

Medium 3081 233 Add to List Share

Flatten the list so that all the nodes appear in a single-level, doubly linked list. You are given the head of the first level of the list.

Input: head = [1,2,3,4,5,6,null,null,null,7,8,9,10,null,null,11,12]
Output: [1,2,3,7,8,11,12,9,10,4,5,6]
Explanation:

```

graph LR
    subgraph TopRow [Top Row Stages]
        direction LR
        S1[1: NEXT, PREV, DATA] --> S2[2: NEXT, PREV, DATA]
        S2 --> S3[3: NEXT, PREV, DATA]
        S3 --> S4[4: NEXT, PREV, DATA]
        S4 --> S5[5: NEXT, PREV, DATA]
        S5 --> S6[6: NEXT, PREV, DATA]
    end
    subgraph BottomRow [Bottom Row Stages]
        direction LR
        S7[7: NEXT, PREV, DATA] --> S8[8: NEXT, PREV, DATA]
        S8 --> S9[9: NEXT, PREV, DATA]
        S9 --> S10[10: NEXT, PREV, DATA]
        S10 --> S11[11: NEXT, PREV, DATA]
        S11 --> S12[12: NEXT, PREV, DATA]
    end
    S1 --> S7
    S2 --> S8
    S3 --> S9
    S4 --> S10
    S5 --> S11
    S6 --> S12
    S12 --> S1

```

Input: head = [1,2,null,3]
Output: [1,3,2]
Explanation:

```

1---2---NULL
|
3---NULL

```

Input: head = []
Output: []

```

1---2---3---4---5---6---NULL
      |
      7---8---9---10---NULL
            |
            11---12---NULL

```

```
[1,2,3,4,5,6,null]
[7,8,9,10,null]
[11,12,null]
```

```
[1,2,3,4,5,6,null]
[null,null,7,8,9,10,null]
[null,11,12,null]
```

```
[1,2,3,4,5,6,null,null,null,7,8,9,10,null,null,11,12]
```

- The number of Nodes will not exceed 1000 .
- $1 \leq \text{Node.val} \leq 10^5$

Seen this question in a real interview before?