

Sky Train

A foreign tourist would like to visit important landmarks in Bangkok, so he decided to use the sky train to travel. He boarded the train at Station A, but since he doesn't have much money to spare, **he can only travel at most 2 stations**. He would like to know the stations that he can travel to.

Input

The first part will be a list of station adjacencies, Each line will consist of 2 station's names, separated by space. This means that these two stations are adjacent. Note that not all stations have to be in the same network.(see example)

The last line will be the name of the station that the tourist is currently at.(This station might not connect to any given stations at all!)

Output

Display the stations that the tourist can visit(no more than 2 stations of travelling). Sort the output alphabetically.

Example

Input (from keyboard)	Output (on screen)
Siam ChitLom ChitLom PhloenChit PhloenChit Nana Siam NationalStadium Ratchadmri Siam Siam PhayaThai Ratchadamri SalaDaeng ThongLo Ekkamai Siam	ChitLom NationalStadium PhayaThai PhloenChit Ratchadmri SalaDaeng Siam
Siam ChitLom ChitLom PhloenChit PhloenChit Nana Siam NationalStadium Ratchadmri Siam Siam PhayaThai Ratchadamri SalaDaeng ThongLo Ekkamai Ekkamai ThongLo ThongLo	Ekkamai ThongLo
Siam ChitLom ChitLom PhloenChit PhloenChit Nana Siam NationalStadium Ratchadmri Siam Siam PhayaThai Ratchadamri SalaDaeng ThongLo Ekkamai Ekkamai ThongLo MoChit	MoChit