Exactly Three Neighbors

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Consider a field of squares, infinite in all directions. Each square is painted either black or white. Each black square shares a side with **exactly three** black neighbors.

We will consider periodic colorings. More precisely, let us first color a rectangle of cells. Then divide the field into such rectangles, joining them by sides. The coloring will be the same in every rectangle.

Provide an example of a coloring where the total share of black squares is equal to the given rational number p/q, or determine that it is impossible.

Input

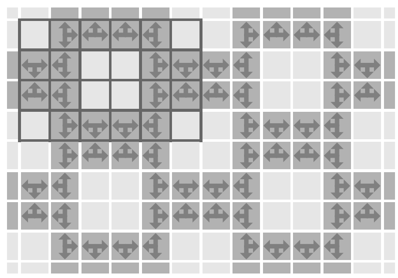
The first line contains two integers p and q: the numerator and denominator of the desired total share of black squares ($0 \le p \le q \le 10$; numbers p and q are relatively prime).

Output

If the desired coloring is possible, on the first line, print two integers h and w: the height and width of the rectangle ($1 \le h, w \le 1000$). Then print the coloring of the rectangle consisting of h lines with w characters in each. Character "`.`" (dot) describes a white square, and character "`#`" (hash) describes a black square. The ratio of the number of black squares in the rectangle to the total number of squares in the rectangle should be p/q. If there are several possible colorings, print any one of them.

If the desired coloring is impossible, print "`-1 -1`" on the first line.

Examples

standard input	*standard output*	*illustration*
2 3	4 6 .####. ##..## ##..## .####.	
1 1	-1 -1	