

COCI '07 Contest 3 #6 Redoks

Time limit: 1.4s **Memory limit:** 64M

Luka is not paying attention in class again, while the teacher is explaining redox reactions. Instead of paying attention, he is playing with analog dials.

An analog dial is a small device which always shows one digit between 0 and 9. It also contains a small button which increases the number by 1 (unless it is 9, in which case it is changed to 0).

Luka has N such dials on his desk, numbered 1 to N left to right, and two sheets of paper for him to write on.

Luka's game starts with him setting the dials in some starting configuration, which he then writes onto the first sheet. Luka then does the following M times:

- Choose two integers A and B ($1 \leq A \leq B \leq N$) and write them down on the first sheet.
- Calculate the sum of numbers on dials numbered between A and B (inclusive), and write the sum down on the second sheet.
- Press the button once on all dials numbered between A and B .

Just as he had finished his game, the teacher noticed him, and took away all his dials and the second sheet of paper.

Given the contents of the first sheet, help him calculate the numbers on the second sheet.

Input Specification

The first line contains two integers N and M ($1 \leq N \leq 250\,000$, $1 \leq M \leq 100\,000$).

The second line contains the initial configuration of the dials, N decimal digits with no spaces. The first digit is the number initially on dial 1, the second digit the number on dial 2 and so on.

Each of the following M lines contains two integers A and B ($1 \leq A \leq B \leq N$).

Output Specification

Output M lines, the sums calculated by Luka, in order in which he calculated them.

Scoring

In 30% of all test cases, the numbers N and M will be less than 1000.

Sample Input 1

```
4 3
1234
1 4
1 4
1 4
```

Sample Output 1

```
10
14
18
```

Sample Input 2

```
4 4
1234
1 1
1 2
1 3
1 4
```

Sample Output 2

```
1
4
9
16
```

Sample Input 3

```
7 5
9081337
1 3
3 7
1 3
3 7
1 3
```

Sample Output 3

```
17
23
1
19
5
```