[CS 11 25.1] Lab 1f – Hilbert's Curve II

Submit solution

✔ **Points:** 170 (partial)
⏱ **Time limit:** 4.0s
▤ **Memory limit:** 1G

> **Problem type**

∨ **Allowed languages**
~~NONE~~, py3

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

Problem Statement

(See 1e for context)

Given a subgrid of C_k, determine the number of `#` that you will need in order to draw that subgrid.

Task Details

Your task is to implement a function called `hilbert_subgrid_count`. This function has five parameters, all `int` s: k, i_1, j_1, i_2, j_2.

The function must return an `int` representing the number of `#` needed to draw the subgrid, as described in Problem 1i.

Restrictions

(See 1a for more restrictions)

For this problem:

- Assignment is allowed.
- Recursion is allowed.
- Up to 12 function definitions are allowed.
- Comprehensions are **disallowed**.
- `range` is **disallowed**.
- The `abs` symbol is now allowed.
- The symbols `sorted`, `max` and `min` are allowed.
- The source code limit is 2000.
- The recursion limit is 8000.

Example Calls

Example 1 Function Call

```
hilbert_subgrid_count(1, 0, 0, 3, 3)
```

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Example 1 Return Value

```
7
```

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Example 2 Function Call

```
hilbert_subgrid_count(3, 1, 2, 6, 8)
```

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Example 2 Return Value

```
14
```

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Constraints

- The function `hilbert_subgrid_count` will be called at most 10 times.
- $1 \le k \le 10^5$.
- $0 \le i_2, j_2 \le 10^5$.
- $0 \le i_1 < i_2 \le r_k$ where r_k is the number of rows of C_k.
- $0 \le j_1 < j_2 \le c_k$ where c_k is the number of columns of C_k.

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 50 🔴 points if you solve all test cases where:
  - $k \le 100$
  - $i_2 - i_1 \le 30$
  - $j_2 - j_1 \le 30$
- You get 70 🔴 points if you solve all test cases where:
  - $i_2 - i_1 \le 30$
  - $j_2 - j_1 \le 30$
- You get 50 💗 points if you solve all test cases.

❓ Clarifications   Report an issue

No clarifications have been made at this time.