

Programming Challenge

The Lion King party

Mufasa is the main ruler of the Lion King kingdom, and he wants to celebrate the expansion of the kingdom with an animal party. Not just any animal party, though; the best animal party possible, as befits a kingdom called the Lion King.

To that end, he's come up with a party-animal score for every animal in the Lion King kingdom. The party-animal score is a number, and the higher the party-animal score, the more fun that the animal will contribute to a party. Party-animal scores may be positive, negative, or zero.

However, Mufasa knows that who you party with is important. If an animal's ruler is at a party, then the animal will spend all their time looking over their shoulder for their ruler, and that's not fun. Therefore, at this animal party, no animal and their ruler will both be invited. A ruler's ruler is okay, but you can't have both an animal and their ruler.

Your task, as a party organizer, is to write a program that takes in an animal listing and outputs the guests to invite in order to maximize the sum of the guests' party-animal scores.

The input will be given to your program on standard input as a JSON document in the following form:

```
[
  {
    "name": "Mufasa",
    "ruler": null,
    "party-animal-score": 57.1
  },
  {
    "name": "Scar",
    "ruler": "Mufasa",
    "party-animal-score": 12.2
  },
  # ... and so on
]
```

Your program must print, on standard output, the names of the animals to include in the party. Print one name per line; the names do not need to be in any particular order.

No animals will have the same name, so there is no need to worry about name collisions.

Each animal has exactly one ruler and appears in the input exactly one time except for the main ruler, who has no ruler.

The Lion King kingdom is going to sell your code as a service to other animal kingdoms, so do not assume that the main ruler is always named Mufasa.

For bonus points: ensure that your solution always invites the main ruler.

You have to develop your program in Python and you can submit it to us via email.

Example input 1:

```
[
  {
    "name": "Mufasa",
    "ruler": null,
    "party-animal-score": 2.0
  },
  {
    "name": "Simba",
    "ruler": "Mufasa",
    "party-animal-score": 12.1
  },
  {
    "name": "Scar",
    "ruler": "Mufasa",
    "party-animal-score": 34.3
  },
  {
    "name": "Nala",
    "ruler": "Simba",
    "party-animal-score": -0.4
  },
  {
    "name": "Timon",
    "ruler": "Nala",
    "party-animal-score": 44.91
  },
  {
    "name": "Pumba",
    "ruler": "Nala",
    "party-animal-score": -9999.99
  },
  {
    "name": "Shenzi",
    "ruler": "Scar",
    "party-animal-score": 14.4
  },
  {
    "name": "Ed",
    "ruler": "Scar",
    "party-animal-score": 25
  }
]
```

Sample Output 1 (normal):

```
Simba  
Timon  
Shenzi  
Ed
```

Sample Output 1 (making sure to invite the main-ruler):

```
Mufasa  
Timon  
Shenzi  
Ed
```