Remember Previous Queries?

Problem Statement

You have a doubly linked list which is **empty** initially. Then you will be given **Q** queries. **I**n each query you will be given two values **X** and **V**.

- **I**f **X** is **0** that means you will insert the value **V** to the head of the linked list.
- **I**f **X** is **1** then you will insert the value **V** to the tail of the linked list.
- **I**f **X** is **2** then you will delete the value **Vth** index of the linked list. Assume that index starts from 0. **I**f the index is invalid, then you shouldn't perform the deletion.
- After each query you need to print the linked list from both left to right and right to left.

Note: You must use **STL List**, otherwise you will not get marks.

Input Format

- First line will contain **Q**.
- Next **Q** lines will contain **X** and **V**.

Constraints

1. 1 <= **Q** <= 1000;
2. 0 <= **X** <= 2;
3. 0 <= **V** <= 10^9

Output Format

- For each query print the linked list from left to right and right to left.
- Print "**L ->** " before printing the linked list from left to right.
- Print "**R ->** " before printing the linked list from right to left.

Sample Input 0

```
4
0 10
1 20
1 30
0 40
```

Sample Output 0

```
L -> 10
R -> 10
L -> 10 20
R -> 20 10
L -> 10 20 30
R -> 30 20 10
L -> 40 10 20 30
R -> 30 20 10 40
```

Sample Input 1

```
9
0 10
2 1
2 0
1 20
0 10
2 2
2 1
2 2
2 0
```

Sample Output 1

```
L -> 10
R -> 10
L -> 10
R -> 10
L ->
R ->
L -> 20
R -> 20
L -> 10 20
R -> 20 10
L -> 10 20
R -> 20 10
L -> 10
R -> 10
L -> 10
R -> 10
L ->
R ->
```

Sample Input 2

```
11
0 10
2 5
1 20
1 30
0 40
2 0
0 50
2 2
1 60
2 3
2 3
```

Sample Output 2

```
L -> 10
R -> 10
L -> 10
R -> 10
L -> 10 20
R -> 20 10
```

```
L -> 10 20 30
R -> 30 20 10
L -> 40 10 20 30
R -> 30 20 10 40
L -> 10 20 30
R -> 30 20 10
L -> 50 10 20 30
R -> 30 20 10 50
L -> 50 10 30
R -> 30 10 50
L -> 50 10 30 60
R -> 60 30 10 50
L -> 50 10 30
R -> 30 10 50
L -> 50 10 30
R -> 30 10 50
```

Sample Input 3

```
10
1 4
2 1
0 9
0 10
2 2
1 5
2 0
2 1
2 5
2 2
```

Sample Output 3

```
L -> 4
R -> 4
L -> 4
R -> 4
L -> 9 4
R -> 4 9
L -> 10 9 4
R -> 4 9 10
L -> 10 9
R -> 9 10
L -> 10 9 5
R -> 5 9 10
L -> 9 5
R -> 5 9
L -> 9
R -> 9
L -> 9
R -> 9
L -> 9
R -> 9
```

```cpp
#include <bits/stdc++.h>

using namespace std;



int main()
{
    // Write your code here

    return 0;
}

```

Line: 1 Col: 1

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