

London Underground

Input file: **standard input**
Output file: **standard output**
Time limit: **3 seconds**
Memory limit: **512 megabytes**

You are given a graph of the London Underground with 426 stations and 505 two-way connections between them. You are also given some subset of stations. You need to count the number of ways to add more (possibly zero) stations to this set so that no two stations are directly connected.

Two ways of adding stations are considered different if some station is present in one set and not present in another.

The number of ways could be big, so you need to output it modulo 998 244 353.

Input

The first line contains one integer m ($m = 505$) — the number of connections.

The following m lines contain two stations each. Each station is a string of alphabetical characters, underscores, or digits.

It is guaranteed that the graph is exactly the same in all tests. It doesn't contain self-loops and duplicate edges.

The following line contains one integer k ($0 \leq k \leq 426$) — the number of stations in the initial set. The following k lines contain station names in the same format.

Output

Print the number of ways to extend the set modulo 998 244 353.

Example

standard input	standard output
505 Baker_Street Regents_Park Charing_Cross Embankment Edgware_Road__Bakerloo_ Marylebone Embankment Waterloo Harlesden Willesden_Junction Harrow_and_Wealdstone Kenton Kensal_Green Queens_Park Kenton South_Kenton ... 2 Baker_Street Liverpool_Street	159589981

Note

You can download the complete sample input at <https://pastebin.com/yuMX9tRL>.

You can check the official map at <https://content.tfl.gov.uk/standard-tube-map.pdf>. This link is provided for reference only. It may have some differences compared to the graph in the sample.