

## **D - Circular Tour**

**Input File: CircularTourIn.txt**

N cars are positioned on a circular touring road, each with a different amount of fuel. The cars are numbered 1 to N in the order they are encountered in a clockwise direction, with car number 1 being an arbitrarily chosen car. At most there is one car that can tour the entire road. Write a program to determine the number of the car that can make the tour in a clockwise direction, provided it can transfer the fuel from each car it reaches into its own tank.

### **Inputs**

The first line will contain the number of tours to be processed. This will be followed by one data set per tour consisting of two lines per data set. The first line will contain the length of the circular road (an integer) and the number of cars on this road. The second line will contain two integer data items per car, the first being the range of the car (distance it can travel) and the second being the car's location (the clockwise circular arc distance from car 1 to the car). The first of these pairs will be car 1's range and location, the second integer pair will be car 2's range and location, etc.

### **Outputs**

There will be one line of output for each circular touring road. The line will contain the car number that can complete the tour, or in the event that no car can complete the tour, it will contain the string "no car can make the tour".

### **Sample inputs**

```
3
20 4
1 0 1 1 13 3 5 12
314 4
150 0 50 25 100 200 10 250
60 6
5 0 7 6 5 14 6 17 20 38 17 59
```

### **Sample output**

```
3
no car can make the tour
6
```