[CS 11 25.1] Lab 2d – Koyuki and Bombs 3

Problem Statement

Koyuki is on the same infinite grid of cells. She has a bunch of cells that she wants to target, and she would like to target all of these cells in one go.

Given the target cells and a fixed power p, which cells can she throw a bomb with power p at such that all of the target cells are caught in the blast?

Note. See Problem 2c for context.

Task Details

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

```
def possible_bomb_positions(ts, p):
```

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

- `ts` is a tuple of pairs (`tuple` of length 2) denoting the positions Koyuki wants to target.
- p is an integer (`int`).

Each position is a pair `(i, j)` corresponding to (i, j).

The function must return a `frozenset` of pairs of integers denoting the cells where she can throw a bomb with power p at to affect all target cells at once.

Restrictions

- The following symbols can now be used: `min`, `max`, `sum`, `range`, `all`, `any`.
- recursion is *disallowed*.
- comprehensions are allowed.
- at most 6 functions can be defined.
- Your source code must have at most 2000 bytes.

Examples

Example 1 Function Call

```
possible_bomb_positions(((0, 0), (1, 1)), 1)
```

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Example 1 Return Value

```
frozenset(((0, 1), (1, 0)))
```

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Constraints

- The function `possible_bomb_positions` will be called at most 8 times.
- $0 \le p \le 50{,}000$
- $|i|, |j| \le 10^{20}$
- The length of `ps` in one call to `possible_bomb_positions` will be at most 8.
- The sum of the lengths of `ps` across all calls to `possible_bomb_positions` 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 25 ❤️ points if you solve all test cases where:
  - $p \le 1$
  - The length of `ps` in one call to `possible_bomb_positions` will be at most 2.
- You get 50 🔴 points if you solve all test cases where:
  - $p \le 60$
- You get 25 💔 points if you solve all test cases.

Clarifications

Report an issue

No clarifications have been made at this time.

Submit solution

Points: 100 (partial)
Time limit: 15.0s
Memory limit: 1G

Problem type

Allowed languages
py3