

## 287. Find the Duplicate Number

Given array of integers A 1, 3, 4, 2, 2

$|A| = n + 1$  3, 1, 3, 4, 2

$\forall m \in A, 1 \leq m \leq n$

Brute Force:

① Sorting  $O(n \log n)$

$O(1)$

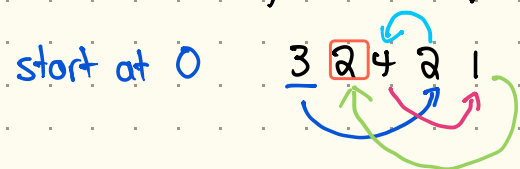
② set  $O(n)$

$O(n)$

## Tortoise and Hare

$n + 1$  cardinality  
 $n$  possible values } Pigeonhole principle

Transform array into LL cycle detection problem



Each element is a node

.next = value of node is the index of the next node

