# Problem 9 – Fast and Furious

You are given **records from traffic cameras** on the road. For each pair of cameras, you are given the distance and the speed limit between them. Each camera takes photos of car license plate numbers and **reports the numbers and the time of observation**. Find which cars are speeding.

A car travelling between two arbitrary points **A** and **B** on the road is speeding if its average speed is greater than the speed limit between these points. The average speed is calculated as follows:

## Input

* The input is read from the console.
* On the first line there is the single word **Roads:**
* The next few lines contain pairs of camera names, the distances between them and the maximum allowed speed (in km/h) between them. All camera names contain only letters and digits. The camera names and maximum speed are separated by a single space. Example:

**CameraA CameraB 100.23 50**

* On the next line there is the single word **Records:**
* The next few lines contain some camera records. Each record consist of a camera name, a license plate number and a time in 24-hour format (**hh:mm:ss**), separated by spaces. The license plate numbers contain **only letters and digits**. Example:

**CameraA CA1111AA 12:56:12**

* The last line contains the word **End** only.

## Output

* Print the license plate numbers of all speeding cars in alphabetical order, separated by new lines. Example:

**CA1111AA  
CA1212BB  
CHY0L042**

## Constraints

* The distances and speed limits are 32-bit floating point numbers with at most two digits after the decimal point.
* The number of cameras is in the interval [1; 10000].
* The number of records is in the interval [1; 100000].
* All data is collected in a single day.
* Any camera may output the times in any order.
* There will always be at least one speeding car.
* Time limit: **100 ms**. Allowed memory: **16 MB**.

## Sample Input and Output

|  |  |
| --- | --- |
| **Input** | **Visualization and Comments** |
| Roads:  Sofia Plovdiv 145.4 90  Plovdiv Varna 361.4 120.5  Varna Burgas 114.95 30  Burgas Plovdiv 252.9 42  Records:  Varna CA1234AA 19:48:25  Burgas B4732AH 19:38:50  Sofia CA1234AA 08:32:18  Plovdiv A777777 15:28:56  Varna SP33D 02:24:18  Burgas A777777 18:42:15  Plovdiv CA1234AA 15:32:18  Sofia SP33D 04:32:51  Varna B4732AH 08:18:36  End | A777777 is speeding between Plovdiv and Burgas.  SP33D is speeding between Varna and Sofia. |
| **Output** |
| A777777  SP33D |
| **Input** | **Visualization and Comments** |
| Roads:  Matzoro Isterni 128.55 50  Matzoro Kostos 87.25 48.5  Isterni Kostos 100 40.52  Melanes Galanado 230.5 50  Records:  Isterni AOM5973 13:20:11  Matzoro IBK5674 08:35:12  Matzoro AHI1278 08:35:12  Galanado IBK5674 18:20:35  Kostos COM1515 05:38:02  Galanado COM1515 08:40:15  Isterni IBK5674 14:28:30  Melanes COM1515 22:31:50  Kostos AOM5973 12:46:21  Kostos COM1515 18:56:10  End | AOM5973 is speeding between Kostos and Isterni. |
| **Output** |
| AOM5973 |