Course Outline:

Python for Data Science (AI) Course Contents

Learning Objective

This course lets you master the concepts of widely-used and powerful programming language Python. You will gain hands-on experience in working with the various Python packages like SciPy, NumPy, Matplotlib, Lambda functions and more. You will work on hands-on projects in the domain of python and apply it for various domains of big data, data science and machine learning.

Basic constructs of Python language

Writing Object Oriented Program in Python and connecting with

Database File Handling, Exception Handling in Python

Mathematical Computing with Python (NumPy)

Scientific Computing with Python (SciPy)

Data Visualization (Matplotlib)

Data Analysis and Machine Learning (Pandas) / Data Manipulation with

Python Machine Learning, Natural Language

Processing (Scikit-Learn)

Web Scraping for Data

Science Python on Hadoop

Writing Spark code using Python

Introduction To Python

Installing Python On Your

Machine Variables In Python

Operators In Python

Datatype In Python

Flow Control In Python

Functions In Python

File Handling In Python

Object And Classes In Python

Getting Started With Python

Concept Of Oops In Python

Introduction To Oops

Concept Of Classes And

Object Demo Test – Solution

Concept Of Inheritance In Python

Concept Of Encapsulation In Python

Concept Of Polymorphism In Python

Introduction To NumPy

Initializing A NumPy Array

Inspecting A NumPy Array

Performing Mathematical Functions Using

NumPy Array Manipulation

Indexing And Slicing Using

NumPy Vs List

SciPy Introduction

Sub Package Cluster

Data Manipulation Using Pandas

Introduction To Pandas

Series Object In Pandas

Data frame In Pandas

Merge, Join And Concatenate

Importing And Analyzing

Dataset Cleaning The Dataset

Manipulating The Dataset

Visualizing The Data Sets

Data Visualization Using Matplotlib

What Is Data Visualization?

Introduction To Matplotlib

How To Create A Line Plot?

How To Create A Bar Plot?

How To Create A Scatter Plot?

How To Create A Histogram?

How To Create A Box And Violin Plot

How To Create A Pie Chart And Doughnut Chart

How To Create A Area Chart

Machine Learning Using Python

Introduction To Machine Learning

Types Of Machine Learning

What Can You Do With Machine

Learning? Machine Learning Demo

Machine Learning Using Python

Supervised Learning Algorithm In Python

Introduction To Regression

Step By Step Calculation Of Linear

Regression Linear Regression In Python

Step By Step Calculation Of Logistic

Regression What Is Classification?

Step By Step Calculation Of Decision Tree

Confusion Matrix

Step By Step Calculation Of Naive Bayes Algorithm

Unsupervised Learning

What Is Clustering ?

Step By Step K Means Clustering

Unsupervised Learning

Advanced Topics

Lecture 1 – Natural Language Processing

Python For Data Science (AI) Projects & Assignments:

Project 1 : Analyzing the naming pattern using Python

Project 2 : Python Web Scraping for Data Science

Project 3 : Predicting customer churn in Banking Company

Project 4 : Server logs/Firewall logs

Python-Interview-Question-answer

Assignment 1 – Introduction To Python

Assignment 2– Concept Of Oops

Assignment 3– NumPy

Assignment 4– Pandas

Assignment 5– Data Visualization Using Matplotlib

Assignment 6– Supervised Learning

Data Science (AI) with R Course Contents

Learning Objective

This will help you be master in Data Manipulation with R programming, Data visualization, advance analytics topics like regressions, data mining using RStudio. You will work on real life projects and assignments to master data analytics.

- Introduction to Data Science and Statistical Analytics
- Introduction to R
- Data Exploration, Data Wrangling and R Data Structure
- Data Visualization
- Introduction to Statistics
- Predictive Modeling - 1 (Linear regression)
- Predictive Modeling - 2 (Logistic Regression)
- Decision Trees
- Random Forest
- Unsupervised learning
- Association Analysis and Recommendation engine
- Sentiment Analysis
- Time Series

Machine Learning (AI) Course Contents

Learning Objective:

This course will help you to learn & master the concepts and techniques of machine learning algorithms, supervised and unsupervised learning, probability, statistics, decision tree, random forest, linear and logistic regression through real-world hands-on projects. This Machine Learning certification course training can be taken by anybody to become a successful Machine Learning engineer.

- Introduction to Machine Learning
  - Various techniques of Machine Learning
  - Mathematics of Machine Learning
- Preprocessing of data
  - Supervised learning techniques
  - Introduction to regression
  - Techniques of classification
  - Unsupervised Learning
  - Introduction to Deep Learning
  - Introduction To Statistics
  - Central Tendency
  - Probability
- Machine Learning
  - Co-Variance And Correlation
  - Machine Learning Models
  - Linear Regression
  - Logistics Regression
  - Glm Function
- Roc Curve
  - Decision Tree
  - Gini Index
- Random Forest

Machine Learning (AI) project work

Project 1 –Bank Account Recommendation

Artificial Intelligence and Deep Learning (AI) Course Contents

Learning Objective

This training course offers the comprehensive Deep Learning training that will help you to work on the cutting-edge of artificial intelligence. As part of the training you will master the various aspects of artificial neural networks, supervised and unsupervised learning, logistic regression with neural network mindset, binary classification, vectorization, Python for scripting machine learning applications.

- Introduction to Neural Networks
- Multi-layered Neural Networks
- Regularization techniques (L1, l2)
- CNN: Convolutional Neural Networks
- LSTM: Long Short Term
- Memory Hidden Markov
- Chatbots
- Deep Learning And
- AI Tensor Flow
- Machine Learning Basic
- Concepts Regression
- Normalization
- Data Set
- Spark Tensor Flow
- Logistic Regression
- Linear Regression V/S Logistic
- Regression Activation Function
- Creating Module
- Neural Network Equation
- Sigmoid Function
- Multi Layer Perception
- Multi Neural Network And Back
- Propagation Back Propagation tensor Flow
- Uniform Distribution
- Model Making

Convolution Neural

Networks Parameter Sharing

Hyper Parameter

Drop Out Layer

Training The Model

Save Trained Model

TensorFlow Library

Optimization Functions

Recurrent Neural Network

Matrix Multiplication

Artificial Intelligence and Deep Learning (AI) project work

Project 1 – Creating A Deep Learning Model Using TensorFlow

Tableau For Artificial Intelligence(AI) Course Content

Filtering, Sorting & Grouping - Filtering, Sorting and Grouping are fundamental concepts when working with and analyzing data. We will briefly review these topics as they apply to Tableau

Advanced options for filtering and hiding

The various types of filters and how and when each executes in sequence

Data security considerations of specific filters

Specific recommendations on how to use, or not to use, various filter options

Understanding your many options for ordering and grouping your data: Sort, Groups, Bins,

Sets The various types of sets and use cases for each

Understanding how these options inter-relate

Working with Data – In the Fundamentals class, we accepted the data for what it is! (with a basic overview of blending and joining data and working with the data engine). In the Advanced class, we will understand the difference between joining and blending data, and when we should do each. We will also consider the implications of working with large data sets, and consider options for when and how to work with extracts and the data engine. We will also investigate best practices in "sharing" data sources for Tableau Server users.

Working with the Data Engine / Extracts and scheduling extract updates

Working with Custom SQL

Adding to Context

Switching to Direct Connection

Building meta data via shared Data Source connections

Performance considering and working with big data

Working with Calculated Data and Statistics – In the Fundamentals Class, we were introduced to some basic calculations: basic string and arithmetic calculations and ratios and quick table calculations. In the Advanced class, we will extend those concepts to understand the intricacies of manipulating data within Tableau

A Quick Review of Basic Calculations

- Arithmetic Calculations
- String Manipulation
- Date Calculations
- Quick Table Calculations
- Custom Aggregations
- Custom Calculated Fields
- Logic and Conditional Calculations
- Conditional Filters

Advanced Table Calculations

- Understanding Portioning and Addressing
- Differences between visual layout of data and results of table calculations
- Approaches for understanding what is happening in table calculations
- Calculate on Results of Table Calculations
- Complex Calculations
- Difference from Average
- Secondary Table Calculations

Understanding where Calculations Occur

Statistics

- Reference / Trend Lines
- Statistical Calculations
- Summary Stats
- Cohort Analysis
- Moving Averages
  - From a fixed point

- In a rolling window

Working with Dates and Times

- Continuous versus Discrete Dates
- Dates and Times
- Reference Dates

Building Advanced Chart Types and Visualizations / Tips & Tricks – This topic covers how to create some of the chart types and visualizations that may be less obvious in Tableau. It also covers some of the more common tips & tricks / techniques that we use to assist customers in solving some of their more complex problems.

Pareto Chart

Spark Line

Horizon Chart

Best Practices in Formatting and Visualizing

Formatting Tips

- Highlighting
- Labeling
- Legends

Introduction to Visualization Best Practices

Building Better Dashboards – In the Fundamentals courses, we learned how we can combine several worksheets in a dashboard and publish that to the web. In the Advanced course, we will learn how to build effective and interactive applications via dashboarding.

Guided Analytics

- Cascading Filters
- Highlighting
- Quick filter Options
- URL Actions

Overview – Working with Tableau Server – In Tableau Fundamentals, we saw that we could use Tableau Server as a mechanism to share our visualizations and dashboards. Now we will dig in a bit deeper.

Publishing to Tableau Server – Overview of publishing, scheduling & security options

Tableau Server Usage – Interacting with Published Visualizations

Wrap Up Activities

Summary of what we have learned

Advanced activities to pull together and solidify the concepts

Where to get Further Assistance

The Help File / Product

Manual Knowledge base

Forums

Whitepapers & Books

Further Training Offerings & Professional Services

Technical Support

Project Works & Assignments

Course	Industry/Domain	Project
Data Science with R	E-commerce	Cold Start Problem in Data Science
	Enter	Recommendation for Movie, Summary
	E-commerce	Making sense of customer online buying pattern
	Banking and Finance	Fraud Detection in Banking System
Python for Data Science	E-commerce	Python Web Scraping for Data Science
	General	Create a password generator
	Finance	Impact of pre-paid plans on the preferences of investors
	Stock Market	Machine Learning – Prediction of stock prices
	IT	Server logs/Firewall logs
AI Deep Learning Projects	Internet Search	Image recognition with TensorFlow
	General	Building an AI-based chatbot
	E-commerce	E-commerce product recommendation