2927. Distribute Candies Among Children III Premium

Hard Topics Companies Hint

You are given two positive integers `n` and `limit`.

Return *the **total number** of ways to distribute* `n` *candies among* `3` *children such that no child gets more than* `limit` *candies.*

Example 1:

```
Input: n = 5, limit = 2
Output: 3
Explanation: There are 3 ways to distribute 5 candies such that no child gets more than 2 candies: (1, 2, 2), (2, 1, 2) and (2, 2, 1).
```

Example 2:

```
Input: n = 3, limit = 3
Output: 10
Explanation: There are 10 ways to distribute 3 candies such that no child gets more than 3 candies: (0, 0, 3), (0, 1, 2), (0, 2, 1), (0, 3, 0), (1, 0, 2), (1, 1, 1), (1, 2, 0), (2, 0, 1), (2, 1, 0) and (3, 0, 0).
```

Constraints:

- `1 <= n <= 10^8`
- `1 <= limit <= 10^8`

Seen this question in a real interview before? 1/5

Yes No

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Hint 1

Try to solve the problem using combinatorics.

Hint 2

If the limit didn't exist, the problem would be distributing `n` candies between `3` children.

Hint 3

The answer to the above problem would be `C(n + 2, 2)`.

Hint 4

Now try to combine this with the Inclusion-exclusion principle.

Hint 5

Apart from the above solution, there are other mathematical solutions that you can think of.

Discussion (0)