Week 4 Exercise: Looping and Control Flow

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Instructions

This assignment has two sections. The first section includes 5 short answer questions. The second part of the assignment is a coding exercise.

If you have any questions on how to start or if you get stuck, refer to the discussion board and ask your questions there. You are allowed to use your notes, lectures and the internet. Students can work together on the question portion and discuss the coding exercise. For the coding exercise, you are allowed to talk to other classmates but you cannot have the same code.

Once complete, please save your assignment as a PDF and submit it both to the online course and tag your instructor on Github.

Short Answer (1 point each)

1. Lists can be _____ and _____.
Changed and **allow duplicates.**

2. Lists are always_____. That is, a list can contain any type of object and the objects in a list do not even all have the to be the same data type.
Flexible.

3. In your own words, describe “for loops” and “while loops” You can provide an example to explain your answer.
For loops will always run an n number of times and a condition is not required to run. On the other hand, while loops will run while a condition is true. If a condition is unmet and therefore false, then the loop will be exited.

Let’s say we have a list of 4 integers and we want to see if those integers are greater than 3. For loops will iterate over all 4 of those items no matter what, and the if/else condition we set within would return the print of true or false. With a while loop, if the integer is less than or equal to 3, then the block of code wouldn’t execute and the remaining integers wouldn’t be evaluated.

4. What does the command range () do in Python?
This function creates a sequence of numbers. The range of those numbers is defined by the parameters you set.

5. In your own words, complete this sentence: “Iterables are _____.”
Iterables are a sequence of items that can be looped over, and the items can be evaluated accordingly by their order in that sequence.

Coding Exercise (5 points)

For this exercise, you will be required to write a code to give the following output.

```
15
55
75
150
```

Hint: Create a list and use both a for loop and if statements.

```
numbers = [8, 15, 23, 55, 62, 75, 114, 150]
length = len(numbers)

for i in range(length):
    # If the number is a multiple of or cleanly divisible by 5, print the number.
    if numbers[i] % 5 == 0:
        print(numbers[i])
```