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1  /* Problem 6--Word Brick
2     You know, there are 26 directions a word can move in, and you don't
3     have to code any of them manually.  You can iterate through them with
4     nested loops.
5     A "direction" can be an ordered triple (dl,dw,dh) where all three are
6     between -1 and 1 without all of them being 0. */
7
8  import java.io.*;
9  import java.util.*;
10
11 public class prob6 {
12
13     private static Scanner in;
14     private static PrintWriter out;
15     private static int l, w, h, cs;
16     private static char[][][] Brick;
17     private static String word;
18
19     public static void main (String[] args) throws Exception {
20
21         in = new Scanner (new File ("prob6.in"));
22         out = new PrintWriter ("prob6.out");
23         cs = 1;
24         while (true) {
25             l = in.nextInt(); w = in.nextInt(); h = in.nextInt();
26             if (l==0 && w==0 && h==0) break;
27             in.nextLine();
28             ReadBrick();
29             Process();
30         }
31         in.close ();
32         out.close ();
33     }
34
35     public static void ReadBrick() throws Exception {
36
37         Brick = new char[l][w][h]; /* Read in this mess */
38         for (int i=0; i < l; i++)
39             for (int j=0; j < w; j++)
40                 Brick[i][j] = in.next().toCharArray();
41         word = in.next();
42
43     }
44
45     public static void Process() throws Exception {
46
47         int i=0, j=0, k=0, dl, dw, dh;
48
49         outer:for (i=0; i < l; i++) /* outer three loops control position */
50             for (j=0; j < w; j++) /* of starting letter */
51                 for (k=0; k < h; k++)
52                     for (dl = -1; dl <= 1; dl++) /* These three control direction */
53                         for (dw = -1; dw <= 1; dw++)
54                             inner:for (dh = -1; dh <= 1; dh++) { /* Skip (0,0,0) */
55                                 if (dl==0 && dw==0 && dh==0) continue;
56                                 for (int pos = 0; pos < word.length(); pos++)
57                                     if (access (i+pos*dl,j+pos*dw,k+pos*dh)!=word.charAt(pos))
58                                         continue inner; /* If it's no match, keep going */
59                                 break outer; /* If match, end all loops NOW */
60                             }
61         out.printf ("Case %d: ",cs++);

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62     if (i < 1)
63         out.printf ("%s was found at (%d,%d,%d)\r\n\r\n",word,i+1,j+1,k+1);
64     else
65         out.printf ("%s was not found.\r\n\r\n",word);
66 }
67
68 public static char access(int i, int j, int k) throws Exception {
69
70     /* access just handles out-of-bound checking */
71     if (i < 0 || i >= 1 || j < 0 || j >= w || k < 0 || k >= h)
72         return (char)0; /* If out of bounds return null byte */
73     return Brick[i][j][k]; /* which will guarantee no match */
74 }
75 }
76
```