MA305 – Lab #3
More on lists, loops and control flow in Python
Due on: 10/13/2023

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1. The **Luhn algorithm** is a simple checksum formula used to validate credit card and bank account numbers. It is designed to prevent common errors in transcribing the number, and detect all single-digit errors and almost all transpositions of two adjacent digits. The algorithm may be written as the following steps:

(1) Reverse the number.
(2) Treating the number as an array of digits, take the even-indexed digits *(the index starting at 1)* and double their values. If a doubled digit results in a number greater than 9, add the two digits (e.g., since $6 \times 2 = 12$, you will get $1 + 2 = 3$).
(3) Sum this modified array.
(4) If the sum (S) of the array is divisible by 10 (in Python, `S%10==0`), the credit card number is valid.

Write a Python program "lab3.py" to take a credit card number as a string of digits (in groups of four separated by spaces) and establish if it is a valid or not.

2. Make a log of your work using the Unix command `script`.

```
$ script
$ cat lab3.py
$ chmod u+x lab3.py
$ ./lab3b.py                    (run it with one valid and one invalid CC numbers)
$ exit                                                    (exit from script).
```

3. Edit and clean up the typescript file.

4. Rename the file "typescript" to "lab3_script.txt" and submit it using the `mail` command from **wxsession**.

```
$ cp typescript lab3_script.txt
$ mail -s '305:lab3' 305 < lab3_script.txt
```

5. Submit the Python code "lab3.py" through your course Canvas.