

# Advanced Python

## Instructors:

### Shubham Sharma:

Having 3+ years of DataScience and Web Development expertise, proficient in data modelling, data preprocessing as well as scripting languages Python and PHP. I've also worked as a mentor and a freelancer. Machine Learning and Natural Language Processing (NLP) are two of my areas of expertise.

## Curriculum:

### Introduction to the course

- Course Introduction
- Who is this course for?
- Course Overview & Course outcome
- Course Pre-requisite

### Python Flow Control

- What are control statements?
- Explanation of If-else
- Explanation of for loop
- Explanation of While Loop
- What is Break & Continue Pass
- Practical: Guess the Number
- Practical: Write a program to print a Right-Angle Triangle?

- Practical: Check the Leap Year
- Practical: Write a Program to Print Pyramid, Left /right triangle/ diamond?

### **Assignment 1:**

- How to convert one unit to another?

### **Python Data Structure - List**

- What is a List?
- Creating a List
- Accessing The List Elements
- Adding New Data in the List
- The Slice Operator With List
- Modifying a List
- Deletion in a List
- Appending Items In a List
- Multiplying a List
- Membership Operators On List
- Built In Functions For List
- Methods Of List
- Practical: Python program to interchange first and last elements in a list.
- Practical: Count occurrences of an element in a list

### **Assignment 2:**

- Multiply all numbers in the list

## **Python Data Structure-Tuple**

- What is a Tuple?
- Difference between list and tuple.
- Benefits Of Tuple
- Creating Tuple
- Packing/Unpacking a Tuple
- Accessing a Tuple
- Changing the Tuple
- Deleting the Tuple
- Functions used with Tuple
- Methods used with Tuple
- Operations allowed on Tuple
- Practical: Create a list of tuples from a given list having a number and its cube in each tuple.

### **Assignment 3:**

- Sum of tuple elements

## **Python Sets**

- What are Sets?
- Practical: Iterate over a set in Python

### **Assignment 4:**

- Find lost element from a duplicated array using Set difference

## **Python Dictionary**

- What Is a Dictionary ?
- What Is a Key-Value Pair ?
- Creating a Dictionary
- Important Characteristics of a Dictionary
- Different ways to access a Dictionary
- Updating elements In Dictionary
- Removing elements from Dictionary
- Functions used In Dictionary
- Dictionary Methods
- Removing elements from Dictionary
- Functions used In Dictionary
- Practical: Python program to find the sum of all items in a dictionary

### **Assignment 5:**

- Extract Key's Value, if Key Present in List and Dictionary

### **Python Functions**

- Global & Local Variables
- Function Argument
- Function Recursion
- Lambda Function
- The map( ) Function
- The filter( ) Function
- Using map( ) and filter( ) with Lambda Expressions
- Practical: Creating a calculator

**Assignment 6:**

- Create a scientific calculator

**Projects**

- Create a currency convertor using python.
- Create an alarm clock.
- Create a mail sending program.

**Final Task**

- Build an app that will track the number of calories that you eat every day.