

Applied Python for Business Intelligence

Duration: 3 days

Prerequisites: Knowledge of Python Programming

Target Audience: Business Analysts, Data Analysts, BI developers

Day 1 – Python for Data Extraction & Preparation

Topics:

1. Introduction to Python in BI
 - BI workflow overview (Data → Insights → Action)
 - Python vs. traditional BI tools
2. Python Basics for BI
 - Data types & structures (lists, dicts, DataFrames)
 - String handling for business data
3. Data Extraction
 - Reading CSV, Excel, JSON
 - Connecting to SQL databases
 - Fetching data from APIs
4. Data Cleaning & Preparation
 - Handling missing values & duplicates
 - Merging datasets & creating calculated KPIs
 - Date/time processing for trend analysis

Labs:

- Import & clean sales + marketing datasets
 - Create calculated metrics like profit margin & ROI
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Day 2 – Analysis, Automation & Visualization

Topics:

1. Business Data Analysis
 - Summarizing KPIs
 - Grouping, aggregating, pivoting
2. Exploratory Data Analysis (EDA)
 - Trend detection, correlation analysis
 - Outlier detection for anomalies
3. Data Visualization
 - Matplotlib, Seaborn, Plotly basics
 - Choosing the right chart for KPIs
4. Automating Reports
 - Exporting to Excel/PDF
 - Scheduling refresh scripts

Labs:

- Create a marketing funnel visualization
 - Build automated monthly sales report with charts
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Day 3 – Interactive Dashboards & Capstone Project

Topics:

1. Building BI Dashboards
 - Interactive dashboards with Plotly Dash / Streamlit
 - Adding filters, drill-downs, and KPIs
2. Data Storytelling for Business
 - Effective chart design
 - Turning numbers into narratives
3. End-to-End Project Workflow
 - Data extraction → cleaning → analysis → visualization → sharing
4. Deployment & Integration
 - Deploy dashboards internally

Capstone Project:

- **Scenario:** Create a **Retail Sales BI Dashboard**
 - Pull data from sales & customer files
 - Clean, calculate KPIs (sales growth, retention rate)
 - Build an interactive dashboard with charts & filters
 - Export automated daily report