* Variables in python: use as placeholder so input data can vary
  + x + y = a can be used with different data without changing the equation
* Rules for variable names
  + Must be unique, cannot be more than one variable sharing a name
  + Must not begin with a number; first character can be any unicode letter or underscore
  + Case sensitive: the variable “name” isn’t the same as “Name”
  + Can only contain unicode letters, numbers, and underscores
* Must initialize variable by setting equal to initial value to use in program
  + variableName = [variableValue]
    - name = “ProfessorHandsome” then print (name)

**Python Data Types**

* After learning about variable initialization and assignment, you should be aware that data types are serious business. They can determine the success or failure of your project. Therefore, you should know them extremely well. This document should serve as a quick reference guide for the data types we will be using most often in this class. Research each of the terms below and write their definitions in the boxes below

|  |
| --- |
| **str :**  Represents text, anything between quotes |
| **Integer:**  Signed integers, positive or negative whole numbers w/o decimal point |
| **float:**  Floating point real values, real numbers, have decimal point dividing integer and fractional parts or scientific notation w/ e indicating power of 10 (2.5e2 = 2.5 x 10^2) |
| **list:**  Type of sequence, most versatile datatype in Python, list of comma-separated values between square brackets |
| **tuple:**  Sequence of immutable Python objects, cannot be changed and uses parentheses (unlike list), include comma even if only a single value (tup1 = (50,) ; ) |

Fill in the descriptions below for each operator. You can use this in the future as a reference guide to help you with your labs.

|  |  |
| --- | --- |
| **Operator** | **Description** |
| **+** | Addition: adds values on either side of operator   * print (8 + 5) 🡪 output: 13 |
| **-** | Subtraction: subtracts right hand operand from left hand operand |
| **\*** | Multiplication: multiplies values on either side of operator |
| **/** | Divison: divides left hand operand by right hand operand |
| **%** | Modulus: divides left hand operand by right hand operand and returns remainder |
| **\*\*** | Exponent: performs exponential (power) calculation on operators |
| **//** | Floor division: division of operands where result is quotient in which digits after decimal are removed; if one of operands is negative, result is floored (i.e. rounded away from zero towards negative infinity)   * 9//2 = 4 |

* Concatenation: one sequence of characters being joined to another; use “+” sign
  + first = “Professor”

second = “Handsome”

print (first + second)

Output: ProfessorHandsome

* + use “,” separating text and numerical to add text and numerical data
    - kids = 38

print (“There are” ,kids, “kids in our class.”)

Output: There are 38 kids in our class.

* Newline escape character: “\n”