Duration:

Pre-requites: Good understanding of any programming language

Python Basic

- Installation & Environment Setup, Python for data science introduction,
- interactive shell, User interface or IDE.

Variable & Strings in Python

- What is variable?
- Variable and constants in python, variable, variable name and value,
- Mnemonic variable names , Strings

Python Operators

- Arthimetic , relational operators and comparison operators ,
- Python Assignments operators
- Short Hand Assignment operator
- Logical operator
- Membership operators
- Identity Operator
- operator Precedence
- Evaluating Expressions

Data Types in python

- List
- Tuple
- Dictionaries
- Numbers
- Set

Conditional Statement

- How to use "If Conditional" in Conditional Structures.
- is Statements
- how to use elif conditional
- nested if Statement
- Break, Continue & pass statements

Loops & user Input

- While and for Loops
- Nested for Loops
- iterations and comprehension

Functions

- Function of Definition and cell
- Function Scope
- Return Statements
- Arguments

Anonymous Function

- lambda Expression
- Advance Function

File Handling

- Working with Flies
- CSV
- PDF

Modules & Packages

- Importing modules
- Standard modules –Sys, os
- Packages

Exception Handling

- syntax Error
- Runtime Error
- Try Except Statements
- Finally Statements

Python Advance oops concepts & Application

- Classes and instances
- inheritance and Compostions
- statics and Class Method

Oops Concepts & Applications

- Operator Overloading
- Polymorphism
- Iterators

Python Advance

- Decorators
- Generators

Regular Expression

- Match Function
- Search Function
- Grouping
- Match Objects
- Flags
- Exercise

Multi-threading

- what is multi-threading
- threading module
- defining a thread
- Defining a thread
- Thread Synchronization

Database Handling in Python

- working with data base
- Connecting & intserting Data to SQLite with Python

Web Scrapping

- The Components of a web page
- beautifulsoup
- HTML,CSS,JS,Jquery
- Dataframes
- PIP
- Installing External Modules Using PIP

GUI Programming with tkinter

- Introduction
- Components and events

GUI Programming With

- Adding Controls
- Entry widget , Text Widget , Radio Button

Image & Video Processing with Open CV

- Loading Displaying Resizing and writing images with python
- solution with Explanations batch images Resizing
  Face Detection
  Capturing Video

Projects

- Building an interview Dictionary with python
- online Book store System using python
- food ordering system with python
- scrapping a real estate property data from the web
- building a smart calculator desktop aap using python
- builing a webcam motion detector

Machine Learning

- Python for data science
- Python for data science : numpy
- Python for data science : pandas
- Data Visualization
- Descriptive Statistics
- Inferential Statistics
- Probability Distribution
- Byesian Formula
- EXploartory Data Analysis

Surpervised Learning

- Featuring Engineering
- linear Regression
- Logistic Regression
- Module Evaluation

Assignment

- Performance metrics
- Titanics : Machines Learning form Disaster

Supervised Learning

- k-Nearest Neighbors
- Naïve Bayes Algorithm
- Supports Vectors Machine
- Decision Trees

Some advance Techniques

- Ensemble Learning
- Random Forest

Assignment

- Advance Boosting Techniques (XG boost, light GBM, CatBoost)
- Hyper Paramenter Optimization

Unsupervised Learning

- Principal Component Analysis
- K-Means Clustering
- Recommendation System

Assignment

- Product Recommender System
- Movie Recommendation System

Projects

- First inning score Prediction
- big mart sales analysis
- Healthcare Analysis
- Credit card Fraud Detection AV Hackathon
- Black Friday Sales Prediction

Deep Learning

- Introduction of deep learning and its application in days to day life
- history of Deep Learning
- Basic of Neural Network
- Multilayer perception
- Activation Functions
- Optimizers
- back Propagation
- Weight initialization and SGD improvements

Libraries

- Tensorflow's Hello World
- TensoreFlow 1.1and TensorFlow 2.x
- Keras
- Introduction to python

Projects

- implemenyting MNIST Dataset with Tensorflow and Keras

Convolutional Neural Network

- CNN Architecture
- Convolution Layers , maxpooling
- Dropout and Flatterning layers
- dog and cat images classification with CNN

Advance Convolutional network

- lenet
- alexnet
- VGGnet
- resnet
- Inception net

Natural Convolutional Network

- text   Processing using NLTK
- CBOW,TF-IDF, Word Embedding
- Tokenization and lemmatiozation
- name Entity
- Twitter
- Recurrent neural network
- Long Term Memory
- Seq2sed Learning
- encoder and decoder
- Transformer