KOENIG SOLUTIONS · COURSE OUTLINE

Applied Python for Business Intelligence

Learn to extract, clean, analyse and visualise business data with Python, building automated reports and interactive BI dashboards.

3 Days	12	24	9
DURATION	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers using Python for business intelligence, starting with core data types and structures before extracting data from CSV, Excel, JSON, SQL databases and APIs. It then addresses cleaning and preparing datasets, calculating KPIs, and performing business data analysis through grouping, aggregation and exploratory techniques such as trend and outlier detection. Attention turns to visualising data with Matplotlib, Seaborn and Plotly, and to automating reports with scheduled exports to Excel and PDF. The final stage covers building interactive dashboards with Plotly Dash or Streamlit, data storytelling, and an end-to-end project workflow culminating in a retail sales BI dashboard deployment.

WHO THIS COURSE IS FOR

Target Audience:

Business Analysts **Data Analysts**

BI developers

PREREQUISITES

- Knowledge of Python Programming

LEARNING OBJECTIVES

- Explain the role of Python within the BI workflow
- Apply core Python data types and structures to business data
- Extract data from files, SQL databases and APIs
- Clean and prepare datasets, including missing values and duplicates
- Calculate KPIs such as profit margin and ROI
- Analyse business data through grouping, aggregation and pivoting
- Identify trends, correlations and outliers in datasets
- Build interactive dashboards and automated reports with Python

COURSE SYLLABUS

12 Modules, 24 Topics

DAY 1 Python for Data Extraction & Preparation

01 Introduction to Python in BI

TOPICS

- BI workflow overview (Data → Insights → Action)
- Python vs. traditional BI tools

02 Python Basics for BI

TOPICS

- Data types & structures (lists, dicts, DataFrames)
- String handling for business data

03 Data Extraction

TOPICS

Reading CSV, Excel, JSON · Connecting to SQL databases · Fetching data from APIs

04 Data Cleaning & Preparation

2 Labs

TOPICS

Handling missing values & duplicates · Merging datasets & creating calculated KPIs · Date/time processing for trend analysis

DAY 2 Analysis, Automation & Visualization

01 Business Data Analysis

TOPICS

Summarizing KPIs · Grouping, aggregating, pivoting

02 Exploratory Data Analysis (EDA)

TOPICS

Trend detection, correlation analysis · Outlier detection for anomalies

03

Data Visualization

TOPICS

Matplotlib, Seaborn, Plotly basics · Choosing the right chart for KPIs

04

2 Labs

Automating Reports

TOPICS

Exporting to Excel/PDF · Scheduling refresh scripts

DAY 3

Interactive Dashboards & Capstone Project

01

Building BI Dashboards

TOPICS

- Interactive dashboards with Plotly Dash / Streamlit
- Adding filters, drill-downs, and KPIs

02

Data Storytelling for Business

TOPICS

Effective chart design · Turning numbers into narratives

03

End-to-End Project Workflow

TOPICS

- Data extraction → cleaning → analysis → visualization → sharing

04

5 Capstone Projects

Deployment & Integration

TOPICS

Deploy dashboards internally

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
04	**Data Cleaning & Preparation**	**LABS** ■ Import & clean sales + marketing datasets ■ Create calculated metrics like profit margin & ROI
04	**Automating Reports**	**LABS** ■ Create a marketing funnel visualization ■ Build automated monthly sales report with charts
04	**Deployment & Integration**	**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

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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