

Learn Data Science with Python

Introduction

- Introduction to Python
- A Brief History of Python
- Installing Python
- Using IDLE Environment
- Make a 'Hello World' program
- File .py extension

How To Code

- Variable Declaration
- Python single & Multiline Statements
- Understanding print function
- Making Comments
- Getting User Input
- Calculating Expressions
- Python Indentation
- Data Types

Operators

- Arithmetic Operators
- Relational Operators
- Logical Operators
- Assignment Operators
- Short Hand Assignment Operators
- Bitwise Operators
- Membership Operators
- Identity Operators

Conditional Statements

- If-else blocks
- Understanding Indents
- Nested if-else
- Working with Examples

Looping

- Iteration with for loop
- While
- Nested loops
- Break
- Continue
- Pass
- Python Operators

Functions In Python

- Defining Function Body
- Calling Functions
- Built-in functions
- What are Function Arguments
- Binding default values
- Void functions
- Scope
- Lambda
- Closures

Classes And Objects In Python

- Introduction
- Creating Classes
- Instance Methods
- Data Hiding
- Special class method
- Inheritance
- Method Overriding
- Encapsulation

Multithreading

- Creating your own thread
- Start the thread
- Implementing Multiple threads

Working With String

- String Indexing
- Slicing
- Single and Triple-quoted string
- Using raw String
- Slicing and Range
- String Functions

Containers

- List
- Tuples
- Dictionaries
- Sets
- Binding default values
- Void functions
- Scope
- Lambda
- Closures

Modules

- What is a module
- Creating a Module
- Setting Module Path
- Implementing import
- Module Search Path
- using Math , os and sys module

Working With Files

- Introduction
- Writing Data to a File
- Reading From a File
- Built-in File Methods

Regular Expressions

- Introduction
- Understanding Match function
- Search Functions
- Grouping
- Matching at Beginning or End

Web Scrapping

- Connection to Remote Website
- fetching data
- Extracting HTML Contents

Database Connections

- Connection to Core data
- Implementing SQL Queries
- MySQL Connection
- Data Operations

Socket Programming

- What are sockets
- Creating sockets
- Server-client socket methods
- Connecting client server
- Managing Client-server Connection

Learn Exception Handling

- What are Exception and Run Time Errors
- Need of Exception Handling
- Predefined Exceptions
- Predefined Exceptions Hierarchy
- Except, try, finally clause
- Handling Multiple Exceptions
- User defined Exceptions
- Raise statements
- Assert

Python for Data Analysis (NumPy)

- Numpy basics
- Numpy Arrays
- Quick Note on Array Indexing
- Numpy Array Indexing , Slicing, subset etc
- Reshaping , resizing and transposing of arrays
- Array manipulations (insert,delete,join,split operations)
- Visualize numpy arrays(histogram)
- Numpy Exercises

Python for Data Analysis (Pandas)

- Introduction to Pandas
- Series
- Working with DataFrames
- Handling Missing Data
- Reading data from files
- Data aggregation and GroupBy operations
- Data Merging Joining and Concatenating
- Various data Operations
- Data Input and Output

Python for Data Visualization

- Introduction to Matplotlib
- Plotting Graph , Histogram
- Matplotlib Exercises

Python for Data Visualization (Seaborn)

- Introduction to Seaborn
- Distribution Plots
- Categorical Plots
- Histograms
- Matrix Plots
- Regression Plots
- Grids
- Style and Color
- Seaborn Exercises

Python for Data Visualization more

- Pandas Built-in Data Visualization
- Pandas Data Visualization Exercises
- Plotly and Cufflinks
- Geographical Plotting

Machine Learning

- Introduction to Machine Learning
- ML using Python
- sciKit Learning using Python

Regression

- Regression Theory
- Linear Regression using Python
- Cross validation & Bias Variance Trade Off
- Logistic Regression Theory
- Logistic Regression with Python
- Regression Exercises

K Nearest Neighbors

- What is KNN
- Using KNN in Python
- KNN Exercises

Decision Trees & Random Forests

- Introduction to Tree Methods
- Decision Trees and Random Forest with Python
- Exercises on Decision Trees

Various Tools

- SVM Theory; SVM with Python
- K Means Algorithm Theory; with Python
- PCA with Python
- What is Natural Language Processing

Neural Network & Deep Learning

- Introduction to Neural Network Theory
- Basics of TensorFlow
- TensorFlow & ContribLearn