**Caesar cipher**

Today, in a course on Cryptography, Associate Professor Khoi Nguyen Tan, Head of IT Department - University of Science and Technology - UD, talked about Caesar cipher. a Caesar cipher, also known as Caesar's cipher, the shift cipher, Caesar's code or Caesar shift, is one of the simplest and most widely known encryption techniques. It is a type of substitution cipher in which each letter in the plaintext is replaced by a letter some fixed number of positions down the alphabet. For example, with a right shift of 3, A would be replaced by D, B would become E, and so on. The method is named after Julius Caesar, who used it in his private correspondence.

Tien is a student of IT department, he is very interested in this type of cipher and has come up with an idea to create a new cryptogram by performing the following steps:

* Given a letter consisting of a string *S* containing uppercase Latin characters.
* Repeat the Caesar cipher for *k* times. Each time *i* (1 ≤ *i* ≤ *k*), Tien uses a right shift of *ni* and replaces all characters indexing from the *xi* to *yi* in string *S*.

What will be the result after encrypting?

**Input:**

- The first line is string *S* ( 1 ≤ |*S*| ≤ 5×105).

- The second line is number *k* (1 ≤ *k* ≤ 2×105).

- Next *k* lines contain the triples *ni*, *xi* and *yi* (0 ≤ *ni* ≤ 25; 1 ≤ *xi* ≤ *yi* ≤ |*S*|).

**Output:**

- Print one string after encrypting.

**Sample:**

|  |  |
| --- | --- |
| **Input** | **Output** |
| TIEN  1  1 1 4 | UJFO |
| TIEN  3  5 1 2  2 3 4  3 1 3 | BQJP |