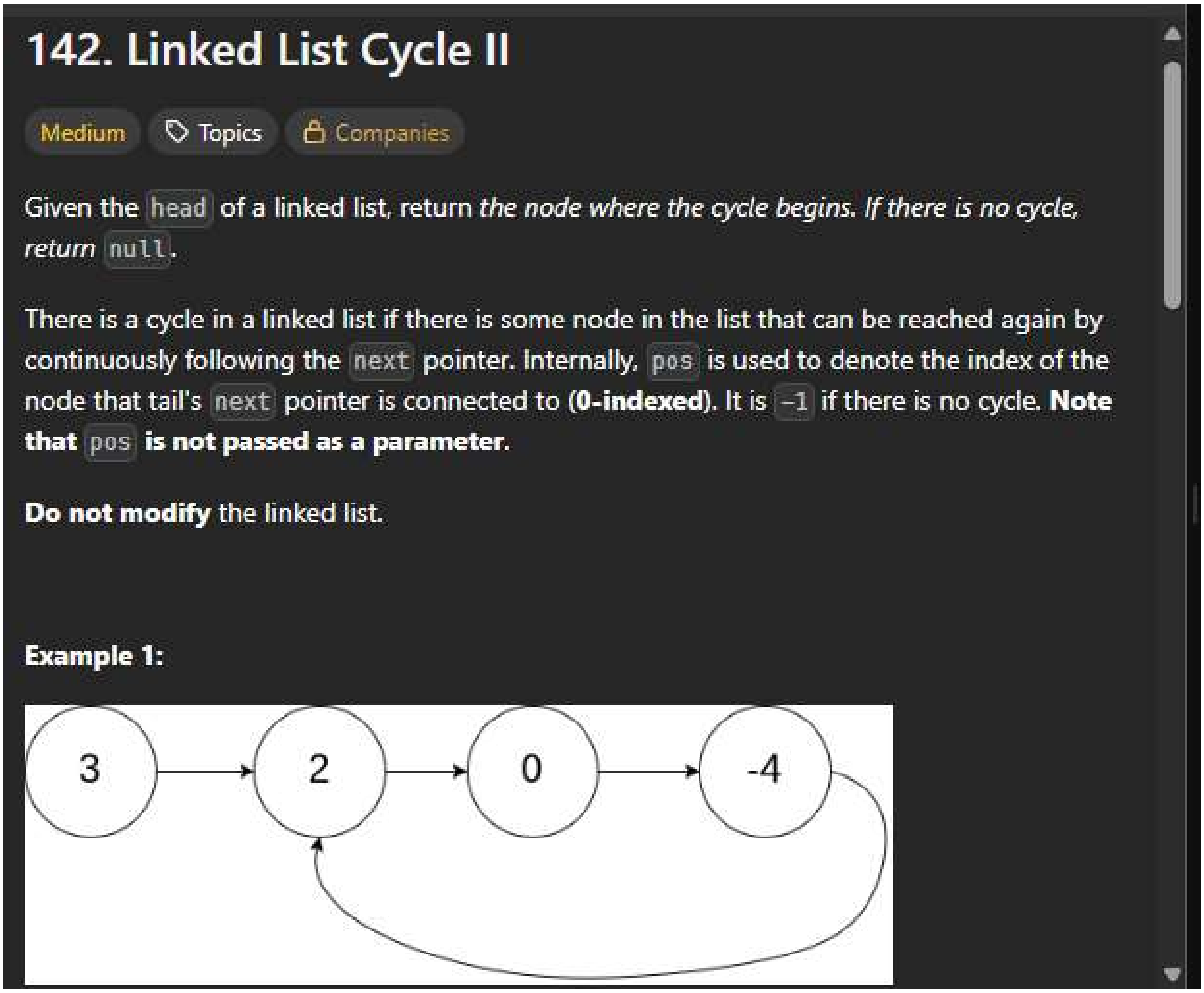


142. Linked List Cycle II

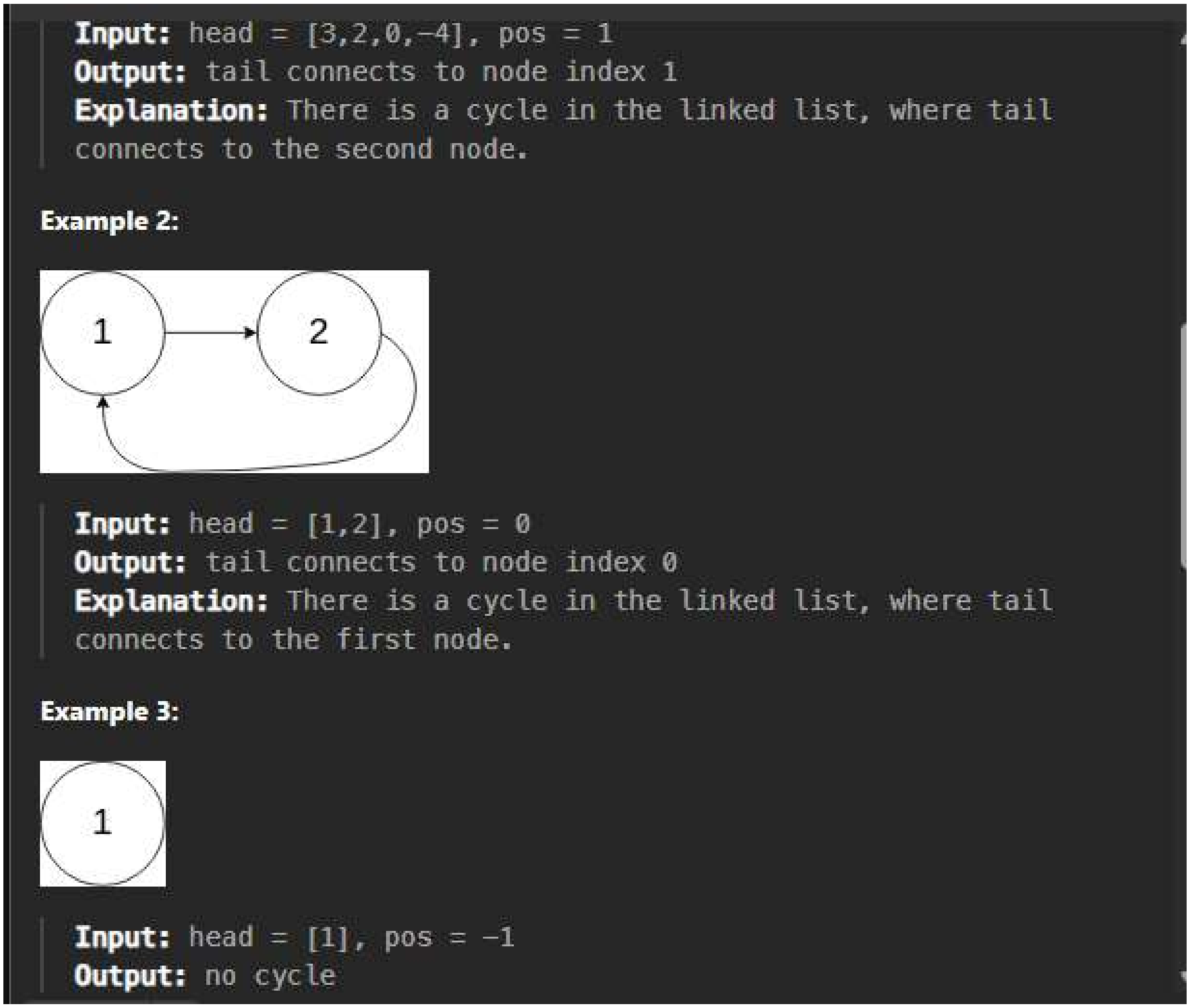
Medium | Topics | Companies

Given the `head` of 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 (**0-indexed**). It is `-1` if there is no cycle. **Note that** `pos` **is not passed as a parameter.**

Do not modify the linked list.

Example 1:



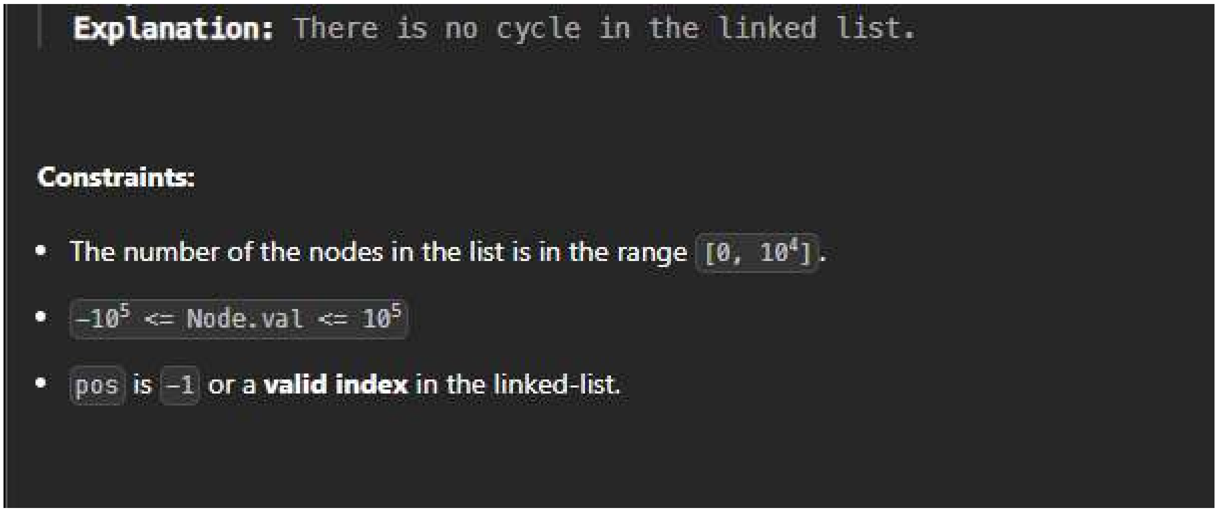
> **Input:** head = [3,2,0,-4], pos = 1
> **Output:** tail connects to node index 1
> **Explanation:** There is a cycle in the linked list, where tail connects to the second node.

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:

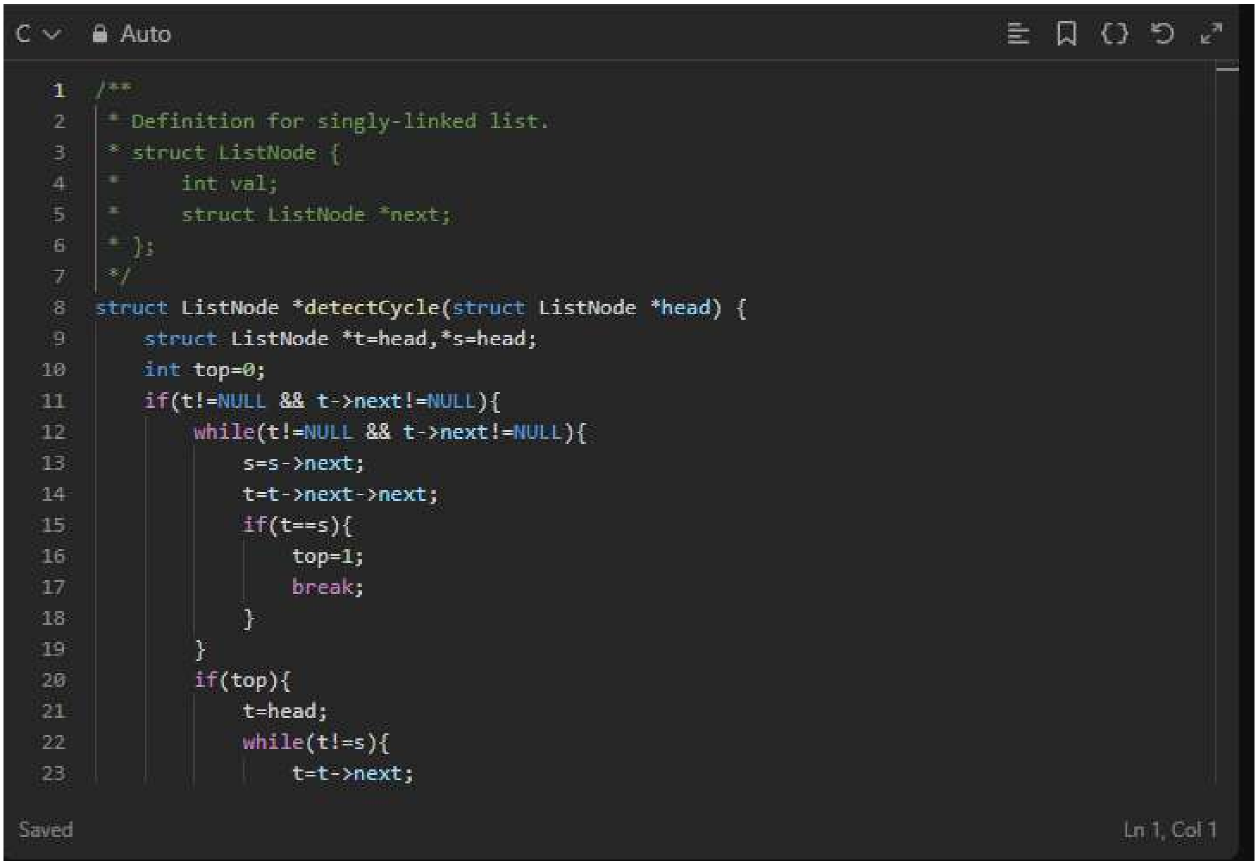
> **Input:** head = [1], pos = -1
> **Output:** no cycle



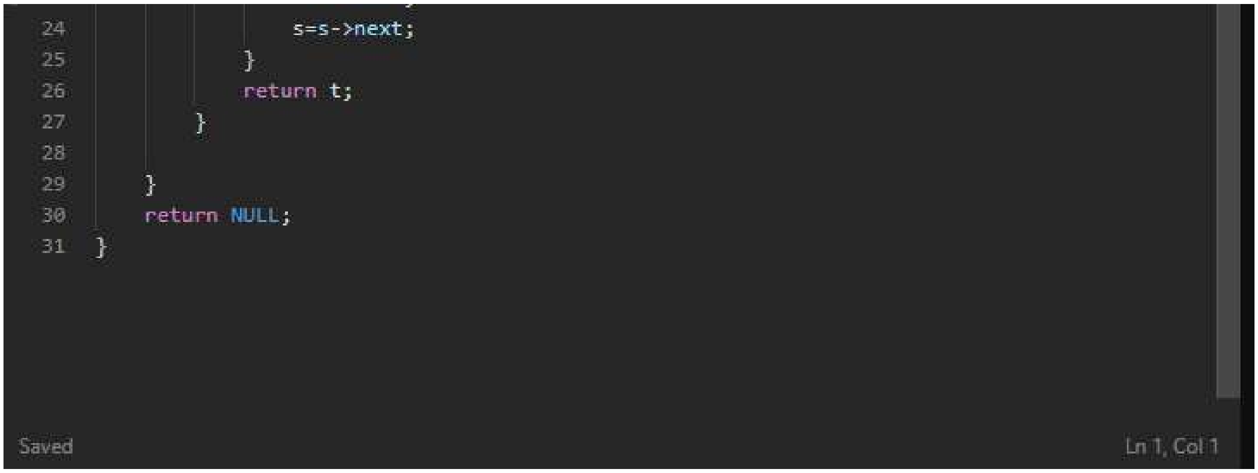
> **Explanation:** There is no cycle in the linked list.

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.

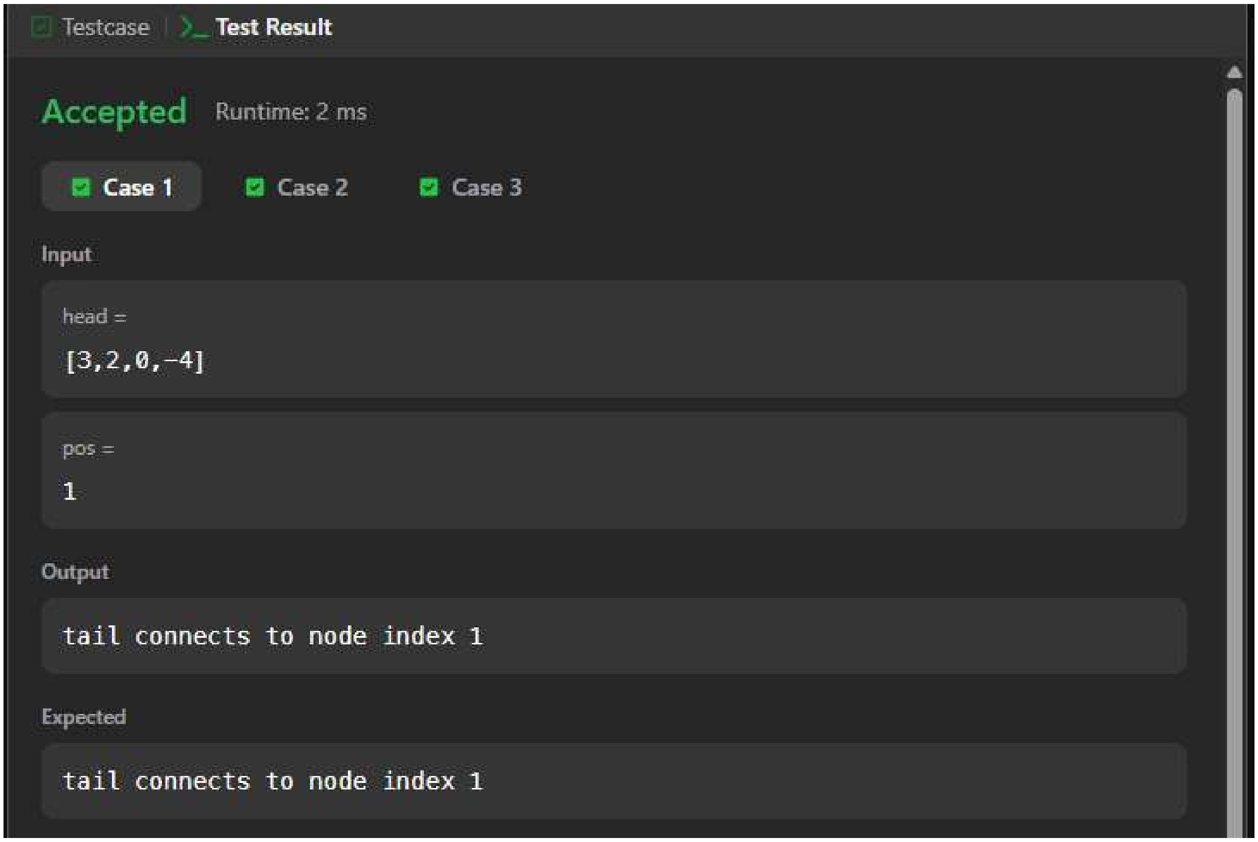


```c
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     struct ListNode *next;
 * };
 */
struct ListNode *detectCycle(struct ListNode *head) {
    struct ListNode *t=head,*s=head;
    int top=0;
    if(t!=NULL && t->next!=NULL){
        while(t!=NULL && t->next!=NULL){
            s=s->next;
            t=t->next->next;
            if(t==s){
                top=1;
                break;
            }
        }
        if(top){
            t=head;
            while(t!=s){
                t=t->next;
```



```c
                s=s->next;
            }
            return t;
        }

    }
    return NULL;
}
```



Accepted Runtime: 2 ms

Input

head =

```
[3,2,0,-4]
```

pos =

```
1
```

Output

```
tail connects to node index 1
```

Expected

```
tail connects to node index 1
```