

PYTHON

1. Introduction to Python

- a. What is Python and history of Python?
- b. Unique features of Python
- c. Python-2 and Python-3 differences
- d. Install Python and Environment Setup
- e. First Python Program
- f. Python Identifiers, Keywords and Indentation
- g. Comments and document interlude in Python
- h. Command line arguments
- i. Getting User Input
- j. Python Data Types
- k. What are variables?
- l. Python Core objects and Functions
- m. Number and Maths
- n. Week 1 Assignments

2. List, Ranges & Tuples in Python

- a. Introduction
- b. Lists in Python
- c. More About Lists
- d. Understanding Iterators
- e. Generators , Comprehensions and Lambda Expressions
- f. Introduction
- g. Generators and Yield
- h. Next and Ranges
- i. Understanding and using Ranges
- j. More About Ranges
- k. Ordered Sets with tuples

3. Python Dictionaries and Sets

- a. Introduction to the section
- b. Python Dictionaries
- c. More on Dictionaries
- d. Sets
- e. Python Sets Examples

4. Input and Output in Python

- a. Reading and writing text files
- b. writing Text Files
- c. Appending to Files and Challenge
- d. Writing Binary Files Manually
- e. Using Pickle to Write Binary Files

5. Python built in function

- a. Python user defined functions
- b. Python packages functions
- c. Defining and calling Function
- d. The anonymous Functions
- e. Loops and statement in Python
- f. Python Modules & Packages

6. Python Object Oriented

- a. Overview of OOP
- b. Creating Classes and Objects
- c. Accessing attributes
- d. Built-In Class Attributes
- e. Destroying Objects

7. Python Exceptions Handling

- a. What is Exception?
- b. Handling an exception
- c. try...except...else
- d. try-finally clause
- e. Argument of an Exception
- f. Python Standard Exceptions
- g. Raising an exceptions
- h. User-Defined Exceptions

8. Python Regular Expressions

- a. What are regular expressions?
- b. The match Function
- c. The search Function
- d. Matching vs searching
- e. Search and Replace
- f. Extended Regular Expressions
- g. Wildcard

9. Python Multithreaded Programming

- a. What is multithreading?
- b. Starting a New Thread
- c. The Threading Module
- d. Synchronizing Threads
- e. Multithreaded Priority Queue
- f. **Python Spreadsheet Interfaces**
- g. **Python XML interfaces**

10. Using Databases in Python

- a. Python MySQL Database Access
- b. Install the MySQLdb and other Packages
- c. Create Database Connection
- d. CREATE, INSERT, READ, UPDATE and DELETE Operation
- e. DML and DDL Oepration with Databases
- f. Performing Transactions
- g. Handling Database Errors
- h. Web Scraping in Python

11. Python For Data Analysis

Numpy:

- a. Introduction to numpy
- b. Creating arrays
- c. Using arrays and Scalars
- d. Indexing Arrays
- e. Array Transposition
- f. Universal Array Function
- g. Array Processing
- h. Array Input and Output

Pandas:

- a. What is pandas?
- b. Where it is used?
- c. Series in pandas
- d. Index objects
- e. Reindex
- f. Drop Entry
- g. Selecting Entries
- h. Data Alignment
- i. Rank and Sort
- j. Summary Statics
- k. Missing Data
- l. Index Heirarchy
- m. Matplotlib: Python For Data Visualization
- n. Welcome to the Data Visualization Section
- o. Introduction to Matplotlib

12. Django Web Framework in Python

- a. Introduction to Django and Full Stack Web Development