Fall 2018
Midterm 2 Study Guide

Classes and objects

- Know the syntax of defining classes, attributes, and methods, including the constructor.
- Know what the purpose of the constructor is, and when it is executed.
- Know the significance and usage of the `self` parameter insofar as we have discussed it so far.
- Be able to write a class from scratch, including constructor, methods, and doc comments.
- Know the differences and similarities between a function and a method.

Dictionaries and sets

- Know the syntax of dictionaries and sets, including initialization and adding/accessing/modifying values.
- Know the differences between dictionaries, sets, and lists insofar as we have dealt with them in class or on homework.
- Know standard dictionary methods such as keys(), values(), and items() and how to work with them.
- Know what restrictions are on dictionary keys. (Can a string be a key in a dictionary? Can a list? Why or why not?)
- Know what, if any, restrictions are on dictionary values (can a dictionary be a value in a dictionary?)
- Know what, if any, restrictions are on set members.
- Know how mutability/immutability relates to all of the above.

Lists

- Know how to use sorted(), including using the keys attribute with a lambda function.

Regular expressions

- Know how to use regular expressions and be familiar with their syntax. Note: non-capturing groups are represented by `(?: )`. This is a small point that we have not explicitly covered in class but that will come up on the test in a regex reading question. Fair warning.

Queues and stacks

- Understand queues and stacks and their implementations in Python as dealt with in class, labs and homework.
- Know the difference between FIFO and LIFO, what those acronyms stand for, and which is pertinent to which data structure.
- Be able to follow a sequence of operations on a stack and know the effect of each operation is on the contents of the stack.