

2058. Find the Minimum and Maximum Number of Nodes Between Critical Points

Solved ●

Medium Topics Companies Hint

A **critical point** in a linked list is defined as **either** a **local maxima** or a **local minima**.

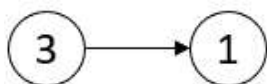
A node is a **local maxima** if the current node has a value **strictly greater** than the previous node and the next node.

A node is a **local minima** if the current node has a value **strictly smaller** than the previous node and the next node.

Note that a node can only be a local maxima/minima if there exists **both** a previous node and a next node.

Given a linked list `head`, return an array of length 2 containing `[minDistance, maxDistance]` where `minDistance` is the **minimum distance** between **any two distinct** critical points and `maxDistance` is the **maximum distance** between **any two distinct** critical points. If there are **fewer** than two critical points, return `[-1, -1]`.

Example 1:

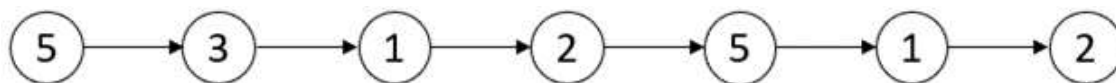


Input: `head = [3,1]`

Output: `[-1,-1]`

Explanation: There are no critical points in `[3,1]`.

Example 2:



Input: `head = [5,3,1,2,5,1,2]`

Output: `[1,3]`

Explanation: There are three critical points:

- `[5,3,1,2,5,1,2]`: The third node is a local minima because 1 is less than 3 and 2.

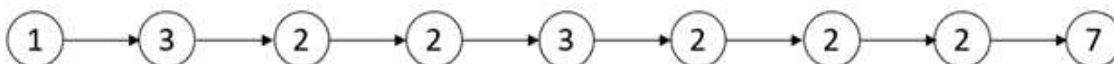
- `[5,3,1,2,5,1,2]`: The fifth node is a local maxima because 5 is greater than 2 and 1.

- `[5,3,1,2,5,1,2]`: The sixth node is a local minima because 1 is less than 5 and 2.

The minimum distance is between the fifth and the sixth node. `minDistance = 6 - 5 = 1`.

The maximum distance is between the third and the sixth node. `maxDistance = 6 - 3 = 3`.

Example 3:



Input: `head = [1,3,2,2,3,2,2,2,7]`

Output: `[3,3]`

Explanation: There are two critical points:

- `[1,3,2,2,3,2,2,2,7]`: The second node is a local maxima because 3 is greater than 1 and 2.

- `[1,3,2,2,3,2,2,2,7]`: The fifth node is a local maxima because 3 is greater than 2 and 2.

Both the minimum and maximum distances are between the second and the fifth node.

Thus, `minDistance` and `maxDistance` is `5 - 2 = 3`.

Note that the last node is not considered a local maxima because it does not have a next node.

Constraints:

- The number of nodes in the list is in the range `[2, 105]`.

- `1 <= Node.val <= 105`

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Yes No

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