

Introduction To Python

- The Print Statement
- Comments
- Python Data Structures & Data Types
- String Operations in Python
- Simple Input & Output
- Simple Output Formatting

Python Program Flow

- The IF Statement and it's Related Statements
- And Example with IF and it's Related Statements
- The While Loop
- The For Loop
- The Range Statement
- Break & Continue
- Assert
- Examples for Looping

Functions & Modules

- Create your own Functions
- Functions Parameters
- Variable Arguments
- Scope of A Function
- Function Documents/Docstrings
- Lambda Functions & Map
- An Exercise with Functions
- Create A Module
- Standard Modules

Exception Handling

- Errors
- Exception Handling with Try
- Handling Multiple Exceptions
- Writing your Own Exceptions

File Handling

- File Handling Modes
- Reading Files
- Writing & Appending to Files
- Handling File Exceptions
- The WITH Statement

Classes In Python

- New Style Classes
- Creating Classes
- Instance Methods
- Inheritance
- Polymorphism
- Exception Classes & Custom Exceptions

Loading Data In Python For Data Analysis

- Import Libraries
- Load Dataset

- Dimensions of the Dataset
- Peek at the Data
- Statistical Summary
- Class Distribution
- Data Visualization
- Univariate Plots
- Multivariate Plots

Different Types Of Plotting Using Python

- Simple Plots
- Standard Time Plot
- Plots with Different Strokes
- Coloured Plot
- Another Coloured Plot
- Dotted Plot
- Curve and Point
- Bar Plot
- Multi-Coloured Plot
- Polar Plot
- 2D Data Plot
- 3D Bar Graph

Classification Of Model Building

- Classification of Linear Regression
- Implementing Linear Regression
- Classification of Logistic Regression
- Implementing Logistic Regression
- Classification of Naive Bayes
- Implementing Naive Bayes

Foundational Machine Learning

- Introduction to Predictive Modeling
- Understanding the Support Vector Machines (SVM's)
- Using SVM's
- Introduction to Clustering
- Introduction to Unsupervised Learning
- Using the K-Means Algorithm
- Evaluating the Performance of Clustering Algorithms
- Using DBScan Algorithm

Advanced Machine Learning

- Introduction to Principal Component Analysis (PCA)
- Implementing the Principal Components with Clusters
- Understanding the Concept of Nearest Neighbours Algorithm
- Implement K-Nearest Neighbours
- Introduction to Text Data Analyzing
- Preprocessing Data using Tokenization
- Implementing Text Analysis
- Introduction to Speech Recognition
- Reading and Plotting Audio Data
- Introduction to Time Series Analysis
- Slicing Time Series Data

- Operating on Time Series Data

Deep Learning & Neural Networks

- Understanding the Components and Structure of Artificial Neural Networks
- Understanding and Implementing a Perceptron
- Implementing a Single Layer Neural Network
- Implementing a Deep Neural Network
- Creating a Vector Quantizer
- Describing the Recurrent Neural Network for Sequential Data Analysis