

Part 1: Introduction to Python

## **Table of Contents**

Introduction	0
Getting Started	1
Download Python	1.1
Open IDLE	1.2
Write a Python Script	1.3
Screw Things Up	1.4
Store a Variable	1.5
Interlude: Leave yourself helpful notes	2
Fundamentals: Strings and Methods	3
Mess Around with Your Words	3.1
Use Objects and Methods	3.2
Assignment: pick apart your user's input	3.3
Fundamentals: Working with Strings	4
Streamline Your Print Statements	4.1
Find a String in a String	4.2
Assignment: Turn your user into a l33t h4x0r	4.3
Fundamentals: Functions and Loops	5
Assignment: Perform calculations on user input	5.1
Create Your Own Functions	5.2
Functions Summary	5.3
Assignment: Track your investments	5.4
Interlude: Debug your code	6
Fundamentals: Conditional Logic	7
Compare Values	7.1
Add Some Logic	7.2
Control the Flow of Your Program	7.3
Assignment: Find the factors of a number	7.4

Break Out of the Pattern	7.5
Recover from errors	7.6
Simulate Events and Calculate Probabilities	7.7
Assignment: Simulate an election	7.8
Assignment: Simulate a coin toss experiment	7.9
Fundamentals: Lists and Dictionaries	8
Assignment: List of lists	8.1
Assignment: Wax poetic	8.2
Make Permanent Lists	8.3
Store Relationships in Dictionaries	8.4
Assignment: Capital city loop	8.5
Assignment: Cats with hats	8.6
Assignment: Reviewing the fundamentals	8.7
Assignment: Summary	8.8
File Input and Output	9
Use More Complicated Folder Structures	9.1
Assignment: Use pattern matching to delete files	9.2
Read and Write CSV Data	9.3
Assignment: Create a high scores list from CSV data	9.4
Assignment: Split a CSV file	9.5
Interlude: Install Packages	10
Installing via pip	10.1
Installing from Source	10.2
Interact with PDF files	11
Manipulate PDF Files	11.1
Assignment: Add a cover sheet to a PDF file	11.2
Create PDF Files	11.3
SQL Database Connections	12
Use Other SQL Variants	12.1
Interacting with the Web	13

Scrape and Parse Text From Websites	13.1
Use an HTML Parser to Scrape Websites	13.2
Interact with HTML Forms	13.3
Interact with Websites in Real-time	13.4
Scientific Computing and Graphing	14
Use NumPy for Matrix Manipulation	14.1
Use matplotlib for Plotting Graphs	14.2
Graphical User Interface	15
Add GUI elements with EasyGUI	15.1
Assignment: Use GUI elements to help a user modify files	15.2
Create GUI Application with Tkinter	15.3
Final Thoughts	16
Appendix A: Installing Python	17
Check Current Version	17.1
Install Python	17.2
Verify Install	17.3
Appendix B: Regular Expressions	18
Basic Syntax	18.1
When Should You Use Regular Expressions?	18.2
Functions	18.3
More Practice	18.4
Assignment: Data cleaning with regular expressions	18.5
Assignment: Reviewing regular expressions	18.6
Appendix C: Primer on Object-Oriented Programming	19
Classes	19.1
Instances	19.2
Define a Class	19.3
Instantiating	19.4
Instance Methods	19.5
Inheritance	19.6

Assignment: Comprehension check	19.7
Assignment: Model a farm	19.8
Assignment: Github with class	19.9
Conclusion	19.10
Acknowledgements	20