General Assembly

STUDY GUIDE

PYTHON DATA TYPES

Key Terms and Definitions

- **Binary:** The language compputers 'speak' comprised of 1's and 0's.
- **Data Types:** Indicators of how a computer should evaluate a particular object. For example, the same binary sequence (set of 1s and 0s) can evaluate to either a number or letter, depending on its type. The complete list of Python's built-in data types is: none, Booleans, numbers (int/float/long/complex), strings, lists, tuples, sets, and dictionaries.
- **Primitive Data Types:** Data types that are single objects and are immutable (cannot be changed without being redefined). These are:
  - *Numbers:* Numbers (with an optional + or - prefix).
    - Integers: are whole numbers with an optional positive + or negative - prefix. For example, 3, 82, 38218, +3, -71 are all integers.
    - Floats: Any number containing a decimal point is interpreted as a float (e.g., 0.32, .32, 83.7823, 1.00).
  - *Strings:* Sequences of characters, always enclosed in quotation marks.
  - *Booleans:* Also called flags; these can only be True or False.
  - *None:* Represents a null value, or the absence of data.
  - **Numerical Operators:** programmers perform equations with data by using numerical operators, which include +, -, *, /, //, and %.
- **Converting Data Types:** we use built-in functions like`float()`, `int()`, `str()` to convert a data type. For instance, say our data set stores the number “1” as a string. To convert it to an integer, we would write `int('1')`

Guiding Questions

1. Why must strings be enclosed in quotation marks?
2. Why are "primitive" data types named as such?
3. Why might we need to convert data types?