Problem Card

Pre-rade Flags

Problem Statement

N students numbered 1...N stream through FitzRandolph gate, flags in hand, to have their faces captured by hundreds of waiting cameras along the walkway. One photographer wants a picture where every student in it is holding a Princeton flag. However, a flag shortage has resulted in some students not receiving a flag! Luckily, at the last minute, a box of flags was found, which can be handed out to specific students before they pass the gate. Given that a block of K contiguous students are in the photographer's frame at any point in time, and given the B numbers denoting students without flags, find the minimum number of extra flags we need to give out so that the photographer can take their picture.

Test Cases

```
// Input
N = 10,  K = 6, B = 5
Students without flags: {2, 10, 1, 5, 9}

// Output
Flags needed: 1

// Explanation
After giving a flag to student 5, we can take a photo of the six students
numbered 3 to 8, who will all have flags.
```