***Introduction***

The project will read flight data from an input file and flight path requests from another input file and output the required information.

***Your Task***

Your program should determine ***if a particular destination airport can be reached from a particular originating airport within a particular number of hops***.

A hop (leg of a flight) is a flight from one airport to another on the path between an originating and destination airports.

For example, the flight plan from PVG to PEK might be PVG → CAN → PEK. So PVG → CAN would be a hop and CAN → PEK would be a hop.

***Input Data Files***

**Path Input File(PathInput.txt)**

This input file will consist of a number of single origination/destination airport pairs (direct flights). The first line of the file will contain an integer representing the total number of pairs in the rest of the file.

|  |
| --- |
| 6  [PVG, CAN]  [CAN, PEK]  [PVG, CTU]  [CTU, DLC]  [DLC, HAK]  [HAK, LXA] |

**Path Request File(PathRequest.txt)**

This input file will contain a sequence of pairs of origination/destination airports and a max number of hops. The first line of the file will contain an integer representing the number of pairs in the file.

|  |
| --- |
| 2  [PVG, DLC, 2]  [PVG, LXA, 2] |

**Output File(Output.txt)**

For each pair in the Path Request File, your program should output the pair followed by “YES” or “NO” indicating that ***it is possible to get from the origination to destination airports within the max number of hops or it is not possible***, respectively.

|  |
| --- |
| [PVG, DLC, YES]  [PVG, LXA, NO] |

***Assumptions you can make:***

You may make the following simplifying assumptions in your project:

* C/C++ is allowed to be used.
* All airport codes will be 3 letters and will be in all caps
* Origination/destination pairs are unidirectional. To indicate that both directions of flight are possible, two entries would appear in the file. For example, [PVG, PEK] and [PEK, PVG] would have to be present in the file to indicate that one could fly from Shanghai to Beijing and from Beijing to Shanghai.