[CS 11 25.1] HOPE 2d – Polyglot

Cheatsheet is available here: https://oj.dcs.upd.edu.ph/cs11cheatsheet/

Problem Statement

You want to communicate with your foreign friends better, so you decide to write yourself a program to do so! Wait, what...?

You and your foreign friends know a total of n languages (numbered 0 to $n-1$), so you arrange n dictionaries (also numbered 0 to $n-1$) in a circle. The dictionary numbered i translates words from the ith language to the $(i+1)$th language, except for dictionary $n-1$, which translates words from the $(n-1)$th language to the 0th language.

Given a word in language i, what is its corresponding translation in language j? If there is no translation, say so (see **Task Details**).

Task Details

Your task is to implement a function named `translate`, which should start like this:

```
def translate(ds, i, word, j):
```

Here, `ds` is a list of n dictionaries, `word` is a string denoting a word in language i, and j is an integer denoting the target language.

The function must return a string denoting the translation of the word, or `None` if no such translation exists.

Restrictions

- Loops and lists are allowed.
- Sets and dictionaries are allowed.
- Generators and comprehensions are **disallowed**.
- Recursion is allowed.
- Your source code must have at most 350 bytes.

Examples

Example 1 Function Call

```
translate([{"Pikachu": "ピカチュウ"}, {"ピカチュウ": "피카츄"},
{"피카츄": "Pikachu"}], 1, "ピカチュウ", 2)
```

Example 1 Return Value

```
"피카츄"
```

Example 1 Explanation

The entry `"ピカチュウ": "피카츄"` in dictionary 1 gives us the desired translation.

Example 2 Function Call

```
translate([{"Pikachu": "ピカチュウ"}, {"ピカチュウ": "피카츄"},
{"피카츄": "Pikachu"}], 1, "ピカチュウ", 0)
```

Example 2 Return Value

```
"Pikachu"
```

Constraints

Let d be the total number of entries across all dictionaries in a single call to `translate`.

- The function `translate` will be called at most $70{,}000$ times.
- $2 \le n \le 350{,}000$
- $1 \le d \le 350{,}000$
- The sum of the ns across all test cases is at most $350{,}000$.
- The sum of the ds across all test cases is at most $350{,}000$.
- For each $1 \le i < n-1$, each key in dictionary i appears as a value in dictionary $i-1$.
- Each key in dictionary 0 appears as a value in dictionary $n-1$.
- `word` appears in dictionary i.
- Each word has "length" at most 8.
- No word appears in two different languages.
- $0 \le i, j < n$
- $i \ne j$

Scoring

Note: New tests may be added and all submissions may be rejudged at a later time. (All future tests will satisfy the constraints.)

- You get 90 ❤️ points if you solve all test cases where:
  - $i < j$
- You get 140 🔴 points if you solve all test cases.

Clarifications

Report an issue

No clarifications have been made at this time.