

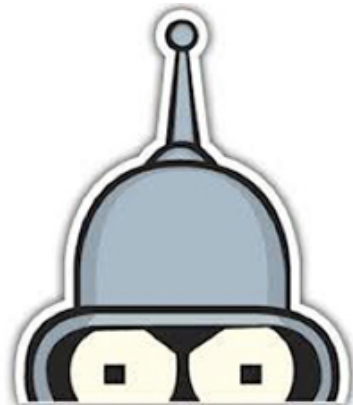


B2 - Stumpers

B-CPE-210

Luhn Validator

Solo Stumper





Luhn Validator

binary name: `luhn_validator`

language: `C`

compilation: via Makefile, including `re`, `clean` and `fclean` rules



- The totality of your source files, except all useless files (binary, temp files, obj files,...), must be included in your delivery.
- Error messages have to be written on the error output, and the program should then exit with the 84 error code (0 if there is no error).



For this project, the **only** authorized function is `write`.

The Luhn algorithm is a simple formula to validate a sequence of numbers, such as credit card numbers, IMEI numbers, or various national ID numbers.

For a number composed of n digits, the algorithm is as follows:

1. consider each digit individually;
2. Starting with the rightmost digit and going left. Double the value of every second digit;
3. for each number superior to 9, subtract 9 to it;
4. adds all the resulting digits;
5. if the modulo by 10 of the sum is equal to 0, the sequence is then valid, otherwise it is not.

Example given the number "972487086":

1. 9 | 7 | 2 | 4 | 8 | 7 | 0 | 8 | 6
2. 9 | 14 | 2 | 8 | 8 | 14 | 0 | 16 | 6
3. 9 | 5 | 2 | 8 | 8 | 5 | 0 | 7 | 6
4. $9 + 5 + 2 + 8 + 8 + 5 + 0 + 7 + 6 = 50$
5. $50 \% 10 = 0$

Write a program that takes one parameter and checks if it is a valid number sequence.

If the string is only made of digits, and is valid, the program displays `valid` on the standard output, followed by a newline.

If the string is only made of digits, and is invalid, the program displays `invalid` on the standard output, followed by a newline.

All other cases are considered errors.



The number passed as parameter might be really big.
However, the fourth step's sum will always fit in an `int` variable.

EXAMPLES

```
Terminal
~/B-CPE-210> ./luhn_validator "1784"
valid
~/B-CPE-210> ./luhn_validator "4783"
invalid
~/B-CPE-210> ./luhn_validator "123456782"
valid
~/B-CPE-210> ./luhn_validator " " ; echo $?
84
~/B-CPE-210> ./luhn_validator "chocolatine" ; echo $?
84
~/B-CPE-210> ./luhn_validator "1784" "GORILLA" ; echo $?
84
```