4 Ticket to Nowhere

The new railway line in town has finally finished construction. You are so excited to ride the train! So much so that you want to be able to sit on the train for as long as possible without having to get off or wait for the train to switch lines.

You hear that there is exactly one "loop" in the line to allow for constant round trips. This "loop" would start and end at the only two stations with the exact same station number. There's only one problem, the stations have been jumbled up!

4.1 Input

The first line will be X number of stations that are already on the railway line. The following X lines will each have the name of the station as a single word and its station number as a positive integer separated by a single space.

The next line will be Y number of insert operations. The following Y lines will have the name of the station being inserted, the station number of the station being inserted, and the name of the station that the station is being inserted after. All of which will also be separated by a single space.

- The sum of all the station numbers must be less than or equal to 1000 at any given time
- If a station is attempted to be inserted with too high of a station number, it will be skipped
- If a station is attempted to be inserted and is already in the line, it will be moved to its correct position and its station number will be updated
- If a station is attempted to be inserted after a station that is not in the line, it will be added at the end
- All station names will be unique and there will only ever be one set of duplicate station numbers at any given time

4.2 Output

The stations that are a part of the loop are to be listed on separate lines with their name and station number separated by a single space. The first instance of the duplicate station number is treated as the beginning of the loop.

SAMPLE INPUT/OUTPUT ON NEXT PAGE

4.3 Sample Input/Output

Sample Input	Sample Output
4 Arlesburgh 230 Brendam 110 Tidmouth 510 Elsbridge 20 6 Harwick 320 Tidmouth Knapford 40 Elsbridge Harwick 20 Arlesburgh Tidmouth 500 Brendam Tidmouth 510 Knapford Wellsworth 1 Vicarstown	Harwick 20 Brendam 110 Elsbridge 20

4.3.1 Explanation

After the insert operations, the railway line would look like this:

Arlesburgh 230
Harwick 20
Brendam 110
Elsbridge 20
Knapford 40
Tidmouth 510
Wellsworth 1

The "loop" would be between the stations Harwick and Elsbridge since they have the same station number of 20. Therefore, the output would be all the stations including and between Harwick and Elsbridge.