Reverse Nodes In Even Length Groups

Try to solve the Reverse Nodes in Even Length Groups problem.

We'll cover the following

- Statement
- Examples
- Understand the problem
- Figure it out!
- Try it yourself

Statement

You're given a linked list. Your task is to reverse all of the nodes that are present in the groups with an even number of nodes in them. The nodes in the linked list are sequentially assigned to non-empty groups whose lengths form the sequence of the natural numbers $(1, 2, 3, 4...)$. The length of a group is the number of nodes assigned to it. In other words:

- The 1^{st} node is assigned to the first group.
- The 2^{nd} and 3^{rd} nodes are assigned to the second group.
- The 4^{th}, 5^{th}, and 6^{th} nodes are assigned to the third group and so on.

You have to return the head of the modified linked list.

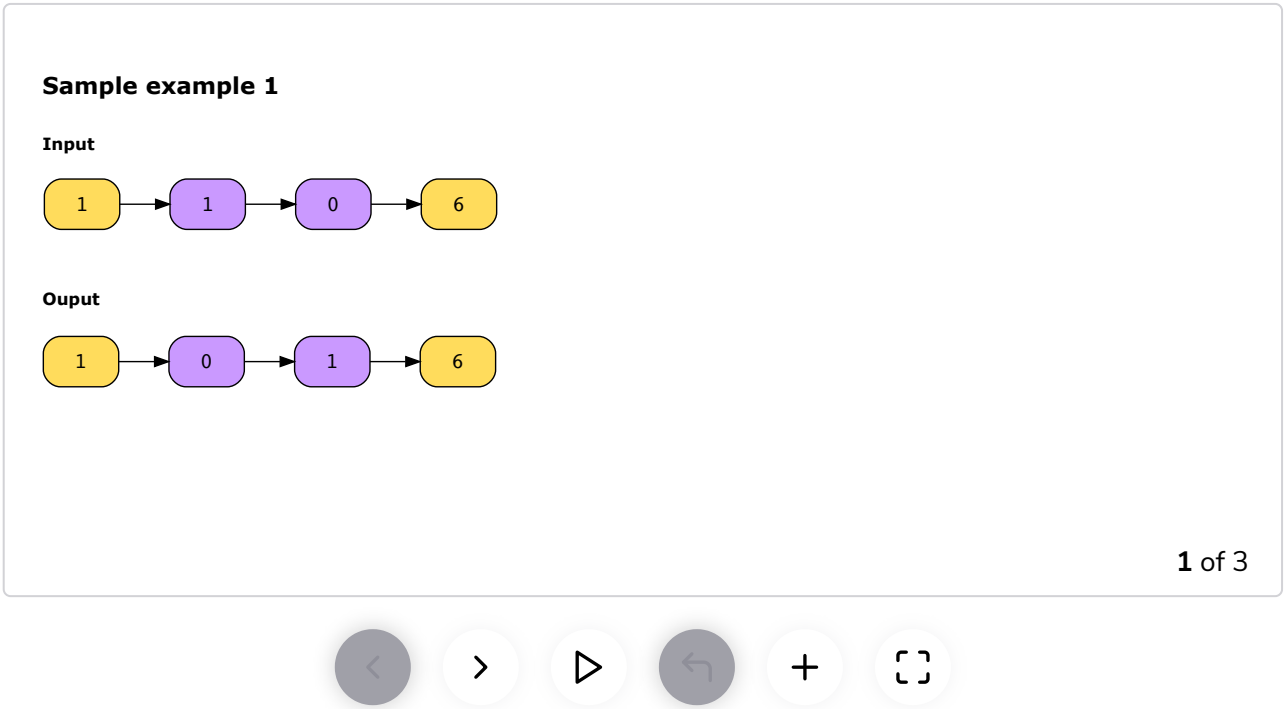
> **Note:** The length of the last group may be less than or equal to 1 + the length of the second to the last group.

Constraints:

- $1 \leq$ Number of nodes ≤ 500
- $0 \leq$ `LinkedListNode.data` $\leq 10^3$

Examples

You can understand the problem a little better with the help of the illustration below:



Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps us to check if you're solving the correct problem:

Reverse Nodes in Even Length Groups

1 What is the output if the following linked list is provided as input?

$4 \rightarrow 3 \rightarrow 0 \rightarrow 5 \rightarrow 1 \rightarrow 2 \rightarrow 7 \rightarrow 8 \rightarrow 6$

A) $3 \rightarrow 4 \rightarrow 2 \rightarrow 1 \rightarrow 5 \rightarrow 0 \rightarrow 7 \rightarrow 8 \rightarrow 6$

B) $3 \rightarrow 4 \rightarrow 5 \rightarrow 0 \rightarrow 2 \rightarrow 1 \rightarrow 8 \rightarrow 7 \rightarrow 6$

C) $4 \rightarrow 0 \rightarrow 3 \rightarrow 5 \rightarrow 1 \rightarrow 2 \rightarrow 8 \rightarrow 7 \rightarrow 6$

D) $4 \rightarrow 0 \rightarrow 3 \rightarrow 5 \rightarrow 1 \rightarrow 2 \rightarrow 7 \rightarrow 8 \rightarrow 6$

Submit Answer

Question 1 of 3
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

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Start traversing the second node of the list if it exists, since the first node does not need to be reversed as it is part of an odd numbered group of 1 node.

Keep traversing the linked list till l nodes have been traversed, where l is the length of the current group of nodes (which starts from 2).

During this traversal, keep a count n of the nodes being traversed. This is to ensure that if the linked list ends before l nodes have been traversed, we still have a track of the n nodes that have been traversed.

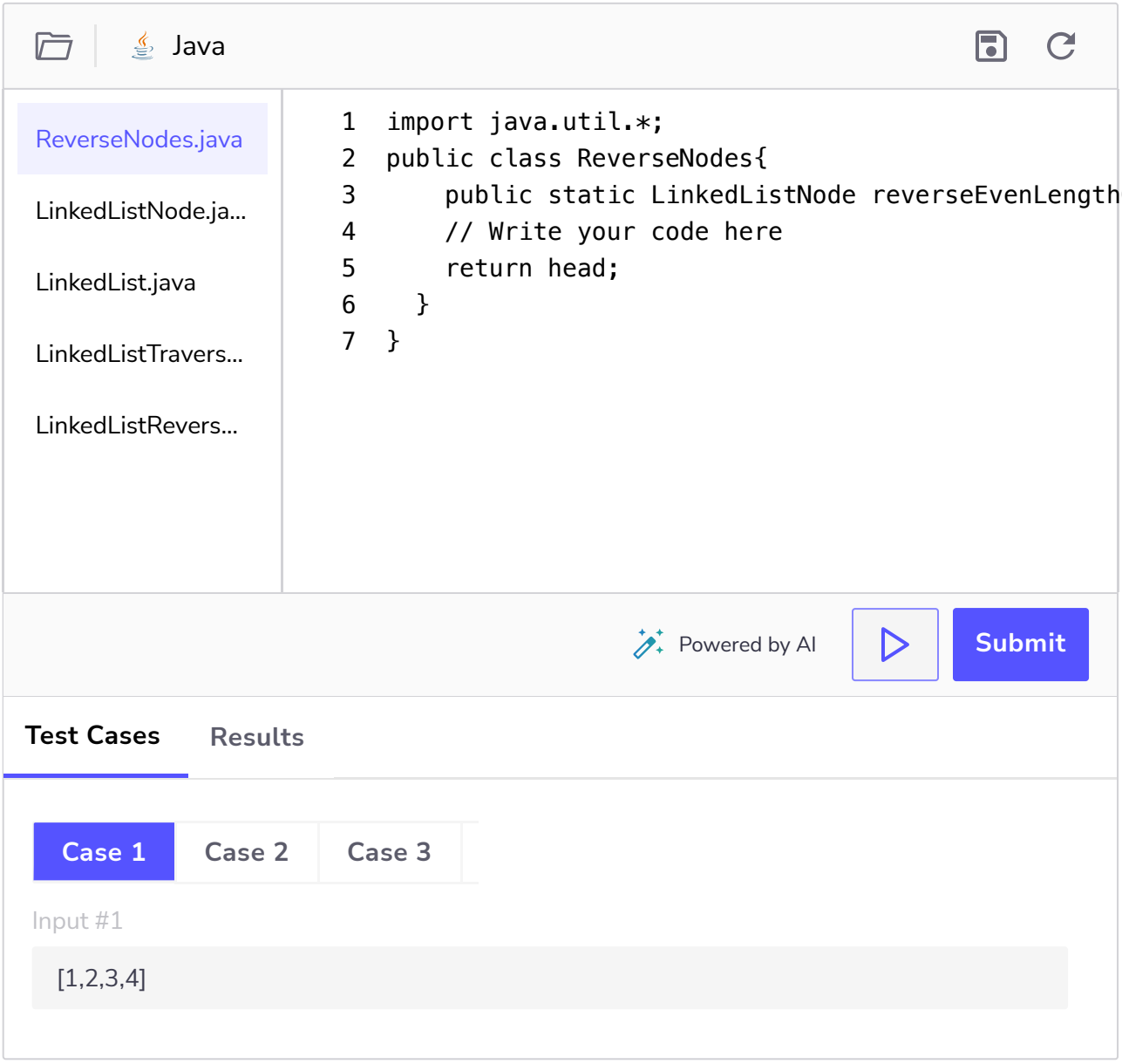
If the value of n is odd, do not reverse this group. Otherwise, if the value of n is even, reverse the n nodes in this group.

Increment l by 1 and repeat this process until the linked list has been traversed completely.

Reset | Show Solution | Submit

Try it yourself

solution. We've also provided some useful code templates that you may build on to solve this problem.



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Solution: Swapping N...

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Solution: Reverse Nod...

Mark as Completed