[CS 11] Prac 6f – Odd Pricing

Problem Statement

Your dissertation focuses on the psychology of pricing, and you have discovered that it's not just the numerical value of the price that matters, but also the buyer's perception of it. In particular, you have discovered that people tend to buy something more if its price is an odd number, than if it is an even number.[citation needed]

You want to put this to the test. You would like to sell packed lunch. You have several ulams as well as several drinks. Each packed lunch you sell must contain exactly one ulam and exactly one drink.

Each ulam and drink has a cost of production which is an integer number of pesos. When an ulam and a drink is paired, you want the price of the packed lunch to be the sum of the production costs, plus 100 pesos for profit.

However, as stated above, you want the total price to be an odd number. Naturally, this means you might not be able to sell everything you have.

You can choose which ulams get paired with which drinks. If you choose optimally, what is the maximum number of packed lunches you can make such that they all satisfy the above requirements?

Task Details

Your task is to implement a function called `num_lunch`. This function has two parameters, both `tuple`s of `int`s. The first one denotes the prices of all ulams you have. The second one denotes the prices of all drinks you have.

The function must return an `int` denoting the number of packed lunches you can make satisfying the requirements.

Restrictions

(See 6a for more restrictions)

For this problem:

- Loops and lists are allowed.
- Up to 8 function definitions are allowed.
- Recursion is **disallowed**. (The recursion limit has been greatly reduced.)
- Sets and dictionaries are **disallowed**.
- Generators and comprehensions are **disallowed**.
- The source code limit is 600.

Example Calls

Example 1 Function Call

```
num_lunch(
    (3, 1, 4, 1, 5),
    (2, 7, 1, 8, 2),
)
```

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Example 1 Return Value

```
4
```

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Example 2 Function Call

```
num_lunch(
    (3, 1, 4, 1, 5, 9, 2, 6, 5),
    (2,),
)
```

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Example 2 Return Value

```
1
```

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Constraints

When your program is run:

- The function `num_lunch` will be called at most $50{,}000$ times.
- The total number of ulams and drinks across all calls will be at most $300{,}000$.
- The total number of ulams and drinks in each call will be at most $300{,}000$.
- Each price is a positive integer at most 10^{10}.

Scoring

- You get 50 ❤️ points if you solve all test cases where:
  - the total number of ulams and drinks in each call is ≤ 100.
  - the total number of ulams and drinks across all calls is at most $1{,}000$.
- You get 100 ❤️ points if you solve all test cases where:
  - the total number of ulams and drinks in each call is $\leq 8{,}000$.
  - the total number of ulams and drinks across all calls is at most $16{,}000$.
- You get 25 💔 points if you solve all test cases.

Submit solution [CS 11] Practice 6

My submissions

Points: 175 (partial)
Time limit: 6.0s
Memory limit: 1G

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Problem type

Allowed languages
~~NONE~~, py3

Clarifications

Report an issue

No clarifications have been made at this time.