

## Lab 4: Math With Loops, Part 1

Input a number from the user, and use it to perform the following calculations. You may assume that the number (which we call  $n$  here) is either zero or positive.

1. Create a string consisting of the letter `x` repeated  $n$  times, and print it.
2. Print the number 2 raised to the  $n$ th power.
3. Determine if  $n$  is prime (divisible by only itself and 1). Note that 0 and 1 are not prime.

Here is a sample of how your program might look:

```
Please enter a nonnegative integer: 5
String: xxxxx
2^5 = 32
5 is prime.
```

Each of these calculations should be done inside of its own function, and each of these functions will require a loop. Your main function will thus be very simple: all it needs to do is get the number from the user, call the proper subfunctions (passing the proper argument), and report on their return values. Try to write your code such that no function besides `main()` prints anything out.

Also note that the powers function will probably be incorrect for values of  $n$  greater than 30. (If you want, you can use a `long` return type to help rectify this.)

Of course, all previous stylistic comments still hold. This class should be called `LoopMath1`.