
2. Call 555 - HELP

Program Name: Call.java

Input File: call.dat

Phone numbers are sometimes converted to mnemonics by advertisers and others to help remember numbers. The numbers are converted to letters based on some system that associates letters to numbers.

For this program, each digit (0-9) can be combined with any one of the letters associated with that digit. Write a program to generate all the possible mnemonics for a given number based on the letters associated with that digit. The number to be converted to a mnemonic will contain 12 or fewer digits. Each of the ten digits (0-9) will be associated with at least one letter and no letter will be associated with more than one digit.

Input

- The first line of the input file will contain a single integer *n* that indicates the number of data sets to follow.
- Each data set will consist of 11 lines.
 - The first line of each data set will contain a single integer with 12 or fewer digits to convert to a mnemonic.
 - Each of the next 10 lines will contain a single digit and a space followed by the lower case letters (a-z) to which that digit can be associated.

Output

For each data set output "Mnemonics for <num>:" where <num> is replaced by the number for that data set (the number to be converted to a mnemonic). Then display all possible mnemonics for the given number, one per line, in alphabetical order.

Example Input File

```
2
55
0 xyz
1 ab
2 cd
3 efg
4 hi
5 jk
6 lm
7 opq
8 rst
9 uvw
213
5 b
3 klm
1 i
0 zd
9 yun
2 cua
8 e
7 f
6 trs
4 f
```

Example Output To Screen

Mnemonics for 55:

jj

jk

kj

kk

Mnemonics for 213:

aik

ail

aim

cik

cil

cim

uik

uil

uim