

# ECOO '18 R1 P2 - Rue's Rings

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**Time limit:** 30.0s    **Memory limit:** 128M

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A local street planning consulting company, Rue's Rings, is looking to help the city prepare for converting a lot of their medium-traffic one-lane intersections into roundabouts.

After generating a plan, the city wants to run a simulation to see where the possible bottlenecks of traffic could be. The simulation runs by finding the roundabouts along a route and then figuring out which roundabout is the smallest in diameter. The smallest diameter roundabout would be the best possible location for congestion and creating a bottleneck of traffic which would make the traffic patterns even worse than they are now.

There are  $N$  roundabout-filled routes from the starting point to the endpoint. Your task, as the city simulation specialist, is to analyze the different routes that are available to find out which route (or routes) could generate the most issues.

## Input Specification

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The standard input will contain 10 datasets. Each dataset begins with an integer  $N$  ( $2 \leq N \leq 700$ ), the number of routes. The next  $N$  lines each contain a series of integers describing a route.

The first integer of each route description is the ID for the route. The second integer  $R$  ( $1 \leq R \leq 70$ ) is the number of roundabouts along the route.  $R$  integers follow which describe the diameter  $D$  ( $1 \leq D \leq 70\,000$ ) of each roundabout along the route.

## Output Specification

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For each dataset, output the minimum roundabout diameter along a route followed by a brace-enclosed, sorted list of route IDs for the routes that could cause issues.

## Sample Input (Two Datasets Shown)

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```
3
1 6 4 5 2 6 3 2
2 3 2 3 4
3 4 2 3 2 4
4
1 2 3 4
2 3 4 2 4
3 7 2 3 3 4 5 2 6
4 5 3 2 5 1 4
```

## Sample Output

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2 {1,2,3}

1 {4}

Educational Computing Organization of Ontario - statements, test data and other materials can be found at [ecoocs.org](http://ecoocs.org)