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☆ Market Equilibrium

N coffee chains are competing for market share by waging a fierce advertising battle. Each day, a percentage of customers will be convinced to switch from one chain to another. An analyst has estimated the current market share and the daily probability of customers switching.

If the advertising campaigns run forever, what will be the final distribution of market share?

Assumptions:

The probability that a customer switches is independent of other customers and days.

N is an integer less than 25

Total market share is 1.0

Input:

An array of floats of size N, representing the initial distribution of market share.

An matrix of floats with dimensions NxN, representing the probability of switching from one chain to another.

Output:

An array of floats of size N, representing the final distribution of market share.

Note: floats in the output should be rounded to 4 decimal places.

Example:

2 coffee chains: Starbucks and Tully's

Starbucks market share is .4

Tully's market share is .6

Each day, there there is a .2 probability that a customer switches from Starbucks to Tully's

Each day, there is a .1 probability that a customer switches from Tully's to Starbucks.

Input: market_share=[.4, .6], switch_prob=[[.8, .2],[.1, .9]]

Output: [0.3333 0.6667]

YOUR ANSWER

We recommend you take a quick tour of our editor before you proceed.
The timer will pause up to 90 seconds for the tour.

[Start tour](#)



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```
2
3 import sys
4 import os
5
6
7 # Complete the function below.
8
9
10 def market_equilibrium(initial_market_share, switch_probability):
11
12
13 f = open(os.environ['OUTPUT_PATH'], 'w')↔
14
15
16 _initial_market_share_cnt = 0
17 _initial_market_share_cnt = int(raw_input())
18 _initial_market_share_i=0
19 _initial_market_share = []
20 while _initial_market_share_i < _initial_market_share_cnt:
21     _initial_market_share_item = float(raw_input());
22     _initial_market_share.append(_initial_market_share_item)
23     _initial_market_share_i+=1
24
25
26
27 _switch_probability_rows = 0
28 _switch_probability_cols = 0
29 _switch_probability_rows = int(raw_input())
30 _switch_probability_cols = int(raw_input())
31
32 _switch_probability = []
33 for _switch_probability_i in xrange(_switch_probability_rows):
34     _switch_probability_temp =
35     map(float,raw_input().strip().split(' '))
36     _switch_probability.append(_switch_probability_temp)
```



Quant Dev #2 - Winter 2017

01h : 58m : 56s
to test end

```
39         f.write( str(res_cur) + "\n" )
40
41     f.close()
42
```

Line: 8 Col: 1

☐ Test against custom input

Run Code

Submit code & Continue

(You can submit any number of times)

[Download sample test cases](#)

The input/output files have Unix line endings. Do not use Notepad to edit them on windows.

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