KOENIG SOLUTIONS · COURSE OUTLINE

Python Data Viz: Matplotlib, Seaborn & Plotly

Learn to manipulate data with NumPy and Pandas, then visualise it using Matplotlib, Seaborn and Plotly.

3 Days	5	80	21
DURATION	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This program is well suited for both beginners or experienced developers looking to make the jump to Data Science or Machine Learning. In this course, you will learn how to program with Python, how to analyse data, and how to visualise the data using Python packages.

WHO THIS COURSE IS FOR

- **Python Developers**
- **Data Analysts**
- **Aspiring Data Scientists**
- **Machine Learning Practitioners**

PREREQUISITES

- Basic knowledge of Python.

LEARNING OBJECTIVES

- Create and reshape arrays using NumPy
- Apply indexing, sorting and broadcasting to arrays
- Transform and filter data with Pandas dataframes
- Apply groupby and aggregation operations on data
- Build line, bar, pie and scatter plots with Matplotlib
- Configure Matplotlib style sheets and interactive interfaces
- Create statistical plots such as distplot and pairplot with Seaborn
- Develop interactive charts with Plotly and Cufflinks

COURSE SYLLABUS

5 Modules, 80 Topics

DAY 1

01

4 Demos

NumPy Package

TOPICS

- Introduction of NumPy
- Install Numpy
- Array Creation
- Array Reshaping
- Indexing
- Operation
- Sorting and Stacking
- BroadCasting
- Linear Algebra
- Saving and Loading

02

Demo

Pandas

TOPICS

Introduction · Slicing Dataframe · Filtering Dataframe · Transforming Dataframe · Advanced Indexing · Stack and Unstack · Groupby and Aggregations

DAY 2

03

7 Demos

Matplotlib

INTRODUCTION

Introduction to Matplotlib · Exploring Data using Python · Matplotlib with Jupyter · Load data

ARCHITECTURE

How to pyplot Works · Troubleshooting issues

DIFFERENT PLOTS

Line Chart · Multi Line Plot · Fill Plot · Bar Chart · Pie Chart · Histogram · Scatterplot

PLOTTING

Themes · Scatter · Subplot · 3d plot · Grid · Save Image · Legend

CONFIGURE MATPLOTLIB

Style Sheets · Custom Style Sheets

INTERACTIVITY

Handling Event · Create An Interface With ipywidgets

MAPS

Basemap · Creating a Choropleth With Matplotlib

DAY 3

04

4 Demos

Seaborn

INTRODUCTION

- Introduction to Seaborn
- Importing Dataset
- Seaborn Vs Matplotlib
- Using Seaborn with Matplotlib

LOAD DATA

- Loading a built-in Seaborn data
- Loading a Pandas Dataframe

PLOTS

- LinePlot
- Distplot
- BarGraph
- ScatterPlot
- JointPlot (KDE)
- StripPlot
- Box
- Point Plot
- FacetGrid
- Pair Grid
- CatPlot

CUSTOMISING SEABORN PLOTS

- Changing Figure Aesthetic
- Removal of Spines
- Changing the figure Size
- Scaling the plots
- Setting the Style Temporarily

CREATING DIFFERENT TYPES OF PLOTS

- Relational Plots
- Categorical Plots
- Distribution Plots
- Regression Plots

COLOUR PALETTE

- Diverging Colour Palette
- Sequential Colour Palette
- Setting the default Colour Palette

05

4 Demos Project

Plotly and Cufflinks

TOPICS

Installation and Setup · Line Plot · Scatter Plot · Bar Plot · Box Plot and Area Plot · 3D Plot · Spread Plot and Hist Plot · Bubble Plot and Heatmap

NOTES

Highlight of Course

- Basic Python
- Numpy, Pandas
- Matplotlib
- Seaborn
- Plotly and Cufflinks
- Number of DEMOs - 20

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	**NumPy Package**	DEMO ■ **Demo 1:** Array Creation ■ **Demo 2:** Array Reshaping ■ **Demo 3:** Array Operations ■ **Demo 4:** Maths Function
02	**Pandas**	**Demo:** Demo 5: Pandas Basic operations
03	**Matplotlib**	DEMO ■ **Demo 6:** Matplotlib Line Plot ■ **Demo 7:** Plotting Histogram ■ **Demo 8:** Bar Chart ■ **Demo 9:** Pie Chart ■ Demo 10: SubPlot ■ **Demo 11:** Save Figure ■ **Demo 12:** Matplotlib imshow
04	**Seaborn**	DEMO ■ **Demo 13:** Seaborn - LinePlot, Distplot, BarGraph, Scatter ■ **Demo 14:** KDE - jointplot() - PairPlot ■ **Demo 15:** Distribution - BoxPlot ■ **Demo 16:** Violin - Point Plots
05	**Plotly and Cufflinks**	DEMO ■ **Demo 17:** Chart Gallery ■ **Demo 18:** Cufflinks - Colors ■ **Demo 19:** Cufflinks - Offline ■ Demo 20: Quantfig **Project:** Churn Analysis

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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