

# Resources

## Recommended Textbooks:

- Lutz, Mark. Learning Python. 5th edition. O'Reilly Media, Inc., 2013.
- David M. Beazley. Python Essential Reference. 4th edition, Addison-Wesley Professional, 2009.

## A few resources that can help you learn and practice Python. Here is a list:

- 1) This site helps you to understand code execution

[www.pythontutor.com](http://www.pythontutor.com)

- 2) This link outlines the differences between Python and C++

<http://personal.denison.edu/~krone/cs173/files/PythontoC++.pdf>

- 3) This link lists built-in Python functions

<https://docs.python.org/2/library/functions.html>

- 4) Useful Python packages and modules can be found at this link

[https://wiki.python.org/moin/UsefulModules#Image\\_Manipulation](https://wiki.python.org/moin/UsefulModules#Image_Manipulation)

- 5) The following link has Python questions

<http://www.sanfoundry.com/python-questions-entrance-exams/>

- 6) Project Euler has a list of mathematical questions that helps programmers to master a programming language

<https://projecteuler.net/archives>

- 7) Python exceptions

<https://docs.python.org/2/library/exceptions.html>

### **Suggested projects:**

- 1) Go to this link <http://www.car.org/marketdata/data/housingdata/> and download the Excel file in the link titled, 'Median Prices of Existing Detached Homes.' Based on the available data, predict the house price in various counties using linear regression. Learn more about linear regression at [https://en.wikipedia.org/wiki/Linear\\_regression](https://en.wikipedia.org/wiki/Linear_regression). You can use Python module scikit learn to program linear regression. Plot house prices for two counties in separate graphs and also include the corresponding linear regression lines in the graphs. For plotting, you can use Python modules matplotlib or plotly. You might have to use Python modules like xlrd or xlwt to read and write excel files respectively.
- 2) Web scraping – you can choose to crawl specific websites. For example, you might want to find the stock price of a particular company over time. In such cases, you programmatically access Yahoo stock page at <http://finance.yahoo.com/q/hp?s=YHOO> and obtain the data using Python modules BeautifulSoup and requests. Based on the data, predict the stock price using linear regression. Learn more about linear regression at [https://en.wikipedia.org/wiki/Linear\\_regression](https://en.wikipedia.org/wiki/Linear_regression). You can use Python module scikit learn to program linear regression. Plot stock prices and include the corresponding linear regression line in the graphs. For plotting, you can use Python modules matplotlib or plotly.
- 3) Imagine you are Linux administrator for a company. You are managing 10 machines. You want to write a Python program using modules like fabric or paramiko to find the usage of these machines. The information might include CPU load, memory used, available disk space, number of logged in users etc. The program must run hourly and should save the above information into a csv file, excel file or in a database. You might have to use modules like csv, xlwt, sqlite etc. If a query is made to find out load on a specific machine or the load on all the machines at a specific time, you should return the results.
- 4) Office visitor log- The project is on developing a desktop or web based application for visitor log. This project will require using WxPython for developing the desktop user interface or web2py or flask for web. You will also need to use a database such as SQLite, MySQL.

Imagine an office where visitors have to register at the front desk. The visitor will use the program to provide their name, email address, phone number and the person they are visiting. If any of the information is incorrect, you need to highlight the error and provide appropriate error message. For example, if the phone number have alphabets, you need to show it as an error. If all entries are valid, you need to store it in a database.

Additional requirements - an ability to view a list of visitors, an ability to filter the list based on a from and to date, an ability to download this information as an excel file using XLWT module.