**A Topical/Conceptual Guide to learning Python.**

**PART 1**

**Chapter 1 : Introduction**

**Section 1:**

1. History and origin of the language.
2. Features of the language.
3. Real world Application of the language.

**Section 2:**

1. Setting up your python environment ie. mac , windows , Linux/Unix
2. Running a python program. hello\_world.py

**CHAPTER 2: Variables and Simple Data Types**

1. Naming and using variables
2. Strings. - common methods used to manipulate strings.
3. Numbers – integers , floats . Assignment of values
4. Introduction to Lists. -What is a list - Accessing elements in a list , index positions and using individual values from a list.

- modifying , adding , removing elements. Also learn organizing a list , sorting.

1. Tuples

**CHAPTER 3 : Control Flow**

1. If statements.
2. Intro Dictionaries and working with Dictionaries.
3. Nesting.
4. User Input and While Loops
5. Using a while loop with lists and dictionaries.

**CHAPTER 4 : FUNCTIONS**

1. Defining a functions.
2. Passing info to a function ie; arguments and parameters.
3. Return Values.
4. Passing a List.
5. Passing an arbitrary number of arguments.
6. Storing functions in modules.

**PART 2**

**CHAPTER 5 : CLASSES**

1. creating and using classes.
2. Working with classes and instances.
3. Inheritance.

* The \_ \_init\_ \_() method for a child class
* defining attributes and methods for the child class
* overriding methods from the parent class
* instances as attributes
* modeling real world objects

4. Importing classes

5. The Python standard Library.

**CHAPTER 6 : FILES AND EXCEPTIONS**

1. Reading from a file.
2. Writing to a files.
3. Exceptions.

* Handling the zerrodivisionerror exception
* using try-except blocks
* the else block

4. Sorting data.

* Using json.dumps() and json.loads()

5.Testing your code

* unit tests and test cases
* Testing a class