Assignment 2

1. Sometimes it's better to use dynamic size arrays. Try to solve this problem using Arraylist.

   You are given ***n*** lines. In each line there are zero or more integers. You need to answer a few queries where you need to tell the number located in y^{th} position of x^{th} line. Take your input from System.in.

   Input Format

   The first line has an integer ***n***. In each of the next ***n*** lines there will be an integer ***d*** denoting number of integers on that line and then there will be ***d*** space-separated integers. In the next line there will be an integer denoting number of queries. Each query will consist of two integers ***x*** and ***y***.

   Output Format

   In each line, output the number located in y^{th} position of x^{th} line. If there is no such position, just print "ERROR!"

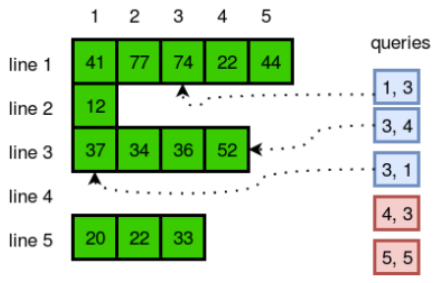
   Sample Input

   ```
   5
   5 41 77 74 22 44
   1 12
   4 37 34 36 52
   0
   3 20 22 33
   5
   1 3
   3 4
   3 1
   4 3
   5 5
   ```

   Sample Output

   ```
   74
   52
   37
   ERROR!
   ERROR!
   ```

   The diagram below explains the queries:



2. Try to solve this problem using List. For this problem, we have 2 types of queries:

   a. Insert ***y*** at index ***x*** **:** `Insert x y`
   b. Delete the element at index ***x***: `Delete x`

Given a list, ***L***, of ***N*** integers, perform ***Q*** queries on the list. Once all queries are completed, print the modified list as a single line of space-separated integers.

Input Format

The first line contains an integer, ***N*** (the initial number of elements in ***L***).
The second line contains ***N*** space-separated integers describing ***L***.
The third line contains an integer, ***Q*** (the number of queries).
The ***2Q*** subsequent lines describe the queries, and each query is described over two lines:

- If the first line of a query contains the String **Insert**, then the second line contains two space separated integers ***x y***, and the value ***y*** must be inserted into ***L*** at index ***x***.
- If the first line of a query contains the String **Delete**, then the second line contains index ***x***, whose element must be deleted from ***L***.

Output Format
Print the updated list ***L*** as a single line of space-separated integers.

Sample Input
5
12 0 1 78 12
2
Insert
5 23
Delete
0

Sample Output
0 1 78 12 23

Explanation

L = [12, 0, 1, 78, 12]
Q_0: **Insert** 23 at index 5
L_0 : Delete the element at index 0.
L_1: [0, 1, 78, 12, 23]

3. Write a program to reverse an array using recursion without using any loop

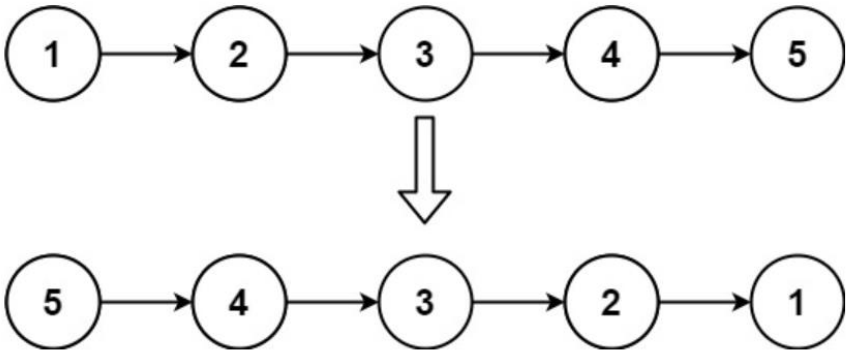
Example:

Input: 9 1 3 5 7

Output: 7 5 3 1 9

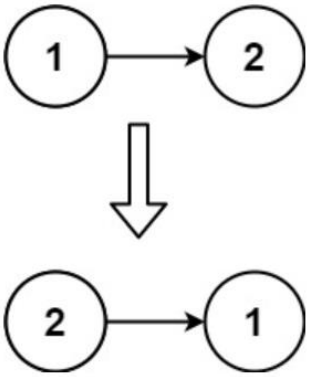
4. Given the head of a singly linked list, reverse the list, and return the reversed linked list

Example 1:




```
Input: head = [1,2,3,4,5]
Output: [5,4,3,2,1]
```

Example 2:




```
Input: head = [1,2]
Output: [2,1]
```