**Python for Data Science**

**Title: Python for Data Science**

**Duration:** 1 day

**Pre-requisite:** Basic Python Programming

**Short Description:**

The Python for Data Science course will expose you to the various Python library like NumPy, Pandas, Matplotlib and Scikit-learn. It is an important step between learning python and Data science.

**Long Description:**

The Python for Data Science course will expose you to the various Python library like NumPy, Pandas, Matplotlib and Scikit-learn. It is an important step between learning python and Data science. We will discuss the usage and motivation for each of the Python library to apply machine learning to defined data problems. We will begin by installing Anaconda. We will perform data exploration, analysis, modeling and visualization and get ready for Data Science.

**Learning Objectives:**

After this course, you will be able to:

* Install Anaconda on personal computer.
* Understand the various options to perform Data Science.
* Understand the reasons for popularity of Python for Data Science
* Learn the primary toolkit for data science in Python including NumPy, Pandas, Matplotlib and Scikit-learn.
* Learn how to perform exploratory data analysis using Pandas.
* Learn the usage of Matplotlib and Seaborn to perform data visualization.
* Understand the big picture and the importance of data science in business, industry, and technology

**Topic Outline:**

* Course Introduction
* Overview of Data Science offerings
* Understand the reasons for popularity of Python for Data Science.
* Installing Anaconda
* Understand usage of Jupyter Notebooks
* Essential Python Data Science Libraries
  + NumPy
  + Pandas
  + Matplotlib
  + Scikit-learn
* Data Visualization
* Line Chart
* Scatterplot
* Pairplot
* Histogram
* Density Plot
* Bar Chart
* Boxplot
* Customizing Charts
* Milestone 2: Perform Exploratory Data Analysis
* Milestone 3: Apply machine learning algorithms using Scikit-learn
* Conclusion: Data Science in the real world, next steps.

**Structured Activity/Exercises/Case Studies:**

* Milestone Project 1: Install and Setup Anaconda/Jupyter Notebooks
* Milestone Project 2: Perform Exploratory Data Analysis using Pandas
* Milestone Project 3: Apply machine learning algorithms

**Training material provided:** Yes (Digital format)