DATA VISUALIZATION TRACK – 2025 EDITION

" Turn data into stories people can see."

Market Demand Note

In the age of big data, decision-makers need clear and interactive visual insights. Power BI and Tableau dominate the data visualization market, enabling professionals to create dashboards, KPIs, and reports without complex coding. These skills are essential for data analysts, BI developers, and managers.

Duration: 6 weeks | **Mode**: Online/Offline

📘 Data Visualizations Track — 2025 Edition

Table of Contents

Week 1: Introduction to Data Visualization & Tools

- **Why Data Visualization Matters**
- **Overview of Power BI & Tableau**
- **Installing Power BI Desktop & Tableau Public**
- **Navigating the Interfaces**
- **Hands-on Lab: First Dashboard**

Week 2: Data Import & Preparation

- **Connecting to Data Sources (Excel, CSV, Web, Databases)**
- **Basic Data Cleaning & Transformation**
- **Understanding Data Models**
- **Hands-on Lab: Import, Clean, and Structure Real Data**

Week 3: Building Visuals

- **Charts: Bar, Line, Pie, Area**
- **Tables, KPIs, Cards**
- **Formatting Visuals for Clarity**
- **Hands-on Lab: Create and Customize a Variety of Visuals**

Week 4: Dashboards & Interactivity

- **Creating Interactive Dashboards**
- **Filters, Slicers, Parameters**
- **Drill-Throughs & Highlight Actions**
- **Bookmarks for Storytelling**
- **Hands-on Lab: Build a Multi-Page, Interactive Dashboard**

Week 5: Advanced Features

- **Calculated Columns & Measures (DAX in Power BI)**
- **Parameters & Sets in Tableau**
- **Combining Data from Multiple Sources**

- **Hands-on Lab: Advanced Calculations & Multi-Source Dashboards**

Week 6: Final Project

- **Project Brief: Global Sales & Profit Dashboard**

- **End-to-End Data Preparation, Visualization, and Storytelling**

- **Presentation & Feedback**

- **Hands-on Lab: Develop and Share a Professional Business Dashboard**

Detailed Content

Week 1: Introduction to Data Visualization & Tools

- **Understand why data visualization matters in business and analytics.**

- **Compare Power BI and Tableau—features, strengths, typical use cases.**

- **Download and install Power BI Desktop and Tableau Public.**

- **Explore the interfaces—menus, workspaces, basic navigation.**

- **Learn dashboard anatomy—tabs, panels, data fields, legends.**

- **Hands-on:**

    - **Install both tools.**

    - **Open sample datasets (e.g., retail sales, population).**

    - **Build your first simple dashboard (e.g., sales by region).**

    - **Present your dashboard to the class.**

Week 2: Data Import & Preparation

- **Connect to data sources: Excel, CSV, web, databases.**

- **Import data into Power BI and Tableau.**

- **Handle common data issues: missing values, duplicates, incorrect data types.**

- **Perform basic transformations: filtering, sorting, splitting columns.**

- **Understand data models: tables, relationships, star schema basics.**

- **Hands-on:**

- **Download a public dataset (Kaggle, World Bank, etc.).**
- **Import, clean, and structure the data.**
- **Document your cleaning and transformation steps.**

Week 3: Building Visuals

- **Choose the right chart type: bar, line, pie, area.**
- **Add tables, KPIs, and cards for key metrics.**
- **Format visuals: colors, fonts, labels, legends, tooltips.**
- **Follow best practices for clarity and accessibility.**
- **Hands-on:**
    - **Create a dashboard with multiple chart types.**
    - **Experiment with formatting options.**
    - **Get peer feedback on clarity and design.**

Week 4: Dashboards & Interactivity

- **Combine visuals into a cohesive dashboard.**
- **Add interactivity: filters, slicers, parameters.**
- **Implement drill-throughs for detailed analysis.**
- **Use bookmarks for guided storytelling.**
- **Hands-on:**
    - **Build a multi-page, interactive dashboard.**
    - **Add filters, slicers, and drill-through actions.**
    - **Create a bookmark-driven "story" about your data.**

Week 5: Advanced Features

- **Create calculated columns and measures using DAX (Power BI).**
- **Use parameters and sets in Tableau.**
- **Blend data from multiple sources (e.g., sales + marketing).**

- **Hands-on:**

    - **Calculate advanced metrics (profit margin, growth rate).**

    - **Blend datasets from different sources.**

    - **Publish your dashboard to Power BI Service or Tableau Public.**

Week 6: Final Project – Global Sales & Profit Dashboard

- **Project scope: Analyze a global company's sales and profit data.**

- **Prepare data: import, clean, model, and transform.**

- **Build visuals: charts, tables, KPIs, cards.**

- **Add interactivity: filters, slicers, drill-throughs, bookmarks.**

- **Apply storytelling: annotate, guide the viewer, highlight insights.**

- **Publish and present: share your dashboard, explain your process and findings.**

- **Hands-on:**

    - **Import and clean the dataset.**

    - **Model and visualize the data.**

    - **Add interactivity and storytelling elements.**

    - **Present your dashboard to the class and gather feedback.**

Tools to Use

- **Power BI Desktop (Free)**

- **Tableau Public (Free)**

- **Microsoft Excel**

- **Public datasets (Kaggle, World Bank, government open data)**

Capstone Project: "Global Sales & Profit Dashboard"

- **Goal: Build an end-to-end, interactive business dashboard.**

- **Tasks:**

- **Prepare and clean the data.**

- **Create a variety of visuals.**

- **Add interactivity and storytelling.**

- **Publish and present your work.**

- **Assessment: Technical quality, clarity, interactivity, storytelling, presentation.**

Career Outcomes

- **Power BI and Tableau are global industry standards for business intelligence.**

- **Hands-on projects and published dashboards are highly valued by employers.**

- **Storytelling and presentation skills are critical for data roles worldwide.**