Bonus Problem: Exam Proctors

The administrators in S University want to decide how many exam proctors they need for the coming final exams. The university has plenty rooms for final exams. Each exam will be held in a different room. Each exam will have one and only one proctor. An exam proctor will not be able to proctor two exams at the same time. In other words, if the exam time of two finals overlap, two proctors will be needed for these two exams. A proctor can continue proctoring another exam as long as the second one starts *strictly* after the end time of the first exam.

You will write a program to determine the minimum number of proctors needed given the finals schedule.

Input Format
Your program will read in an input text file "input.txt". The first line of input is *N*, the number of exams. The following *N* lines contain the start time and the end time of a certain final exam on each line. The start time and the end time are separated by a space. The time format is HH:mm. *HH* is the hour of the day which is an integer from 0 to 23. *mm* is the minute of the hour which is an integer from 0 to 59. The end time is guaranteed to be at least one minute later than the start time. All the exams will start and end on the same day.

Output Format
Print to the console. The minimum number of proctors needed for the finals.

(Examples on the next page)

Example 1:

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Input File:

6

01:12 02:45

01:01 01:35

02:40 02:58

02:42 03:14

01:00 02:41

03:00 03:25

Output:

3

Example 2:

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Input File:

2

15:10 15:20

15:20 15:30

Output:

2

Exam Proctors

[The program will assume the input file is "input.txt". Please change input file names to "input.txt" when testing with various test input files. The last two longer test files will be uploaded to D2L and sent to the tutors.]

```
➜  ch10 git:(master) ✗ cat input1.txt
6
01:12 02:45
01:01 01:35
02:40 02:58
02:42 03:14
01:00 02:41
03:00 03:25
➜  ch10 git:(master) ✗  ./proctors
3

➜  ch10 git:(master) ✗ cat input2.txt
2
15:10 15:20
15:20 15:30
➜  ch10 git:(master) ✗  ./proctors
2

➜  ch10 git:(master) ✗ cat input3.txt
100
16:36 21:57
07:05 14:08
09:30 10:02
03:40 21:12
12:34 23:37
13:45 20:03
09:11 22:29
05:22 22:22
16:24 17:12
➜  ch10 git:(master) ✗  ./proctors
49

➜  ch10 git:(master) ✗   cat test4.in | head
50
```

01:19 16:24
00:09 20:45
04:34 07:55
05:06 18:00
06:42 18:25
16:32 17:06
17:27 19:10
00:53 03:38
01:27 06:45
➜ ch10 git:(master) ✗ ./proctors
33

ENGR120 Bonus Problem Test Results

Team No.: _____

Member 1.: _____

Member 2: _____

Member 3: _____

Date: _____   Time: _____ Tester:_____

Code compiles:☐Y ☐N   # of warnings: _____

Code ran: ☐Y ☐N   Correct: ☐Y ☐N   Terminated OK: ☐Y ☐N

Output was free from extraneous output: ☐Y ☐N

Comments: