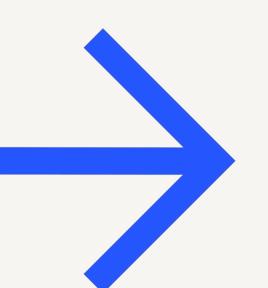
## Assignment #1

Install the Python IDE of your choice. Then answer these questions. Create a PDF from your notebook (or screenshot if you're using PyCharm).

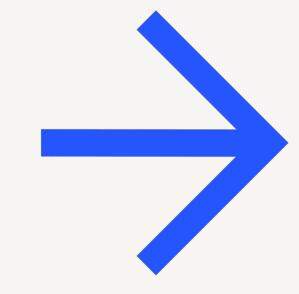
- What versions?
  - What version of Python are you running? (You can do this from the Anaconda command prompt, or you can do it in Python).
  - What version of Pandas and NumPy do you have? (You can use the pip command in the Anaconda command prompt or the PyCharm terminal prompt. You can also write programs to do this in Python with a little research.)
- Ints and Floats Compound interest If you invested \$1000 (one-time) in a tax-free account that got 8% each year, how much would you have after 40 years?
- (No datetime yet; We'll defer that to Assignment 2).
- Booleans Create two variables, cat\_count and dog\_count. From those variables, create two boolean variables, has\_cats and has\_dogs. These will be true if the corresponding count is greater than 0.
  - Let's say you have a happy home if you have at least one cat (but no dogs). Write a boolean expression that prints True if you have a happy home (but False otherwise).
  - Let's say you have a happy home if you have at least one cat (but no dogs), or at least one dog (but no cats). Write a boolean expression that prints True if you have a happy home (but False otherwise).



## Assignment #1

Dart 2

- Lists Create a list of the integers from 1 to 10. Remove all the non-primes (including 1). Create a second list of primes between 10 and 20.
  - a. Print the results when you append the list over 10 to the list under 10.
  - b. Print the results when you extend the list over 10 to the list under 10.
- Dictionaries Build a dictionary similar to the example in the lesson. You may use d1 = {'USD': 1.00, 'BTC': 51013.93, 'EUR': 1.131735}
  - c. Add a currency of your choice. (Hint: Web search for "swiss franc to dollar")
  - d. Given a FROM and a TO currency, look up in your dictionary and calculate the exchange rate for the pair
  - e. What happens if the currency is not in your dictionary?
- 7 Tuples Create two points as tuples and calculate their magnitude. (Magnitude is the square root of the x \*\* 2 + y \*\* 2.)
  - f. You will need to add this as the top line of your cell: from math import sqrt



## Take-home Assignment #1 (optional)

Find a challenging problem on one of these three online platforms. Place a link to the question and answer in the IDE of your choice.

- 1. Go to GeekForGeeks ([https://www.geeksforgeeks.org/python-programming-examples/](https://www.geeksforgeeks.org/python-programming-examples/)), sign up for free, and do five challenging exercises from each of the Basic, String, Dictionary, Tuple, and Date-Time categories. Please use both their test data and your own.
- 2. Go to HackerRank ([https://www.hackerrank.com/domains/python](https://www.hackerrank.com/domains/python)), sign up, and Solve a Challenge (which is challenging for you). If you run the code in HackerRank, make sure you use Python 3.
- 3. Go to StackOverflow ([https://stackoverflow.com/](https://stackoverflow.com/)) and search for "Python puzzle" or "Python interview." Find a challenging puzzle or interview question, glance at the solution (don't copy and paste it) and develop your own solution to the problem.

