

Rotate List

For this problem we need to rotate the list to the right by k positions.

Key Observations:

1. Rotating right by k is equivalent to:
 - Connecting the tail to the head (making it circular).
 - Breaking the list at $(\text{length} - k \% \text{length})$ position.
2. If k is larger than the length of the list:
 - Use $k = k \% \text{length}$ to avoid unnecessary rotations.
3. Edge cases:
 - Empty list ($\text{head} == \text{nullptr}$)
 - $k = 0$
 - $k \% \text{length} = 0$ (no rotation needed)

Steps:

1. Find the length of the list.
2. Connect tail to head to form a circular list.
3. Calculate new head position:-
 - Move $(\text{length} - k \% \text{length})$ steps forward.
4. Break the circle to form the rotated list.

Complexity:

- Time: $O(n)$ (single traversal to compute length and rotation point).
- Space: $O(1)$ (in-place rotation).