



**THE DATALOGY**  
Empowering Minds With Future Tech

**18 HOURS - 09 CLASSES - 03 WEEKS**

# **PYTHON - ZERO TO HERO**



**PYTHON BASIC TO ADVANCE**



**THE DATALOGY**  
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# PYTHON PROGRAM OUTLINE

**18 HOURS – 9 CLASSES – 3 WEEKS**



## PROGRAM OUTLINE

### Course Welcome and Setup

- Course Overview
- Python Overview
- Anaconda Distribution Installation
- Jupyter Notebook 101
- Jupyter Notebook – Adding Comments in Cells

### OBJECTS, VARIABLES & DATA TYPES

- Objects and Variables Overview
- Numbers
- Strings
- String Operations
- String Methods and Properties
- String Concatenation and Formatting
- Lists
- Dictionaries
- Tuples and Sets
- Booleans





## PROGRAM OUTLINE

### CONTROL, FLOW & LOOPS

- Python Operators
- Control Flow
- For Loops
- For Loops (continued)
- While Loops
- Break, Continue and Pass Statements
- List Comprehension
- IN and NOT IN

### FUNCTIONS

- Built-In Functions
- User Defined Functions
- User Defined Functions – Examples
- Arguments and Keyword Arguments
- Map and Filter
- Lambda Functions
- Errors and Exception Handling





## PROGRAM OUTLINE

### PANDAS (DATA ANALYSIS & MANIPULATION)

- Pandas Overview
- Introduction to Series
- Introduction to DataFrames
- Selecting Data
- Selecting Data 2
- Data Manipulation 1
- Data Manipulation 2
- Data Aggregation and Grouping
- Data Cleansing
- Combining DataFrames
- Windowing Operations

### Working with Dates and Times

- Date and Time Data Types and Operations
- Resampling and Time Series Analysis
- Date Functionality in Pandas





## PROGRAM OUTLINE

### CONNECTING TO DATA SOURCES

- Excel and CSV
- HTML
- Databases
- Pandas Input and Output Methods

### MATPLOTLIB (DATA VISUALIZATION)

- Matplotlib Overview
- Choosing the Right Chart Type
- Creating a Plot Area 1
- Creating a Plot Area 2
- Bar Plots
- Line Plots
- Scatter Plots
- Histograms
- Box Plots and Violin Plots
- Style and Presentation
- Additional Resources and Cheat Sheets





## PROGRAM OUTLINE

### SEABORN (STATICAL DATA VISUALIZATION)

- Seaborn Overview
- Categorical Plots
- Relational Plots
- Distribution Plots
- Regression Plots
- Matrix Plots
- Multi Plot Grids
- Style and Presentation

### AUTOMATING EXCEL OPERATIONS

- Working with Excel files using Pandas and OpenPyXL
- Creating Excel Charts and Pivot Tables Programmatically
- Automating Data Extraction and Formatting
- Using XlsxWriter for Advanced Formatting





## PROGRAM OUTLINE

### WEB SCRAPPING & DATA COLLECTION

- Basics of Web Scraping with BeautifulSoup
- Automating web Data Collection using Requests and Selenium
- Data Storage and Preprocessing after Scraping

### Automating Data Import/Export

- Reading and writing CSV, Excel, JSON, and SQL files
- Automating connections to databases using SQLAlchemy
- Exporting Data to different Formats







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