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HWRS 501

Cheat Sheet 2: Python Basics

A package in python is a collection of modules and functions that can be used in a python coding. It's usually modules that are related to one another grouped together. A package can be imported from within python itself by inputting "import package name". Objects are the collections of various data and functions that operate on those data. Methods, for example, are functions attached to an object class. To input this into python you write something like "object.method(…)". Examples of methods include append (which allows for adding objects into lists/arrays), reshape, and insert. Attributes are python variables that belong to a class instead of a particular object. They are shared between all the objects of their class and can be defined as being properties of an object. To input an attribute into python one might write "object.attribute" such as "myarray.len" which would give the length of the array.

Lists are used to store multiple items in a single variable. Unlike arrays, the items do not have to be integers, and can be floats and words and can even be combinations of all three. You can create a list by creating a name and then putting square brackets around your objects you want to group and putting commas in between them. If the objects aren't numbers one would have to put quotation marks around each object. Every object in a list has an associated number attached to it dependent upon its location in the list. This number starts at zero at the first object in the list, then increases by one for every subsequent object in the list. Some important methods associated with them include append and insert.

Indexing refers to an inbuilt function in Python that allows for searching for a given element from the start of the list and returns the lowest index where the element appears. It can be written in python as "list_name.index(element start, end)". Everything in a list has an associated number representing it (0-n), and with this, you can sort out specific objects within a list. Conditional statements are used to perform different computations or actions depending on whether a specific is evaluated as true or false. They are written as "if" statements in python such as "if X>9: Print("Yes")".

For Loops are used for running a block of code which one might want to repeat a fixed number of times. Usually the block of code is run until the loop has iterated over every item in an iterable. An example of a loop is "for X in range(7): Print(X) and it would print "0,1,2,3,4,5,6". List comprehensions provide a concise way to create lists from other iterables like arrays, lists and strings. They consist of brackets containing the expression, which is executed for each element along with the for loop to iterate over each element.