Simple Text Editor

In this challenge, you must implement a simple text editor. Initially, your editor contains an empty string, S. You must perform Q operations of the following 4 types:

1. append(W) - Append string W to the end of S.
2. delete(k) - Delete the last k characters of S.
3. print(k) - Print the k^{th} character of S.
4. undo$()$ - Undo the last (not previously undone) operation of type 1 or 2, reverting S to the state it was in prior to that operation.

Input Format

The first line contains an integer, Q, denoting the number of operations.
Each line i of the Q subsequent lines (where $0 \leq i < Q$) defines an operation to be performed. Each operation starts with a single integer, t (where $t \in \{1, 2, 3, 4\}$), denoting a type of operation as defined in the Problem Statement above. If the operation requires an argument, t is followed by its space-separated argument. For example, if $t = 1$ and $W = \text{"abcd"}$, line i will be `1 abcd`.

Constraints

- $1 \leq Q \leq 10^6$
- $1 \leq k \leq |S|$
- The sum of the lengths of all W in the input $\leq 10^6$.
- The sum of k over all delete operations $\leq 2 \cdot 10^6$.
- All input characters are lowercase English letters.
- It is guaranteed that the sequence of operations given as input is possible to perform.

Output Format

Each operation of type 3 must print the k^{th} character on a new line.

Sample Input

```
8
1 abc
3 3
2 3
1 xy
3 2
4
4
3 1
```

Sample Output

```
c
y
a
```

Explanation

Author pkacprzak
Difficulty Medium
Max Score 65
Submitted By 18388

NEED HELP?

View discussions
View top submissions

RATE THIS CHALLENGE

MORE DETAILS

Download problem statement
Download sample test cases
Suggest Edits

Initially, S is empty. The following sequence of 8 operations are described below:

1. $S = ""$. We append abc to S, so $S = "abc"$.
2. Print the 3^{rd} character on a new line. Currently, the 3^{rd} character is c.
3. Delete the last 3 characters in S (abc), so $S = ""$.
4. Append xy to S, so $S = "xy"$.
5. Print the 2^{nd} character on a new line. Currently, the 2^{nd} character is y.
6. Undo the last update to S, making S empty again (i.e., $S = ""$).
7. Undo the next to last update to S (the deletion of the last 3 characters), making $S = "abc"$.
8. Print the 1^{st} character on a new line. Currently, the 1^{st} character is a.

Java 8

```
1
```

Line: 1 Col: 1

Upload Code as File

Test against custom input

Run Code

Submit Code