SI 506
Section 004/104
Lab 10

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Agenda

- Last Week
  - APIs and JSON
- This Week
  - Classes
- Lab Exercise

APIs

- Application Programming Interfaces
  - Allows you to make requests and receive information from a service via HTTP protocol
- 4 HTTP methods
  - GET, PUT, POST, DELETE
  - We are focusing GET this week

GET request using requests module

- Syntax:
  - requests.get(<url>, <params>)
- You make a request to a given url and give it parameters
  - This returns a response object
  - Use the response.json() method to make the response readable

json module

- Javascript Object Notation (JSON)
- Module for writing to and reading from JSON files
  - json.load(<file_obj>)
    - Reads in JSON file and returns in usable format
      - Usually either dicts or lists
  - json.dump(<data>, <file_obj>, ensure_ascii=False, indent=<indent>)
    - Outputs data to a JSON file

Classes (the fun part)

- Definitions (from lecture):
  - Class - A template for creating user-defined objects. Class definitions normally contain method definitions which operate on instances of the class
  - Instance - An individual object whose type is defined by the class by which it was instantiated or created

Classes Cont.

- Definitions (cont.)
  - Instance Variable - A variable and value bound to a specific instance of a class
  - Instance method - A function defined by a class and bound to a specific instance of a class
  - self - A variable that represents an instance of a class

Classes Cont.

- Syntax:
  - class <classname>():
    - def __init__():
      - <statements>
    - <statements>

__init__() method (constructor)

- Syntax:
  - def __init__(self, parameters):
    - self.<attribute> = value
    - self.<attribute> = value
- Method that creates and initializes the instance variables (class attributes)
- Parameters are passed in when class is called

Class methods

- def method_name(self, parameters):
  - <statements>
- You can write functions inside of a class, that serve as methods for that class' objects
- Ex:
  - .split() is a method for str objects
  - .append() is a method for list objects

__str__() method

- Syntax:
  - def __str__():
    - return <some kind of string>
- Method that returns the string representation of your class instance