2. In the hydrological cycle of the Earth, various areas affect the weather as well as areas are also affected by various weathers. Areas involved in the simulation: plain, grassland, lakes region. Each area has a name, and the amount of water stored in the certain area is also given in km^3. The humidity of the air over the areas is also given in percentage.

The possible types of weather are the following: sunny, cloudy, rainy, depending on the humidity of the air. In case the humidity exceeds 70%, the weather gets rainy and the humidity decreases to 30%.

In case the humidity is between 40-70%, the calculation of the chance of rainy weather is: (humidity-30)*3,3%, otherwise the weather is cloudy. Humidity below 40% leads to sunny weather.

In the following, we declare how the certain areas respond to the different type of weathers.

First the amount of water stored by the area varies then the weather will be affected. There is no type of areas with negative amount of water stored.

In case the type is *plain*, if the weather is sunny, the amount of water will be decreased by 3 km^3; if cloudy, it will be decreased by 1 km^3; for rainy weather it will be increased by 20 km^3. The humidity of the air is increased by 5%. If the amount of the stored water is greater than 15 km^3, the plain area changes into grassland.

In case of type *grassland*: in sunny weather, the amount of water is decreased by 6 km^3, for cloudy it will be decreased by 2 km^3, but and for rainy, it will be increased by 15 km^3. The humidity of the air is increased by 10%. The area becomes lakes region obtaining amount of water over 50 km^3, whereas in case the amount of stored water goes below 16 km^3, the area changes to plain.

In case of type *lakes region*: in sunny weather, the amount of water is decreased by 10 km^3, for cloudy it will be decreased by 3 km^3, for rainy it will be increased by 20 km^3. The humidity will be increased by 15%. Beyond an amount of water of 51 km^3 the area changes into grassland.

The program reads data from a text file. The first line of the file contains a single integer N indicating the number of areas. Each of the following N lines contains the attributes of an area separated by spaces: the owner of the area, the type of the area, and the amount of water stored by the area. In the last line, the humidity of the air is given in percentage. The type is identified by a character: P – plain, G – grassland, L – lakes region.

We continue the simulation until each area has the same type. The program should print all attributes of the certain areas by simulation rounds!

The program should ask for a filename, then print the content of the input file. You can assume that the input file is correct. Sample input:

```
4
Mr Bean L 86
Mr Green G 26
Mr Dean P 12
Mr Teen G 35
98
```