

PYTHON EXCEL APPLICATIONS

COURSE OVERVIEW

This course equips participants with practical data analysis and visualization skills by combining the power of Python with the familiarity of Microsoft Excel. Participants learn how to enhance their everyday analytical work using simple, accessible techniques that require no prior programming experience. The course introduces a structured way to transform raw data into meaningful insights by creating automated analyses and professional visual outputs. With a focus on real business scenarios, participants gain confidence in using python analytic built-in feature directly within Excel to reinforce concepts and deepen understanding of the analytical workflow.

TARGET COMPETENCIES

- Data analysis
- Data visualization
- Python fundamentals
- Excel integration
- Statistical concepts
- Analytical reporting
- Exploratory analysis

COURSE OBJECTIVES

By the end of the course, participants will be able to:

- Create DataFrames from Excel tables and ranges using Python
- Examine and prepare datasets for analysis inside Excel
- Generate a range of visual charts directly within Excel using Python
- Interpret statistical outputs to support business decisions
- Apply analytical workflows using Python in Excel to streamline reporting
- Visualize distributions, patterns, and relationships across datasets
- Learn Python skills and scripts

TARGET AUDIENCE

This course is designed for professionals who rely on Excel for decision-making and want to enhance their analytical capabilities using Python inside Excel. Suitable for: Finance Professionals, Business Analysts, Reporting Specialists, Operations Analysts, and MIS Professionals.

NOTE

Participants must bring their own laptop running Microsoft Excel 365 with Python in Excel enabled, as well as Anaconda Jupyter Notebook or access to Google Colab.

COURSE METHODOLOGY

The course combines structured demonstrations, clear explanations, real-world examples, and progressive walkthroughs to develop practical Python-in-Excel skills supported by optional notebook-based practice.

COURSE OUTLINE

INTRODUCTION TO USING PYTHON IN EXCEL

- Python activation and usage within Excel
- Python cell behavior and execution structure
- Table and range recognition within Python cells
- Data input options from Excel worksheets
- Output display and data return options

WORKING WITH DATAFRAMES IN EXCEL

- DataFrame layout and structure elements
- Column and row referencing techniques
- Data cleaning rules and preparation needs
- Handling of missing and inconsistent values
- Grouping, summarization, and aggregation concepts
- Table merging and joining fundamentals

NUMERICAL FOUNDATIONS FOR ANALYSIS IN EXCEL

- Array structure and numeric representation
- Statistical measurement components
- Mathematical operations for numerical analysis
- Interaction between arrays and DataFrames
- Percentile, ranking, and distribution elements

VISUALIZATIONS USING PYTHON INSIDE EXCEL

- Chart figure configuration elements
- Style and formatting structures
- Distribution chart types and components
- Relationship visualization categories
- Categorical visualization structures
- Multi-visual layout organization
- Insight extraction guidelines

EXPLORATORY DATA ANALYSIS USING PYTHON IN EXCEL

- Summary statistics layout and interpretation
- Correlation matrix reading and structure
- Outlier recognition indicators
- Variable pattern exploration components
- Trend identification structures
- Dataset preparation for EDA workflows

ADVANCED VISUAL STRUCTURES AND VISUAL INSIGHTS

- Histogram design elements and layout
- Pair plot relationship structures
- Swarmplot categorical representation layers
- Joint plot configuration types
- KDE distribution principles
- Hex joint plot density logic
- Violin chart distribution interpretation
- Heatmap correlation mapping structure

AUTOMATING ANALYSIS AND VISUALIZATION WORKFLOWS IN EXCEL

- Template creation structure for repeatable analysis
- Parameter adjustment concepts for flexible use
- Data filtering logic using Python within Excel
- Output writing and table-return elements
- Chart export and placement considerations
- Dashboard integration using Python-generated visuals

To register or for complete course information

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