Exercises — Rotx

IT IS MY JOB TO MAKE SURE YOU DO YOURS.

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1 Rotx

Files to submit:

- rotx/rotx.c

Authorized functions: You are only allowed to use the following functions:

- read(2)
- write(2)
- atoi(3)

Authorized headers: You are only allowed to use the functions defined in the following headers:

- assert.h
- errno.h
- err.h
- stddef.h

1.1 Objective

You have to implement a *rot*X algorithm. The rotX applies a rotation of X on each letter of a message in order to make it unreadable. The revert rotation must be applied again to get the original message back.

It is called a rotation because when incrementing the value of a character, the value comes back to the beginning when it goes beyond the last possible symbol. For example, when applying a rotation of 3 on the letter 'Y', the result is 'B' because the value went through 'Z' then 'A' and finally 'B'.

You only have to handle input characters from *a* to *z*, from *A* to *Z* and from *0* to *9*.

Your program must apply the rotX algorithm to the text on the standard input, and display the rotated text on the standard output, where the *X* value is passed as the first argument to the program. If no argument is given, do not display anything.

Return `1` if any syscall fail, `0` otherwise.

> **Going further...**
>
> A famous rotX is the rot13, a 13-character rotation. Because the alphabet contains $2 \times 13 = 26$ letters, applying the rot13 twice gives the original message.

1.2 Example

```
42sh$ cat decoded.txt
I wanted to do an album with the sounds of the 50s, the sounds
of the 60s, of the 70s and then have a sound of the future.
42sh$ cat decoded.txt | ./rotx 15 > encoded.txt
42sh$ cat encoded.txt
X lpcits id sd pc paqjb lxiw iwt hdjcsh du iwt 05h, iwt hdjcsh
du iwt 15h, du iwt 25h pcs iwtc wpkt p hdjcs du iwt ujijgt.
42sh$ cat encoded.txt | ./rotx -15
I wanted to do an album with the sounds of the 50s, the sounds
of the 60s, of the 70s and then have a sound of the future.
```

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