BT Code Test 2016/17 Issue 1

Router patch check

You work for a team managing a network, which contains a large number of routers. All these routers now need a firmware patch to be installed, and your job is to write a program to determine which routers can be patched, based on a number of criteria:

- The router has not already been patched
- The current version of the router OS is 12 or above
- There are no other routers which share the same IP address
- There are no other routers which share the same hostname

Your program will be run with a single command line argument, which will be the name of a CSV (Comma Separated Value) file containing a list of routers. Here's an example of the format of the file:

```
Hostname, IP Address, Patched?, OS Version, Notes
A. example. COM, 1.1.1.1, NO, 11, Faulty fans
b. example. com, 1.1.1.2, no, 13, Behind the other routers so no one sees it
C. EXAMPLE. COM, 1.1.1.3, no, 12.1,
d. example. com, 1.1.1.4, yes, 14,
c. example. com, 1.1.1.5, no, 12, Case a bit loose
e. example. com, 1.1.1.6, no, 12.3,
f. example. com, 1.1.1.7, No, 12.200,
g. example. com, 1.1.1.6, no, 15.0, Guarded by sharks with lasers on their heads
```

You can safely assume that the file contents are in a valid CSV format, and are as simple as the example above. A line will not contain any commas other than the ones separating fields, and none of the fields are surrounded by quotes. You should ignore blank lines, but otherwise there will always be the correct number of fields (5) in a line. The data in all the fields is not, however, guaranteed to be valid. Data which <u>is</u> valid should still be taken into account.

In this example only two routers can be patched: b.example.com and f.example.com. Your program should print out a list of routers that can be patched, in the following format:

```
b.example.com (1.1.1.2), OS version 13 [Behind the other routers so no one sees it] f.example.com (1.1.1.7), OS version 12.200
```

To keep things fair for people working in different languages, your code should parse the CSV itself (**do not use a built-in CSV parser**, even if one is available in the standard library).