

A. Shortest path of the king

time limit per test: 1 second

memory limit per test: 64 megabytes

input: standard input

output: standard output

The king is left alone on the chessboard. In spite of this loneliness, he doesn't lose heart, because he has business of national importance. For example, he has to pay an official visit to square t . As the king is not in habit of wasting his time, he wants to get from his current position S to square t in the least number of moves. Help him to do this.

In one move the king can get to the square that has a common side or a common vertex with the square the king is currently in (generally there are 8 different squares he can move to).

Input

The first line contains the chessboard coordinates of square S , the second line — of square t .

Chessboard coordinates consist of two characters, the first one is a lowercase Latin letter (from a to h), the second one is a digit from 1 to 8.

Output

In the first line print n — minimum number of the king's moves. Then in n lines print the moves themselves. Each move is described with one of the 8: L, R, U, D, LU, LD, RU or RD.

L, R, U, D stand respectively for moves left, right, up and down (according to the picture), and 2-letter combinations stand for diagonal moves. If the answer is not unique, print any of them.

Examples

input
a8 h1
output
7 RD RD RD RD RD RD RD

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round #3

Finished

→ Virtual participation

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Start virtual contest

→ Problem tags

greedy shortest paths

No tag edit access

→ Contest materials

- Announcement 
- Tutorial 