[CS 11 25.1] Lab 4e – Koyuki and Bombs 6

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

Problem Statement

Koyuki is still on the same infinite grid of cells. Now she wants to throw a bunch of bombs, each with power p, and she wants to record the damage done by each bomb.

Can you help her out?

Note. See Problem 4d for context.

Task Details

Your task is to implement a function named `bomb_records`, which should have the following *signature*:

```
def bomb_records(bs, p):
```

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The above says that it has two arguments `bs` and p.

- `bs` is a `tuple` of pairs (tuples of length 2) corresponding to the positions of the bombs.
- p is an `int` corresponding to the common power of all the bombs.

The function must return a dictionary (`dict`) containing the cells affected by each bomb. In particular,

- its *keys* must be the positions of the bombs she threw.
- the *value* corresponding to a bomb position must be a `set` of pairs corresponding to the positions affected by the bomb.

Restrictions

- The following symbols can now be used: `list`, `set`, `dict`, `enumerate`, `append`, `pop`, `extend`, `remove`, `sort`, `sorted`, `insert`, `clear`, `reverse`, `reversed`.
- Loops are allowed.
- Recursion is *disallowed*.
- Comprehensions are *disallowed*.
- Your source code must have at most $1{,}000$ bytes.

Examples

Example 1 Function Call

```
bomb_records(((0, 0), (1, 1)), 1)
```

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Example 1 Return Value

```
{
    (0, 0): {(-1, 0), (1, 0), (0, 1), (0, -1)},
    (1, 1): {(0, 1), (2, 1), (1, 0), (1, 2)},
}
```

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Constraints

- The function `bomb_records` will be called at most 8 times.
- $0 \le p \le 50{,}000$
- $|i|, |j| \le 10^{20}$
- The length of `bs` in one call to `bomb_records` will be at most 8.
- The sum of the lengths of `bs` across all calls to `bomb_records` will be at most 8.

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 10 ❤️ points if you solve all test cases where:
  - $p \le 1$
  - The length of `bs` is at least 1.
- You get 20 ❤️ points if you solve all test cases where:
  - $p \le 100$
  - The length of `bs` is at least 1.
- You get 20 ❤️ points if you solve all test cases where:
  - The length of `bs` is at least 1.
- You get 100 🔴 points if you solve all test cases.

Clarifications

Report an issue

No clarifications have been made at this time.

Sub[illegible] solution

[CS 11 25.1] Lab Exercise 4

My submissions

Points: 150 (partial)
Time limit: 8.0s
Memory limit: 2G

Problem type

Allowed languages
py3