# 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) |

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