Week 6

Classes and Object Oriented Programming

Classes

-Classes, or objects,allow us to organize information into useful structures which is easily accessible through dot notation

Class syntax

```
class Someclass(object):
    def __init__(self,*args):
        self.*args = *args
    def func(self):
        return 'hi'
```

Methods

Classes contain methods which are functions available through dot notation

Attributes

Classes also have attributes which are also accessed through dot notation but are often simply facts about the class instance

Instances

When a class is created, or initialized, it is an instance of that specific class. Methods and attributes can be of two types: class and instance

Class vs. instance variable

Class attributes or will be independent of the initialization and will stay the same unless changed

Instance attributes are for the most prt only associated with the specific instance of the class

Why Classes?

Classes allow us to run a suite of functions (data analysis) on some initial setup and all the information about it is thus contained in the class instance via dot notation

Why Classes?

Understanding classes is essential to understanding basic, necessary python things such as string.split(), list.append(), hdu[0].data, hdu[0].header, library structures, and various others.

Ease of use

For the most part, it is often easier for others to read code written with a class structure when working with it as it clearly divides the code.