[CS 11] Prac 10d – Tekken

Problem Statement

In this year's EVO, the organizers have decided to do something fun—they will pick two audience members at random and have them play Tekken against each other in front of everyone else! This will be the last event of the opening ceremony.

Tekken is a 1v1 fighting game, where two players choose their fighter from a character roster. The specific Tekken game they're playing is Tekken Tag Tournament Thirty, so there are many, many characters available!

To make this happen, the organizers take note of the name of each person that enters the ceremony hall, as well as their preferred Tekken character to play with. The organizers will then choose two players among the list that will play against each other.

However, they have one constraint: they don't want the two players they choose to use the same Tekken character—in general, it's weird to see a character fight a doppelganger of themselves! Thus, even if there are n players, not all $n(n-1)/2$ possible pairs may be possible match-ups. In the extreme case, everyone prefers to use the same character, so no match-ups may be possible!

Starting with an empty ceremony hall, people will arrive one by one. After each person arriving, can you determine the number of possible match-ups at that point in time?

Task Details

Your task is to implement a function called `tekken_matchups`. This function has a single parameter, a `tuple`/`list` of n `str`s denoting the preferred Tekken character of each person entering the ceremony hall.

The function must return a `list` of n `int`s denoting the number of possible match-ups after each person enters the ceremony hall.

Restrictions

(See 10a for more restrictions)

For this problem in particular:

- The source code limit is 2000.

Example Calls

Example 1 Function Call

```
tekken_matchups((
    'Alisa', 'Panda', 'Alisa', 'Panda', 'Xiaoyu',
    'Julia', 'Panda', 'Panda', 'Panda', 'Panda',
    'Heihachi', 'Jinpachi', 'Panda', 'Azazel',
))
```

Example 1 Return Value

```
[0, 1, 2, 4, 8, 13, 17, 21, 25, 29, 39, 50, 56, 69]
```

Constraints

- The function `tekken_matchups` will be called at most $60{,}000$ times.
- $0 \le n \le 250{,}000$
- The sum of ns across all calls will be $\le 250{,}000$.
- Each character name is a nonempty string of up to 8 English letters.

Scoring

- You get 60 ❤ points if you solve all test cases where:
  - $n \le 50$.
  - The sum of the ns across all calls will be 500.
- You get 60 ❤ points if you solve all test cases where:
  - $n \le 4{,}000$.
  - The sum of the ns across all calls will be $8{,}000$.
- You get 65 ❤ points if you solve all test cases.

Submit solution [CS 11] Practice 10 ❤

My submissions ❤

Points: 185 (partial)
Time limit: 4.0s
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.