It's a tough life after graduation. You've ended up in a cubicle farm at Trogs-R-Us. You spend 90% of your time typing "i++" and the other 10% of your time doing Quality Assurance on other coders' "i++" statements.

But there's hope. You can get promoted to a corner cubicle if you can get noticed by all of the supervisors. Each supervisor spends a certain period each day standing by the water-cooler. Your plan is to pass by the water-cooler several times during the day and make witty comments to catch the supervisors' attention. Since you don't actually like walking around very much, your goal is to make the smallest possible number of trips to the water-cooler that will allow you to be noticed by ALL of the supervisors.

Example of the information:

| Supervisor | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Arrival time at water-cooler | 8:13 | 8:32 | 11:42 | 12:01 | 12:15 |
| Departure time from water-cooler | 8:47 | 9:14 | 12:17 | 13:36 | 14:02 |

In the example above, one solution is to pass by the cooler at 8:29, 9:07, 12:01 and 14:01. A better solution is to pass by at 8:38 and 12:15.

Design and implement a Greedy Algorithm that will find an optimal solution to instances of this problem.

If you get totally stuck on the design point, see Part 2.

Input for this lab consists of a text file containing a number of instances of the problem. The first line of the file contains an integer that specifies the number of instances to be solved. Each instance is defined by two lines of the file. The first line for an instance contains an integer that specifies the number of supervisors in this instance. The second line for an instance gives the arrival and departure times for each supervisor, in pairs. Note that times are represented as integers: for example, the time 10:43 is represented as 1043.

For example, the input file might look like

2

4

| 823 | 903 | 801 | 817 | 1111 | 1302 | 923 | 1001 |
|------|------|-----|-----|------|------|-----|------|

3

| 1456 | 1502 | 922 | 923 | 1423 | 1511 |
|------|------|-----|-----|------|------|