Data Visualization with Python for Managers

Duration: 2 days (16 hrs)

Target Audience: Project Leads, Solution Teams, Delivery Managers
Objective: Enable participants to create effective, insightful, and interactive visualizations to support data-driven decision-making.
Format: Concept sessions, hands-on exercises, and case studies

Training Outcomes

✅ Build effective visualizations for **business intelligence**
✅ Understand **exploratory data analysis** for decision-making
✅ Create **interactive dashboards** for real-time insights
✅ Develop best practices for **data storytelling**

🗓️ Day 1: Fundamentals & Business Insights

1. Introduction to Data Visualization

- Importance of **data visualization** in business decision-making
- Common challenges and best practices
- Overview of Python libraries:
    - **Matplotlib** (Basic charting)
    - **Seaborn** (Statistical plots)
    - **Plotly & Dash** (Interactive visualizations)
- Choosing the right visualization for different business cases

2. Business Analytics with Matplotlib & Seaborn

- Understanding Matplotlib:
    - Figure, Axes, Labels, Legends, Grid
- Seaborn for **statistical analysis & trends**
- Customizing colors, styles, and annotations

3. Exploratory Data Analysis (EDA) with Visualizations

- **Importance of EDA in decision-making**
- Distribution & correlation analysis (pair plots, heatmaps)
- Detecting anomalies and trends in business data

4. Time-Series Visualization for Business Insights

- Working with time-series data in Python
- Moving averages & trend analysis
- Forecasting basics using visualizations

5. Case Study & Hands-On Practice

- **End-to-end workflow**: Loading, processing, and visualizing a dataset
- Business-oriented storytelling using charts
- Creating a **Financial Performance Dashboard** (Revenue, profit, and cost analysis)

📅 **Day 2: Advanced & Interactive Dashboards**

6. Introduction to Interactive Visualizations with Plotly

- Overview of Plotly for **real-time insights**
- Creating **interactive charts** (line, scatter, bar, pie)
- Customizing hover effects & layouts

7. Dash - Building Web-Based Dashboards

- Introduction to **Dash** for web-based data visualization
- Structuring a simple **dashboard layout**
- Adding dropdowns, sliders, and buttons for user interaction

8. Geographic Data Visualization

- Introduction to **Folium and Plotly Maps**
- Creating heatmaps for geographical data
- Real-world use cases (logistics, sales, population analysis)

9. Best Practices for Data Storytelling

- Choosing the right **chart type for business insights**
- **Common mistakes** in data visualization
- **Dashboard optimization** for better UX
