Emit Magic   X90927_en

There are a number of locations that are part of an adventure game. At each location there is a given set of characters and a given set of items. Your task is to simulate several actions in the adventure game.

Input

The input starts with an integer N denoting the number of locations. The next N lines contain the name of the locations.

The next line contains an integer M denoting the number of characters. The next M lines contain the description of each character on the format "<character type>-<character name>-<character level> <location name>". Valid character types are "Cure", "Damage" and "Character".

The next line contains an integer K denoting the number of items. The next K lines contain the description of each character on the format "<item type>-<item name>-<item level> <location name>". Valid item types are "Bomb", "Potion", "Trap" and "Item".

The next line contains an integer A denoting the number of actions. The next A lines contains the description of each action, which can be either "Use" or "Distribute". The format for each type of action is

"Use-<character name>-<item name>-<location name>" "Distribute-<location name>-<magic amount>"

Output

For each location in the order they appear in the input, print the result of applying each action in the adventure game, on the format specified in the example.

Sample input 1

```
1
Paradise
2
Cure-Eve-0 Paradise
Damage-Adam-1 Paradise
3
Bomb-Bomb-0 Paradise
Trap-Trap-0 Paradise
Item-Apple-0 Paradise
3
Use-Eve-Trap-Paradise
Distribute-Paradise-0
Use-Eve-Bomb-Paradise
```

Sample output 1

```
Eve uses Trap at Paradise
Eve takes 5 damage
Eve receives 0 magic points
Eve gains 0 life
Adam receives 0 magic points
Adam takes 0 damage
Bomb receives 0 magic points
Apple receives 0 magic points
Eve uses Bomb at Paradise
Bomb explodes
Eve receives 5 magic points
Eve gains 5 life
Adam receives 5 magic points
Adam takes 5 damage
Apple receives 5 magic points
```

Problem information

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