[CS 11] Prac 2h – Product of Pairs with Sum

oj.dcs.upd.edu.ph/problem/cs11prac2h

Submit solution
My submissions
Points: 100 (partial)

Time limit: 4.0s

Memory limit: 1G

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Problem type

Allowed languages

~~NONE~~, py3

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

Problem Statement

You are given two sets s1s_1 and s2s_2 of integers, as well as an integer ss.

Find all possible integers that can be formed as the product xyxy of an integer xx from s1s_1 and an integer yy from s2s_2 such that the sum of xx and yy is ss.

Task Details

Implement a function called `products`:

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```
def products(s1, s2, s):
```

- `s1`—`frozenset` of `int`s
- `s2`—`frozenset` of `int`s

- `s`—`int`

Return a `frozenset` of `int`s.

Restrictions

(See 2a for more restrictions)

For this problem:

- Up to 11 function definition is allowed.
- Recursion is **disallowed**. (The recursion limit has been greatly reduced.)
- Comprehensions are allowed.
- `range` is allowed.
- The source code limit is 500500.

Example Calls

Example 1 Function Call

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```
products(
    frozenset((3, 1, 4, 2, 5)),
    frozenset((4, 6, 8, 10, 12)),
    9,
)
```

Example 1 Return Value

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```
frozenset((8, 18, 20))
```

Example 1 Explanation

The pairs whose sum is 99 are: (3,6) (3 , 6) , (1,8) (1 , 8) and (5,4) (5 , 4) .

Constraints

- The function `products` will be called at most 1,0001,000 times.
- `s1` and `s2` will have at most 4040 elements.

- Each `int` in the input will have absolute value at most 102010^{20}.

Scoring

- You get 100100 ❤️ points if you solve all test cases.

Report an issue

Clarifications

No clarifications have been made at this time.