兩個指針同時從直線起點開始，假設在x處第一次匯合，XB之間距離為x，那麼快指針走過的路程為AB+x+d+x,慢指針走過的路程為a+x，所以AB+x+d+x=2(AB+x),所以AB＝d，所以令快指針從起點開始一次一步，慢指針從x開始，同時前進，則必會在B處相遇

一張含有 白板, 文字 的圖片

自動產生的描述

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Given an array nums containing n + 1 integers where each integer is between 1 and n (inclusive), prove that at least one duplicate number must exist. Assume that there is only one duplicate number, find the duplicate one.

Example 1:

Input: [1,3,4,2,2]

Output: 2

Example 2:

Input: [3,1,3,4,2]

Output: 3

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class Solution {

public int findDuplicate(int[] nums) {

int slow\_pointer = nums[0];

int fast\_pointer = nums[0];

// slow pointer move one step each itertion

slow\_pointer = nums[slow\_pointer];

//fast pointer move two step each iteration

fast\_pointer = nums[nums[fast\_pointer]];

while(slow\_pointer != fast\_pointer) {

slow\_pointer = nums[slow\_pointer];

fast\_pointer = nums[nums[fast\_pointer]];

}

int pointer\_1 = slow\_pointer;

int pointer\_2 = nums[0];

while(pointer\_1 != pointer\_2 ) {

pointer\_1 = nums[pointer\_1];

pointer\_2 = nums[pointer\_2];

}

return pointer\_1;

}

}