

Contest Duration: 2025-07-19(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250719T2100&p1=248>) - 2025-07-19(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250719T2240&p1=248>) (local time) (100 minutes)

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F - Max Combo

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Time Limit: 4 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

There is a string S of length N consisting of lowercase English letters. Process a total of Q queries as follows:

- Type 1 : Change the i -th character of S to x .
- Type 2 : Let t be the substring of the current S from the l -th character through the r -th character. Find $f(t)$ defined as follows for this string:
 - $f(t)$ is the maximum length of consecutive identical characters in t .
 - More precisely, when choosing integers a, b such that $1 \leq a \leq b \leq |t|$ and all characters from the a -th through the b -th character of t are equal, $f(t)$ is the maximum possible value of $b - a + 1$.
 - For example, $f(\text{aaaccbbbbb}) = 4, f(\text{bbaaabbb}) = 3, f(\text{x}) = 1$.

Constraints

- N is an integer between 1 and 5×10^5 , inclusive.
- S is a string of length N consisting of lowercase English letters.
- Q is an integer between 1 and 5×10^5 , inclusive.
- Type 1 queries satisfy the following constraints:
 - i is an integer between 1 and N , inclusive.
 - x is a lowercase English letter.
- Type 2 queries satisfy the following constraints:

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- l, r are integers satisfying $1 \leq l \leq r \leq N$.

Input

The input is given from Standard Input in the following format:

```
N Q
S
Query1
Query2
⋮
QueryQ
```

Here, Query_i represents the i -th query.

Type 1 queries are given in the following format:

```
1 i x
```

Type 2 queries are given in the following format:

```
2 l r
```

Output

Every time a type 2 query appears, output the answer on one line.

The use of fast input and output methods is recommended because of potentially large input and output.

Sample Input 1

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```
10 5
babaacczcc
2 1 4
1 3 a
2 1 10
1 8 c
2 1 10
```

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Sample Output 1

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```
1  
4  
5
```

This input contains five queries.

- Initially, the string S is babaacczcc.
- The 1st query is type 2 with $l = 1, r = 4$.
 - The extracted string is baba, and $f(\text{baba}) = 1$.
- The 2nd query is type 1 with $i = 3, x = a$.
 - The string S after the change is baaaacczcc.
- The 3rd query is type 2 with $l = 1, r = 10$.
 - The extracted string is baaaacczcc, and $f(\text{baaaacczcc}) = 4$.
- The 4th query is type 1 with $i = 8, x = c$.
 - The string S after the change is baaaaccccc.
- The 5th query is type 2 with $l = 1, r = 10$.
 - The extracted string is baaaaccccc, and $f(\text{baaaaaccccc}) = 5$.

Sample Input 2

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```
1 1  
a  
1 1 z
```

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Sample Output 2

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The output may be empty.

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