PROBLEM DESCRIPTION:

In a very touristic but poor island, lacking all modern infrastructures, the local government wants to establish a radio network so that all regions get a satisfactory number of good stations. For that purpose, the government has collected several data.

First of all, a list of all radio stations that are interested in broadcasting their signal in the island is available. After consulting with the local experts, it is also known, for each station, which is the cost of installing an antenna with the necessary characteristics. By default, to avoid interferences, antennas have to be at least one kilometer away from each other, but some pair of antennas need to be even further away.

In order to understand which stations should be chosen a thorough survey was done, after which each radio station was given a score (an integer between 1 and 10), expressing how attractive it is for the inhabitants and visitors of the island.

The island is a very thin and long one (Chile-like shape) and is divided into $\mathcal{R}$ autonomous regions, which should cover the full cost of installing the antennas. After several meetings, the central government knows, for each region, which is the budget available for installing the antennas. In addition, each region has posed the requirement that the sum of the scores of the stations broadcasting in their territory is larger than a certain number. Of course, the autonomous governments are wise and this number has a direct relationship with the budget they have. One final requirement is that no antenna should be installed near the border of two regions. Hence, if a region covers from the km. 14 of the coastline until the 22nd, antennas should be installed in kms $[15, 21]$.

Knowing that at most one antenna for each radio station can be installed in the island the goal is, using SMT technology, to know which antennas should be installed and where so that all requirements are fulfilled.

INPUT FORMAT:

You will be given a C++ program `generator.cpp` that, given 4 integers: $\mathcal{R}$ (number of different regions), $\mathcal{S}$ (smallest number of kms. a region can have), $\mathcal{S}$ (largest number of kms. a region can have), $\mathcal{D}$ (average score a region can demand per 10 km, i.e. a 40km long region can ask for a total score of $4\mathcal{D}$, approximatively), outputs a problem in the following format:

- First line is $\mathcal{R}$
- Then, for each region (ordered from west-most to east-most) we have a line of the form:

  `kms   required_score   budget`

- Next line contains an integer representing the number of available stations
- Now, for each station a line of the form:

  `score   cost`

- Finally, a certain number of lines (maybe zero lines) of the form:

  `station_1   station_2   distance`

- The file ends with a line containing a zero

Example:

```
3
30 11 13954
22 9 11357
22 9 8769
7
10 10457
6 3737
2 1187
2 2473
9 12844
9 12397
6 6507
1 2 40
1 5 37
0
```

Represents an island with 3 regions: the first one from km 0 to 30, the second one from km 30 to 52 and the third from km 52 to 74. The first region demands a score of 11 and has a budget of 13954$, the second one a score of 9 with a budget of 11356$ and so on.

The are 7 stations, the first one with score 10 and cost 10457$ and so on. All stations are at least at distance 1 km, except for stations 1 and 2, which are at distance at least 40 and stations 1 and 5, with distance at least 37.

OUTPUT FORMAT:

Free, but it should be clear which antennas are installed and where.