[CS 11] Prac 6n – Substring Sums

Problem Statement

You are given a string of n digits. Take all of its nonempty substrings of length at most k. Interpret those strings as integers, and find their sum modulo m.

Task Details

Your task is to implement a function called `substring_sums`. This function has three parameters:

- `s`, a `str` of digits.
- `k`, an `int`.
- `m`, an `int`.

The function must return an `int` denoting the requested answer.

Restrictions

(See 6a for more restrictions)

For this problem:

- Loops and lists are allowed.
- Up to 16 function definitions are allowed.
- Recursion is **disallowed**. (The recursion limit has been greatly reduced.)
- Sets and dictionaries are allowed.
- Generators and comprehensions are allowed.
- The following names are allowed: `set`, `dict`, `iter`, `next`, `any`, `all`, `popitem`, `setdefault`, `update`, `add`, `discard`.
- The source code limit is 1000.

Example Calls

Example 1 Function Call

```
substring_sums('31415', 2, 1000)
```

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Example 1 Return Value

```
115
```

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Example 2 Function Call

```
substring_sums('31415', 2, 100)
```

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Example 2 Return Value

```
15
```

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Constraints

- The function `substring_sums` will be called at most 50,000 times.
- The sum of the ns is at most 600,000.
- $1 \le k \le n \le 600{,}000$
- $100 \le m \le 10^{10}$

Scoring

- You get 75 ❤ points if you solve all test cases where:
  - $n \le 30$
  - the sum of ns is ≤ 150.
- You get 50 ❤ points if you solve all test cases where:
  - $n \le 400$
  - the sum of ns is ≤ 400.
- You get 25 💗 points if you solve all test cases where:
  - $n \le 5{,}000$
  - the sum of ns is $\le 5{,}000$.
- You get 100 💗 points if you solve all test cases.

❓ Clarifications

Report an issue

No clarifications have been made at this time.

Submit solution

My submissions ❤

✔ **Points:** 250 (partial)
⏱ **Time limit:** 11.0s
▤ **Memory limit:** 1G

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› **Problem type**

⌄ **Allowed languages**
  ~~NONE~~, py3