PURPLE GRIFFON
The IT Service Management Training & Consultancy Specialists

Course Title: Data Visualisation With Python	**Course Duration**: 3.0 Days
Exam: Not Included	**Exam Type**: Proctored Exam
Qualification: Data Visualisation With Python Certficate	

Course Syllabus

Our Data Visualisation With Python training course covers the following Modules:

Module 1: Fundamentals of Python

- Importance of Data Visualisation
- Visualisation Using Python
- Data Cleaning
- Data Wrangling
- Types of Data
- Statistics
- Probability
- Exploratory Data Analysis
- Python
- Jupyter Notebook
- Google Colab and Kaggle Notebooks
- JupyterLab
- Basic Python Data Types
- Flow Control
- Slicing
- Defining Functions
- Lambdas
- Classes

Module 2: NumPy and Pandas

- NumPy
- The NumPy ndarray Object
- Slicing ndarrays
- Boolean Indexing
- Element-wise Arithmetic
- Transpose of a ndarray
- Dot Products
- Stacking
- SciPy
- pandas
- Series and DataFrames
- Loading and Saving Data With pandas

- Creating DataFrames
- Inspecting Data
- Selecting Columns and Rows
- The head() and tail() methods
- Basic Plots
- Descriptive Statistics From a DataFrame
- Filtering, Sorting, and Grouping
- Replacing Values and Renaming Columns
- Joining and Combining Dataframes
- Reading Data From Files
- Reading From a Relational Database
- Loading External Data From NoSQL Stores (MongoDB)
- SciPy
- Sci-Kit Learn

Module 3: Visualisation with Matplotlib

- Matplotlib
- Architecture
- The Figure Object
- Axes, Labels, Titles, Legends and Grids
- Reading Data from Files and Other DataSources
- The pyplot API
- The plot() Method
- The Format String
- Markers and Line Styles
- Plotting Labelled Data
- Plotting Multiple Graphs on the Same Axes
- Saving Figures
- Labels and Titles
- Annotations
- Legends
- Line Chart
- Area Chart
- Stacked Area Chart
- Scatter Plot
- Bubble Chart
- Heat Map
- Contour Plot
- Histogramme
- Kernel Density Estimate Plot
- Box Plots
- Violin Plots
- Bar Plot
- Grouped bar or column chart
- Stacked Bar Plots
- Error bars
- Radar Plots
- Pie Plots and Donuts
- Tree Maps

Module 4: Simplifying Visualisation with Seaborn

- Seaborn
- Styling
- Scaling and the Plotting Context
- Overriding Context Settings with the rc Parameter
- Themes
- Colors in Seaborn
- Varying Hue to Distinguish Categories
- Vary Luminance to Represent Numbers
- Choosing a Palette with the color_palette() Function
- Qualitative Color Palettes
- Sequential Palettes
- Diverging Palettes
- Histogrammes
- Multiple Histogrammes on the Same Axes
- Kernel Density Plots
- Box Plots
- Violin Plots
- Contour Plots
- The FacetGrid
- Some Functions that Return a FacetGrid
- Pair Plots
- The relplot() Function
- The regplot() and implot() Functions
- Creating a Regression Plot
- Variables That Take Discrete Values
- Using a Representative value
- Squarify

Module 5: Plotting geospatial data with Geoplotlib

- Geoplotlib
- Input and Output
- Interaction
- The dot Visualisation
- Zooming
- 2D Histogramme
- Heat Map
- Voronoi Tessellation
- Seed Points
- Delaunay Triangulation
- GeoJSON
- Adding Color and Tooltips
- Tile Providers
- The DarkMatter Tiles

Module 6: Adding interaction with Bokeh

- How Bokeh Works
- Bokeh Server
- Programming Interfaces

- The Bokeh Models
- Glyphs, Plots, and Layouts
- The bokeh.plotting Interface
- Some Glyph Methods on the Figure Object
- Widgets in Bokeh
- Using Bokeh Server
- Setting Up the Widgets
- The TextField Widget
- The Other Widgets
- Running Bokeh Server
- Widgets Using CustomJS
- Widgets with ipwidgets

Course Overview

Our three-day Data Visualisation With Python training course will teach you how to use Python's data visualisation libraries, including NumPy, Pandas, Matplotlib, and Seaborn to better understand data analytics.

Data visualisation with Python has numerous applications across different fields. It is widely used in data analysis, business intelligence, scientific research, machine learning, finance, and more. By visualising data, patterns, trends, outliers, and relationships can be identified more easily, enabling better decision-making and communication of insights.

Course Learning Outcomes

Our Data Visualisation With Python training course will teach you to become proficient in the following:

- How to use various plot types with Python
- Explore and work with different libraries for data visualisation
- Understand and create effective visualisations
- Improve your Python data wrangling skills
- Work with industry-standard tools, including Matplotlib, Seaborn, and Bokeh
- Learn different data formats and representations
- Learn how to use Geoplotlib and Bokeh
- Continue learning and face new challenges with after-course one-on-one instructor coaching

Audience

Our Data Visualisation With Python training course will benefit several individuals and organisations including but not limited to:

- Data Analysts
- Data Scientists
- Business Analysts
- Researchers and Academics
- Data Engineers
- Data Journalists
- Business Intelligence Professionals
- Students and Data Enthusiasts

Entry-Level Requirements

There are no entry-level requirements for our Data Visualisation With Python training course.

Recommended Reading

There is no recommended reading for our Data Visualisation With Python training course.

What's Included

Our Data Visualisation With Python training course contains the following:

- 3-day instructor-led training course
- After-course coaching available
- Pre-reading
- Course Manual
- Quizzes
- Exercises

Exam Information

Data Visualisation With Python Exam:

- Format: Multiple Choice
- Questions: 40
- Pass Mark: 70%

What's Next

Attendees may enjoy our three-day Data Wrangling With Python training course.

Our Data three-day Wrangling With Python training course will teach how to use Python to extract/transform data from various sources, including large database vaults and Excel financial tables. You will also explore insights into why you should avoid traditional data cleaning methods, as done in other languages, and take advantage of the specialised functions from NumPy and Pandas.

Additional Information

Our Data Visualisation With Python training course offers several benefits to individuals and organisations including but not limited to;

- **Enhanced Data Understanding**: Data visualisation allows you to gain a deeper understanding of data by visually representing patterns, trends, and relationships.
- **Effective Communication of Insights**: Visualisations make it easier to communicate complex data and insights to both technical and non-technical audiences.
- **Improved Data Analysis and Decision-Making**: Visualisations enable you to explore and analyse data more effectively.
- **Versatility and Flexibility**: Python offers a wide range of visualisation libraries, each with its strengths and capabilities.

- **Integration with Data Analysis Workflow**: Python's data visualisation libraries seamlessly integrate with other data analysis tools and libraries.
- **Career Advancement**: Proficiency in data visualisation with Python is a highly sought-after skill in many industries, including data analysis, data science, business intelligence, and more.
- **Open-Source and Active Community**: Python is an open-source language with a vibrant community.
- **Reproducibility and Collaboration**: Python's code-based approach to data visualisation promotes reproducibility, allowing you to share and recreate visualisations easily.