Introduction to Python and Data Analysis

Duration: 4 Days **Course Code: PYPDAI**

Overview:

Introduction to Python and Data Analysis Course Overview

This course is an introduction to Python and its main data analysis libraries,Pandas and Matplotlib for delegates with some understanding of programming concepts. It is a two-part course,the first is an introduction to Python programming,the second introduces Python's data analysis tools. For the programming environment we use JupyterLab on the Anaconda platform. Anaconda is one of the most,if not the most,popular Data Science platforms.

Approach:

We believe in learning by doing and take a hands-on approach to training. Delegates are provided with all required resources,including data,and are expected to code along with the instructor. The objective is for delegates to reproduce the analysis in our manuals as well as gain a conceptual understanding of the methods.

Exercises and examples are used throughout the course to give practical hands-on experience with the techniques covered.

Target Audience:

Who will the Course Benefit?

This course is designed for anyone who wants to acquire basic proficiency in Python and its data analysis tools for use in their own work. It is for numerate people who are familiar with programming constructs but are not necessarily programmers who want to be able to do some data manipulation and visualization using Python.

Objectives:

- Course Objectives

- This course aims to develop delegates skills in Python and its main data analysis libraries. On completion of the course they will have gained enough proficiency to allow them to apply these tools in their day to day data analysis activities.

Prerequisites:

Delegates attending this course are expected to have the below Programming and Numeracy experience.

Programming:

- Experience coding small programs that use variables,arrays or lists,conditional statements,loops and functions in some language. Skills and knowledge that can be acquired by attending our Introduction to Programming - Python course.

Numeracy:

- Able to calculate and interpret averages,standard deviations and similar basic statistics.
- Ability to read and understand charts and graphs.
- Mathematics: GCSE or equivalent.

Follow-on-Courses:

Further Learning

- Python Programming 1

Content:

Introduction to Python and Data Analysis Training Course Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: INTRODUCTION

- Python as an interpreted language
- Script mode by example
- Interactive mode
- Statements
- Comments
- Whitespace and Indentation

Session 2: PYTHON: VARIABLES ; SCALAR TYPES

- Numerical types
- Text
- Boolean
- Variables as references
- The type() function

Session 3: OPERATORS ; EXPRESSIONS

- Arithmetic Operators
- Assignment Operators
- Comparison Operators
- Logical Operators
- Membership Operators

Session 4: CONTAINERS

- Lists
- Tuples
- Sets
- Dictionary Introduction to Python and Data Analysis Training Course Course Contents - DAY 2

Session 5: CONDITIONS ; LOOPS

- Basic if statement
- Else clause
- For loop
- While loop
- The range function
- Iterating over a list
- Break
- Continue

Session 6: FUNCTIONS

- inbuilt functions (len(),sum(),min(),max(),sorted())
- defining functions
- positional arguments
- names arguments
- default value arguments

Session 7: OBJECTS

- What is a Class?
- Data Attributes and Methods
- A simple example
- Some methods of inbuilt containers Introduction to Python and Data Analysis Training Course Course Contents - DAY 3

Session 8: INTRODUCTION TO DATAFRAMES

- What is a DataFrame?
- DataFrame attributes
- Loading and writing DataFrames
- Exploratory functions
- Subsetting
- Conditional subsetting
- Adding and dropping columns
- Inbuilt aggregating functions
- Missing values Introduction to Python and Data Analysis Training Course Course Contents - DAY 4

Session 9: GROUPBY AND AGGREGATION: SPLIT-APPLY-COMBINE

- Groupby one column and aggregate using single inbuilt function
- Groupby two columns and aggregate using single inbuilt function
- Groupby one column and aggregate using separate function for each column

Session 10: PLOTTING WITH MATPLOTLIB

- Bar chart
- Histogram
- Line plot

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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