Encrypt & Decrypt Message

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	256 megabytes

Given a number Q and a string S. If Q is equal to **1** then print S after **encrypting** it otherwise, print S after **decrypting** it.

Key = "PgEfTYaWGHjDAmxQqFLRpCJBownyUKZXkbvzIdshurMilNSVOtec#@_!=.+-*/".

Original = "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789".

Note:

- In Encryption: For each letter *x* in "**Original**" replace it by the equivalent letter *y* from "**Key**"
- In Decryption: For each letter *y* in "**Key**" replace it by the equivalent letter *x* from "**Original**".
- Key and Original have the same length.

Input

The first line contains a number Q ($1 \le Q \le 2$)

The second line contains a string S ($1 \le |S| \le 105$) where $|S|$ is the length of the string and it consists of **lowercase** and **uppercase** English letters.

Output

Print the answer required above.

Examples

standard input	standard output
1 Egypt	ZaoQR
2 #@_!=.+-*/	0123456789
2 ZaoQR	Egypt