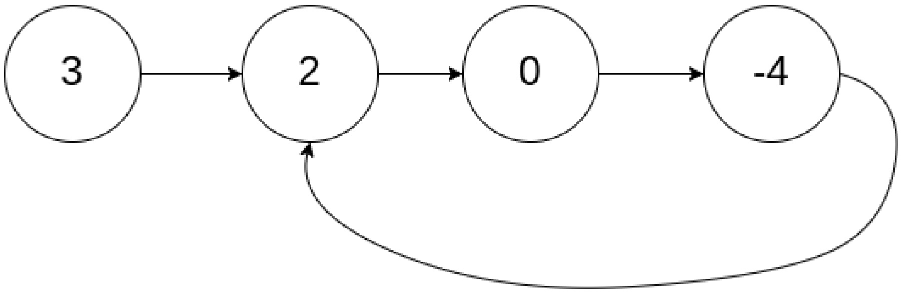
142. Linked List Cycle II

Given a linked list, return the node where the cycle begins. If there is no cycle, return `null`.

There is a cycle in a linked list if there is some node in the list that can be reached again by continuously following the `next` pointer. Internally, `pos` is used to denote the index of the node that tail's `next` pointer is connected to. **Note that `pos` is not passed as a parameter**.

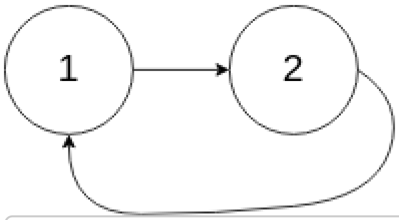
Notice that you **should not modify** the linked list.

Example 1:



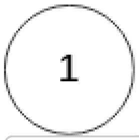
```
Input: head = [3,2,0,-4], pos = 1
Output: tail connects to node index 1
Explanation: There is a cycle in the linked list, where tail connects to the second nod
```

Example 2:



```
Input: head = [1,2], pos = 0
Output: tail connects to node index 0
Explanation: There is a cycle in the linked list, where tail connects to the first node
```

Example 3:



```
Input: head = [1], pos = -1
Output: no cycle
Explanation: There is no cycle in the linked list.
```

Constraints:

- The number of the nodes in the list is in the range `[0, 10^4]`.
- `-10^5 <= Node.val <= 10^5`
- `pos` is `-1` or a **valid index** in the linked-list.

Follow up: Can you solve it using `O(1)` (i.e. constant) memory?

找出链表环的开始节点

Linked list, Two pointers

1. slow and fast pointers to find the midpoint
2. if fast reaches null, it means no cycle return null
3. reset slow to head, and move both pointers one step until they meet each other
4. return slow
