Linked List ADT

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Points: 100 (partial)
Time limit: 1.0s
Memory limit: 64M

Allowed languages
C

Indexes

Devesh managed to learn insertion and deletion at the front and back of a linked list in the previous lab. But now, he is suddenly interested to learn about inserting and deleting nodes at any random index. Could you please assist him with this problem ?

Problem Statement

Implement a linked list ADT, designing functions, to insert and delete nodes at specified indexes. Index here means the numbering of the node from the head, assuming this first node is indexed as 0.

Run q queries on a linked list instance of the ADT. Each query is represented by a set of integers, the number varying, depending upon the type of the query. The query would be distinguished by an integer a, as given below:

You have to use a singly linked list only

- **Query Type 1**:

For the first type of query, three non-negative integers, a, b & c would be given. Here, a=0 and:

- b -> an integer representing the index where a number is to be added at
- c -> the integer, which is to be added at a specific index, as given above

- **Query Type 2**:

For the second type of query, two non-negative integers, a & b. Here, a=1 and:

- b -> an integer representing the index where the number is to be deleted from

Each test case consists of q queries. The description of the test cases is as follows:

- The first line of each test case will contain one integer q representing the number of queries.
- Following would be q lines of queries, each having an integer a, spcifying the type of the query and integers b/b and c, as needed by the query.

Output Format

The output should be the linked list, at the end of each query. Hence, q lines of sequence of numbers would be the output. If the list is empty, print an empty line.

Sample Test Case

Input

Copy

```
5
0 0 1
0 1 2
1 1
1 0
1 0
```

Output

Copy

```
1
1 2
1
```

Explanation

Copy

```
1 is added at index 0, which is the start
2 is added at index 1, after 1
2 is deleted from index 1
1 is deleted at index 0
list is empty so no change
```

Constraints

- $0 \leq b \leq 1000$
- $1 \leq c \leq 1000000$

Clarifications

Request clarification

No clarifications have been made at this time.