



Tumbled Tiles

Problem #13

Novice / Advanced

18 points

C programmers: your program name must be: prob13.exe
JAVA programmers: your program name must be: Prob13.class

Task Description

A popular puzzle consists of nine square tiles which must be arranged in a 3x3 grid. On each edge of each tile is printed the Head or Feet of a frog. Frogs may be Red, Yellow, Green, or Blue. Each of the nine puzzle tiles is distinct. The tiles must be rotated and arranged such that the edges of any two connected tiles form a color-matched pair of head to feet (Fig. 1). For any given tile set, there may be more than one solution.

Program Input

Sample data is contained in Prob13.in. Read this data using one of the methods described on your "Contest Instructions" sheet, under "Program Input/Output". The data file consists of nine lines, where each line represents a puzzle tile. Each tile has a number, followed by four edges, given clockwise: top, right, bottom, left. Each edge is described by a color and body part.

```
1, YH, BH, RF, GH
2, GH, YF, RH, BH
3, YH, RF, BF, GF
4, GF, YF, RF, GH
5, GF, RF, YF, BH
6, YH, BH, YH, BF
7, GF, RH, RF, BH
8, GH, YF, BF, RH
9, YF, GH, RF, BH
```



Fig. 1. Two matching tiles.

Program Output

The program will write a puzzle solution to the screen. Each edge of each puzzle tile must match the edges of each adjacent puzzle tile. The program will also print each tile number in the center of the tile. Please use the following format:

```

      YF      BH      RF
GH- 2-RH RF- 7-GF GH- 9-BH
      BH      RH      YF
      BF      RF      YH
YH- 6-YH YF- 4-GH GF- 3-RF
      BH      GF      BF
      BF      GH      BH
YF- 8-RH RF- 1-YH YF- 5-GF
      GH      BH      RF
```