TASK

Your task for this discussion is to read the [IPython: Beyond Normal PythonLinks to an external site.](https://jakevdp.github.io/PythonDataScienceHandbook/01.00-ipython-beyond-normal-python.html" \t "_blank). This can be found in the link provided or the [pdf version of the textbook](https://elearning.mines.edu/courses/52392/files/5459013/download?wrap=1)[Download pdf version of the textbook](https://elearning.mines.edu/courses/52392/files/5459013/download?download_frd=1)for the class that we have provided. You will then post a discussion and a reply below!

DISCUSSION REQUIREMENTS

Once you have completed this weeks reading, you are asked to complete the following tasks:

1. Post a 1-2 sentence response from the reading for 2 of the three below prompts:

a. The book section discusses IPython. Define this and compare/contrast to how this conceptually differs from normal or standard python?

b. Debugging is a powerful tool when programming, describe some of the errors and debugging techniques the book discussed (and maybe even some you already knew).

c. Provide a free response: this can be anything from clarification questions, something that piqued your interest, or maybe a personal experience you have with what was discussed in the book section.

2. Post a meaningful reply to another student's question/post.

## WATCH

Watch this week's video, download the working files so you can follow along and experiment with the platform we'll be using for the course.

WORKING FILES

You will need the following files to get set up for this week. They include the following:

* If your Jupyterhub is set up, try and download the .ipynb file and run it but also feel free to use the PDF file:
  + Jupyterhub notebook (download to the personal device then upload to your Jupyterhub).
    - [Python Basics Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459069/download?wrap=1)[Download Python Basics Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459069/download?download_frd=1)
  + PDF file that contains the same information as the Jupyterhub notebook, in case your Juypterhub is not yet working.
    - [Python Basics PDF](https://elearning.mines.edu/courses/52392/files/5459159/download?wrap=1)[Download Python Basics PDF](https://elearning.mines.edu/courses/52392/files/5459159/download?download_frd=1)

ADDITIONAL RESOURCES

The links below are supplementary resources to help you review or strengthen the topics we have discussed:

* [Python DocumentationLinks to an external site.](https://docs.python.org/3/tutorial/)

Activity: Python Practice

From the last slide of our class discussion on Python Basics (02-Python-Basics), we discussed the following problem. This assignment is meant for practice creating a jupyter notebook file, and for many of you, writing your first python program.

The instructions are as follows:

1. Create a new Python 3 Notebook
2. Add a comment at the top of the cell with your name and the current date.
3. Solve this problem: Given an integer number `n`, print the number of times the digit `5` occurs in the number (without converting to a string). For example, n = 5555055555, should output 9 (hint: use modulo and floor division to work with one digit at a time).
4. Download the Notebook (.ipynb) file and submit it here on Canvas.

# **Instructional Videos & Materials: Python Sequences**

## WATCH

Watch this week's video, download the working files so you can follow along and experiment with the platform we'll be using for the course.

WORKING FILES

You will need the following files to get set up for this week. They include the following:

* Jupyterhub notebook version (download to the personal device then upload to your Jupyterhub).
  + [Python Sequences Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459045/download?wrap=1)[Download Python Sequences Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459045/download?download_frd=1)
* PDF file that contains the same information as the Jupyterhub notebook, in case your Juypterhub is not yet working.
  + [Python Sequences PDF](https://elearning.mines.edu/courses/52392/files/5459116/download?wrap=1)[Download Python Sequences PDF](https://elearning.mines.edu/courses/52392/files/5459116/download?download_frd=1)

ADDITIONAL RESOURCES

The links below are supplementary resources to help you review or strengthen the topics we have discussed:

* [Python Lists and For LoopsLinks to an external site.](https://developers.google.com/edu/python/lists)
* [Python ListsLinks to an external site.](https://pythonprogramminglanguage.com/lists/)

# **Instructional Videos & Materials: Python Dictionaries**

## WATCH

Watch this week's video, download the working files so you can follow along and experiment with the platform we'll be using for the course.

WORKING FILES

You will need the following files to get set up for this week. They include the following:

* Jupyterhub notebook (download to the personal device then upload to your Jupyterhub):
  + [Python Dictionaries Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459202/download?wrap=1)[Download Python Dictionaries Jupyter Notebook](https://elearning.mines.edu/courses/52392/files/5459202/download?download_frd=1)
* PDF file that contains the same information as the Jupyterhub notebook, in case your Juypterhub is not yet working.
  + [Python Dictionaries PDF](https://elearning.mines.edu/courses/52392/files/5459117/download?wrap=1)[Download Python Dictionaries PDF](https://elearning.mines.edu/courses/52392/files/5459117/download?download_frd=1)

ADDITIONAL RESOURCES

The links below are supplementary resources to help you review or strengthen the topics we have discussed:

* [Python DictionariesLinks to an external site.](https://developers.google.com/edu/python/dict-files)
* [Python Dictionaries With Lots of ExamplesLinks to an external site.](https://realpython.com/python-dicts/)

Activity: Python Practice - Dictionaries

From the last slide of our class discussion on Python Dictionaries (04-Python-Dictionaries), we discussed the following problem. This assignment is meant for additional python practice creating a dictionary.

The instructions are as follows:

1. Create a new Python 3 Notebook.
2. Add a comment at the top of the cell with your name and the current date.
3. Solve this problem: Given a list of words, create a dictionary mapping lengths of words to alphabetically sorted lists of words of that length. E.g., if the word list is ['one', 'two', 'three', 'six'], then the new dictionary should be { 3: ['one', 'six', 'two'], 5: ['three'] }
4. Download the Notebook (.ipynb) file and submit it here on Canvas.