

P10. Game theory is a study of social interaction among rational decision makers in such a way that a decision of any decision maker affects the others. For example (Prisoner's Dilemma), Lobha and Raga were arrested for theft. The police tries to get them to confess so each of them is offered a deal. If both do not confess, both will get 3-year sentence. However, if Lobha confesses and Raga does not, Lobha will get 1-year sentence and Raga will get 10-year sentence. Vice versa, if Lobha does not confess, but Raga does, Lobha will serve 10 years in prison while Raga will only have to do 1 year. If both confess, both will get 5-year sentence. Table below summarizes the 4 possible scenarios

Lobha \ Raga	Not confess	Confess
Not confess	3/3	10/1
Confess	1/10	5/5

It is clearly that the mutual interest is maximized when both do not confess. However, Lobha and Raga cannot trust one another. The best choice of Lobha regardless of Raga decision is to confess and so is Raga's. These rational decisions of both players can be settled and this state is called Nash equilibrium.

Write a function named `rational_decision`. The function takes 2 arguments: (1) information table of the 4 scenarios as a dictionary and (2) a name of a person the function finding the decision for. The function returns a rational decision of the given person regardless of the other's decision **or None if there is no such an option**. The information is represented as a dictionary with format:

`{'Lobha': [[3, 10], [1, 5]], 'Raga': [[3, 10], [1, 5]]}` each dict value is a list of 4 entries each of a number of years serving in prison for the corresponding scenario, i.e, in order, a person does not confess and the other does not confess, a person not confess but the other does, a person confesses but the other does not, and a person confesses and the other does too.

Examples:

When invoked by

```
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choices = ['not confess', 'confess']

s = {'Lobha': [[3, 10], [1, 5]], 'Raga': [[3, 10], [1, 5]]}

p = 'Lobha'
r = rational_decision(s, p)
print(p, ':', choices[r])
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```

we will see

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Lobha : confess
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