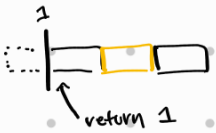
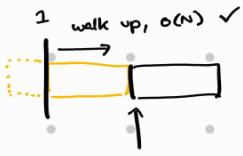
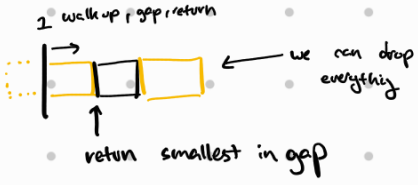
Initial Notes

- If there are no numbers from $0 \dots n$, where $n \neq 1$, the solution is 1

Scenarios to Consider







Restrictions

- O(N) time → sorting is not an option
  - elements during iteration will be unsorted
- O(1) space, can only keep elements within iteration frame
  - Must be able to handle duplicate elements, cannot use set

Implementation Ideas

- set(nums) → traverse from $1 \dots n$
  - fails O(N) aux space restriction

Optimization

- Discard anything larger than n, as we only care about the continuous sequence from $1 \dots$ result.
  - Can be extended to elements ≤ 0.

} out of bounds ntl during impl.

- In place modification of input array. We take the idea of the hashset, and flag elements as seen using a negative flag (within an index)