256 Problem of the Week Week 2
Professor Duke

A BioInformatic Predicament

The bioinformatics department at VCU is in a tricky situation. The state-of-art SuperGeneTweaker^{TM} is an advanced machine that can programmatically build DNA by modifying the sequence ACGTACGTACGT... with a series of insertion or deletion operations. Although this machine has powerful, its creators forgot to give its users a preview before the DNA is built. Using your own Linked Chain implementation or the one from class, simulate test scripts submitted by various bioinformatics students and print the resulting DNA sequence after execution.

Input

The input will be a gene editing script with Insert and Delete operations.
The script will start with an integer $0 \leq n \leq 1,000,000$ representing the length of the repeating ACGT sequence, followed by a series of commands, each on its own line.
Deletions follow the format: *D i*, where *i* represents the position to delete a character. For example, *D 2* means delete the second base.
Insertions follow the format: *I i c*, where *i* represents the position to insert and *c* represents the character to insert. For example, *I 5 G* means insert *G* at the 5^{th} position.
Every script ends with *E*.

Output

The output will consist of the series of DNA pairs result after running the script.

Sample Input 1

```
10
I 1 A
D 3
E
```

Sample Output 1

```
AAGTACGTAC
```

Explanation:
10 → ACGTACGTAC
I 1 A → AACGTACGTAC
D 3 → AA~~C~~GTACGTAC
E → AAGTACGTAC

Sample Input 2

20
I 3 A
I 1 C
D 4
D 3
D 1
D 16
I 14 A
E

Sample Output 2

AGTACGTACGTACAGTCGT

Explanation:
20 → ACGTACGTACGTACGTACGT
I 3 A → ACAGTACGTACGTACGTACGT
I 1 C → CACAGTACGTACGTACGTACGT
D 4 → CAC~~A~~GTACGTACGTACGTACGT
D 3 → CA~~C~~GTACGTACGTACGTACGT
D 1 → ~~C~~AGTACGTACGTACGTACGT
D 16 → AGTACGTACGTACGT~~A~~CGT
I 14 A → AGTACGTACGTACAGTCGT
E → AGTACGTACGTACAGTCGT