CodeWars 2007

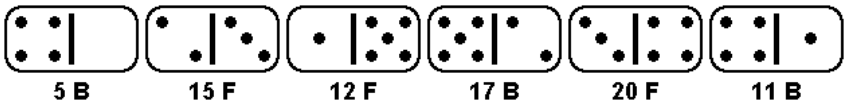
Problem #12 -- Domino Rally

14 Points

JAVA programmers: your program name must be: Prob12.class
C programmers: your program name must be: prob12.exe

Task Description

A popular diversion among domino players involves laying several of the dominoes from the set (selected at random) end-to-end, and then eliminating adjacent pairs of dominoes (from left to right) which touch at the same dot value. Consider this example with six dominoes shown below. The original draw resulted in these six dominoes.



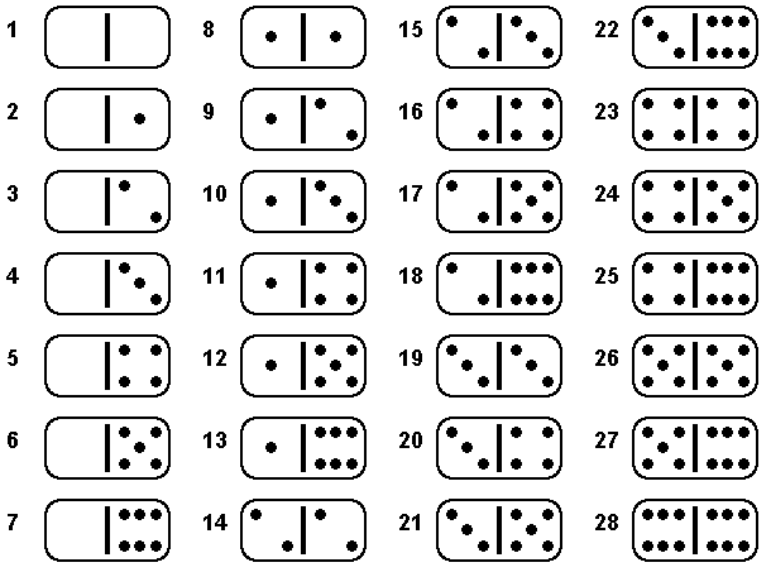
Note that when each domino is aligned, it may appear in either its forward or its backward orientation (the table above shows the forward orientations of all non-doubles). Play begins from the left end and returns to the left end after any pair of dominoes is eliminated. In this case, domino #12 (in its forward orientation) and domino #17 (in its backward orientation) are eliminated from the row since they touch each other with 5 dots.

The row is collapsed and play begins again at the left end. This time, dominoes #15 and #20 (both in their forward orientations) are eliminated, since they touch each other with 3 dots. The row is again collapsed.

Since no further eliminations can be made, the game ends. Note that dominoes #20 and #11 could not be eliminated since they were never the left-most pair.

Write a program that will accept a row of domino ID numbers and their orientations, and carry out any such successive left-most eliminations until no more are possible.

Program Input



The input file (Prob12.in) will contain three domino datasets, each corresponding to a left-to-right sequence of dominoes. A domino record consists of an integer from 1 through 28 (denoting the domino ID number, shown at right), a space, and a single character (uppercase F or B) which indicates the domino's orientation (Forward or Backward). Each domino dataset will consist of from 1 to 28 domino records, followed by a terminating record (`0 F`). Each domino record will appear on a line by itself. You may assume that each domino will appear at most once in each dataset and that all data will be valid.

Program Output

Your program will output which dominoes remain in each sequence following the elimination procedure. The report will consist of one line for each domino dataset. Each of these lines will contain the domino ID numbers which remain in each set after all eliminations have been carried out (in sequence from left to right). Domino orientations are *not* to be printed. Should it ever be possible to eliminate every domino in a dataset, the line "`DATASET CLEARED`" should be printed in place of any domino ID numbers.

Sample Input

```
5 B
15 F
12 F
17 B
20 F
11 B
0 F
18 F
22 B
0 F
23 F
12 B
2 B
4 F
15 B
20 B
19 B
7 B
6 F
0 F
```

Sample Output

```
5 11

DATASET CLEARED

19
```