MA305 – Classwork 3.

Lists, Loops and Control Flow

Due: 09/27/2018

Write your name, classwork/lab number and date in each Python script.

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1. Euler's $\phi(n)$ function counts the number of positive integers less than n that are relatively prime[1] to n. Write a script in Python (name it "cw3.py") that reads a positive integer n from the keyboard, computes $\phi(n)$ for $1 \leq n \leq 100$, and lists all the integers less than n that are relatively prime to n. (*Hint:* Use **Euclid's algorithm** for finding the *greatest common divisor* of a and b.)

2. Make a log of your work using the Unix command `script` (as in classwork 2).

(i)
```
$ script
$ cat cw3.py
$ chmod u+x cw3.py
$ ./cw3.py                    (now, run your code with n = 100)
$ exit                        (exit from script).
```

(ii) Edit and CLEAN up the typescript file.
Note: To remove all those annoying `^M` control characters from the typescript file: type the following in the command line within `vi`:
`:1,$s/^V^M//g` (`^V^M` is [CTRL V CTRL M])
This says in lines 1 to last($), substitute `^M` by nothing, globally (all occurrences in a line). The `^V` allows insertion of the control character `^M`.

(iii) Rename file "typescript" to something like "cw3script.txt".

3. Submit the script "cw3script.txt" through your course Canvas.

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[1] Two numbers, a and b, are relatively prime if the only positive integer that divides both, $\gcd(a, b)$, is 1.