## Chutes and SPACE-LADDERS

While exploring the future, Seymore Time Traveler discovered a new technology — the LASER-AIDED-DIMENSIONAL-DRIFT-ENERGY-RIDER!

## **Description**

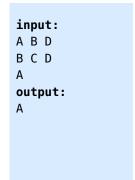
Our hero is, yet again, in a predicament of laziness. He has discovered many exciting new worlds, connected together by *SPACE WORMHOLES*! He would love to travel through them...but he doesn't want to travel through *too* many wormholes (because that sounds hard).

Your task, should you choose to accept it, is to find the shortest path from the starting world to the destination of Seymore's choice.

## **Example Input/Output**

Each of the first n lines of input will be a world name (a single upper-case character), followed by a list of each connected world. The n+1'th line will be a single upper-case letter, designating the desired destination. You must output a sequence of letters that represents the shortest path to the destination. Assume you start at the first given world. You can assume a path will always exist. There will be less than 10 worlds given. If multiple valid paths exist, any will be accepted.

| input:  |
|---------|
| A B D   |
| BCD     |
| С       |
| output: |
| A D C   |
| ABC     |
| ABC     |
| АВС     |
| АВС     |



input:
A B C D
B F
D B C
F E
E
output:
A B F E