Network Path Test

Imagine that there is a small network with a number of interconnected devices. Each connection has a latency parameter which is expressed in milliseconds. Your task is to write a program that will determine whether a signal can travel between two devices in a given amount of time or less.

Implementation Guidelines:

1. The program should be executable from command line and accept one parameter - csv file path.

2. CSV file structure:

Format:

Device From, Device To, Latency (milliseconds)

Contents:

A,B,10
A,C,20
B,D,100
C,D,30
D,E,10
E,F,1000

Interpretation:

A connects to B and it takes 10 milliseconds for signal to travel between two devices. A to C and it takes 20 milliseconds, B to D and it takes 100 milliseconds etc.

3. The program should then continually wait for user input. Format should be [Device From] [Device To] [Time] (e.g **A F 1000** followed by ENTER key). If the signal can travel from A to F in 1000ms or less then output the signal path and total travel time in milliseconds otherwise print "**Path not found"**. If user enters **QUIT** then terminate the program.

4. You are only required to output first path that meets the time constraint. It does not have to be the shortest path.

Hints:

Think of the best data structure to accommodate devices and connections and write your code accordingly.

Submission:

Please commit all your code to a Github public repository and send us the URL. We would like to see your commit history and instructions on how to run the program from command line.

Sample Input / Output (based on above CSV data):

Input: A F 1000
Output: Path not found

Input: A F 1200
Output: A => B => D => E => F => 1120

Input: A D 100
Output: A => C => D => 50

Input: E A 400
Output: E => D => B => A => 120

Input: E A 80
Output: E => D => C => A => 60