Problem 3100: Water Bottles II

Problem Information

Difficulty: Medium
Acceptance Rate: 78.08%
Paid Only: No
Tags: Math, Simulation

Problem Description

You are given two integers `numBottles` and `numExchange`.

`numBottles` represents the number of full water bottles that you initially have. In one operation, you can perform one of the following operations:

* Drink any number of full water bottles turning them into empty bottles. * Exchange `numExchange` empty bottles with one full water bottle. Then, increase `numExchange` by one.

Note that you cannot exchange multiple batches of empty bottles for the same value of `numExchange`. For example, if `numBottles == 3` and `numExchange == 1`, you cannot exchange `3` empty water bottles for `3` full bottles.

Return _the**maximum** number of water bottles you can drink_.

Example 1:

Input: numBottles = 13, numExchange = 6 **Output:** 15 **Explanation:** The table above shows the number of full water bottles, empty water bottles, the value of numExchange, and the number of bottles drunk.

Example 2:

Input: numBottles = 10, numExchange = 3 **Output:** 13 **Explanation:** The table above shows the number of full water bottles, empty water bottles, the value of numExchange, and the number of bottles drunk.

Constraints:

* `1 <= numBottles <= 100 ` * `1 <= numExchange <= 100`

Code Snippets

C++:

```
class Solution {
public:
int maxBottlesDrunk(int numBottles, int numExchange) {

}
};
```

Java:

```
class Solution {
public int maxBottlesDrunk(int numBottles, int numExchange) {

}
}
```

Python3:

```
class Solution:
def maxBottlesDrunk(self, numBottles: int, numExchange: int) -> int:
```