect strings. Given two strings s1 and s2, the connection of s1 and s2 is the shortest string that has s1 as the prefix (beginning of a string), and s2 as the suffix (the ending of a string). For example if we connect "birthday" and "daylight" we will get "birthdaylight".  For another example, if we connect "birthdays" and "daylight", we will get "birthdaysdaylight". Now given N strings, s1, ... sN, which consist of lowercase letters, please output the result of connecting s1 and s2, then connecting to s3, and so on.

**Solution Hint**

一個一個字串依序將其連結，每次連結時，要找出前面的字串的字尾與下一個字串的字首重疊最大的，這裡不需要使用特殊的資料結構來做到速度快，長度k由大而小使用strncmp判斷兩個長度k的子字串是否相同即可。要小心重疊的長度不可超過兩者。演算法如下：

Result=S1;  
for i= 2 to n do  
 // find the maximum overlap  
 k=min(strlen(result),strlen(Si))  
 while (k>0) {  
 if (strncmp(result+strlen(result)-k,si,k)==0)   
 跳出迴圈  
 k--;  
 }  
 把si的尾巴接上去; (小心字串尾要加\0)  
next for

**Input File Format**

The first line contains a positive integer *N* indicating the number of test cases. Each case contains a positive integer M, where 2 < M <= 30. The next M lines contain the strings s1 to sM. The length of all strings is between 1 and 100.

**Output Format**

You should output the length and the string of connecting s1, and s2, then s3, and so on.

**Example**

|  |  |
| --- | --- |
| **Sample Input:** | **Sample Output:** |
| 2  3 abc bcdef g  2  news  paper | 7  abcdefg  9  newspaper |