**Python Cheat Sheet**

**Data Types**

| Strings | "Hueston, we have a problem" |
| --- | --- |
| Integers | 35 |
| Floats | 35.6 |
| Boolean | True/False |

**Data Collection Data Types**

List : ["apple", 12, "computer science", "apple", 13.2]

* + - Order is saved
    - Can be rearranged after list is defined
    - Can contain duplicates
    - Elements can be added or removed
    - Indicated by square brackets

Tuple : ("apple", 29, 32)

* + - Order is saved
    - Order cannot be rearranged after tuple is defined
    - Can contain duplicates
    - Elements cannot be added or removed
    - Indicated by parentheses

Set : {"orange", "house", 102}

* + - Order is not saved (unordered)
    - Cannot contain duplicates
    - Cannot add or remove elements once defined
    - Indicated by curly brackets

Dictionary: {"name": "Anne", "age": 19, "major": "communications"}

* + - Stores data in key/value pairs
    - Order is saved (as of Python 3.7)
    - Duplicate values permitted, but not duplicate keys within one item
    - Elements can be added and removed
    - Indicated by curly brackets and colons

**Operators Arithmetic Operators**

| + | Addition |
| --- | --- |
| - | Subtraction |
| \* | Multiplication |
| / | Division |
| % | Modulus (divide and return the remainder) |
| \*\* | Exponential |
| // | Floor division (divide and round down to the nearest whole number) |

**Arithmetic Operator Order of Precedence**

*\* Operators are applied left to right within categories*

| **1** | **P**arentheses |  |
| --- | --- | --- |
| **2** | **E**xponents |  |
| **3** | **M**ultiplication and **D**ivision | Incl. modulus and floor division |
| **4** | **A**ddition and **S**ubtraction |  |

**Python Comparison Operators**

| == | Equal to |
| --- | --- |
| != | Not equal to |
| > | Greater than |
| < | Less than |
| >= | Great than or equal to |
| <= | Less than or equal to |

**Converting Data Types**

| str() | Convert and integer or float to a string |
| --- | --- |
| int() | Convert a whole number in string form to an integer |
| float() | Convert a number in string form, or an integer, into a float |

**Indices**

* An index is the position of an element in a list or tuple
* In python, the index starts with 0
* Elements can be access by index with the following syntax: list[i]

**Conditional Statements: if/elif/else**

Use example:

| number = 0  if number > 0:  print('Positive number’)  elif number <0:  print('Negative number’)  else:  print('Zero') print('This statement is always executed') |
| --- |

**For Loops:**

Used to iterate through a data collection or range.

| **Form** | for variable in collection:  #do something with variable |
| --- | --- |
| **Example code** | odds = [1, 3, 5, 7]  for num in odds:  print(num) |
| **Example output** | 1  3  5  7 |

**Python Built-In Functions**

* Python has a number of functions that come pre-written for use. The full list can be viewed at: <https://docs.python.org/3/library/functions.html>

Below are some of the built-in functions we have encountered in class so far:

| print() | Prints out the data contained in the parenthesis |
| --- | --- |
| len() | Prints the number of elements in a string, list, dictionary, tuple or set |
| input() | Prompts for user input in response to query in parenthesis |
| type() | Returns the type of the data entered in parentheses |
| range() | Returns a sequence of numbers within a set range |
| open() | Opens a file and returns it as a file object. Should specify encoding and mode. |

**Python Methods**

| .read() | Reads a file object |
| --- | --- |
| .write() | Writes argument contained in parentheses to file object |
| .split() | Splits a string based on delimiter specified in parentheses (default is split on white space) |
|  |  |
|  |  |

**Pandas Open File Methods**

| **read\_csv** | CSV files |
| --- | --- |
| **read\_tsv** | TSV files |
| **read\_excel** | Any excel file format or equivalent (xlsx, xls, ods) |
| **read\_json** | 2-dimensional JSON files |
| **read\_table** | Other delimited tabular files (delimiter must be specified) |

**Pandas Methods**

| read\_csv() | Reads the contents of a file to a dataframe. Column Delimiter specified in parentheses, default is a comma. |
| --- | --- |
| .head() | Returns the first 10 rows of the dataframe |
| .info() | Returns a summary of the dataframe |
| .describe() | Returns summary statistics about the dataframe |
| .loc() | Access a particular subset of rows or columns |
| .mean() | Returns the mean of the data passed to it. |
| .min() | Returns the maximum datum of the data passed to it. |
| .max() | Returns the minimum datum of the data passed to it. |
| .values() | Returns the values of the data passed to it, without headers. |