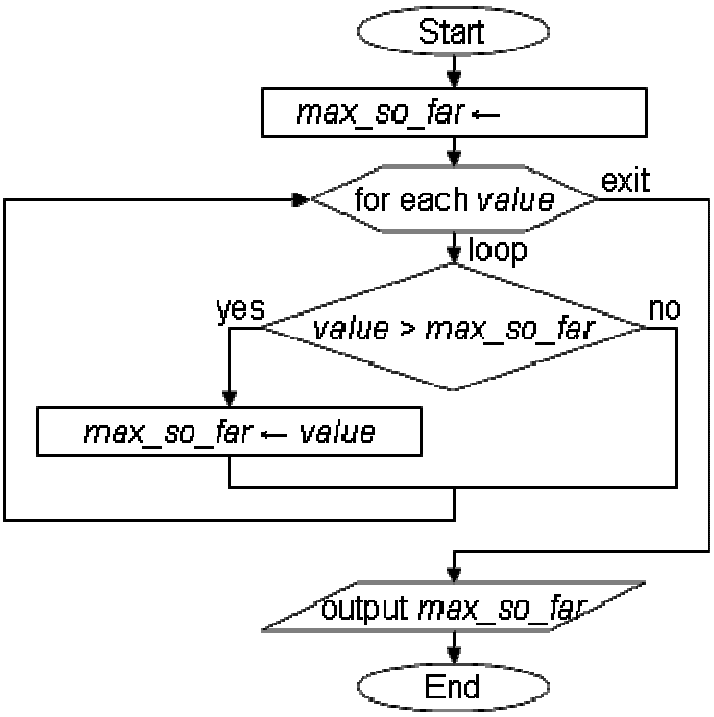
PRACTICE EXERCISES - LAB 2 (Loops)

1. Here is an algorithm for printing the maximum value in a sequence:



   Write and run a Python program that asks the user how many values they would like to enter. Then ask the user for that many positive numbers, and use the algorithm above to determine the highest of those numbers. Your program should terminate by printing that highest number. (What should be the initial value of *max_so_far*?)

   Challenge: Modify your program so that it does not ask the user how many values will be entered. Instead, the user will simply enter numbers, one at a time. Eventually, they will enter the number 0 to indicate that there are no more numbers in the sequence. (What is the weakness of this plan?) Then, your program should print out the highest of those numbers.

2. Write a program that asks the user for a positive integer, and prints PRIME if the number is a prime number, and otherwise prints COMPOSITE.

   Challenge: Write a program that asks the user for a number *n*, and prints all prime numbers from 2 to *n*.

   Challenge: Now modify that program so that it instead prints the first *n* prime numbers.

3. Write a program that asks the user how many days are in a particular month, and what day of the week the month begins on (0 for Monday, 1 for Tuesday, etc), and then prints a calendar for that month. For example, here is the output for a 30-day month that begins on day 4 (Thursday):

```
 S  M  T  W  T  F  S
             1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
```