#include<bits/stdc++.h>

using namespace std;

class TreeNode{

public:

int val = 0;

TreeNode\* left = NULL;

TreeNode\* right = nullptr;

TreeNode(int data){

val = data;

}

};

TreeNode\* createNode(vector<int> &arr, int &idx){

if(idx>arr.size() || arr[idx]==-1){

idx++;

return NULL;

}

TreeNode \*root = new TreeNode(arr[idx++]);

root->left = createNode(arr,idx);

root->right = createNode(arr,idx);

return root;

}

vector<int> preorder(TreeNode\* root){

vector<int> pre;

TreeNode\* curr = root;

while(curr){

if(curr->left==NULL){

pre.push\_back(curr->val);

curr = curr->right;

}

else{

TreeNode \*prev = curr->left;

while(prev->right && prev->right!=curr){

prev = prev->right;

}

if(prev->right==NULL){

pre.push\_back(curr->val);

prev->right = curr;

curr = curr->left;

}

else{

prev->right = NULL;

curr = curr->right;

}

}

}

return pre;

}

int main(){

int n;

cin>>n;

vector<int> arr(n);

for(int i=0;i<n;i++){

cin>>arr[i];

}

int idx = 0;

TreeNode\* root = createNode(arr,idx);

vector<int> pre = preorder(root);

for(auto it: pre){

cout<<it<<" ";

}

return 0;

}