Print Specific Tree Pattern

Given a "complete" binary tree , print the following pattern using its all nodes.
root element
first element of second level
last element of of second level
first element of the of the third level
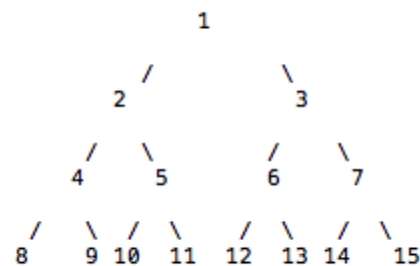last element of the third level
second element of the third level
second from last element of the third level
..... So on.

Example :

For tree :

The pattern should be:
1 2 3 4 7 5 6 8 15 9 14 10 13 11 12

Input Format

Line 1: Nodes in level order form (separated by space). If any node does not have left or right child, take -1 in its place

Output Format

Required pattern

Constraint

Given binary tree is complete
1 <= Number of Nodes <= 10^6
1 <= value of each node <= 10^8

Sample Input 1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1

Sample Output 1

1 2 3 4 7 5 6 8 15 9 14 10 13 11 12