

KOENIG SOLUTIONS · COURSE OUTLINE

Python Foundations and GitHub Copilot

Learn to write Python programs, handle data with Pandas, and use GitHub Copilot to generate and refactor code.

8 Hours

DURATION

5

MODULES

14

TOPICS

5

HANDS-ON LABS

COURSE OVERVIEW

This workshop provides a complete foundation in Python programming, data handling using Pandas, and hands-on experience with GitHub Copilot

WHO THIS COURSE IS FOR

Python Developers

Data Analysts

Software Engineers

Application Developers

TOOLS AND REQUIREMENTS

Participants should have the following tools and libraries installed before the workshop to ensure a smooth experience:

- Python 3.10 or later (<https://www.python.org/downloads/>)
- VS Code (<https://code.visualstudio.com/>)
- GitHub account (required for Copilot access)
- GitHub Copilot extension installed in VS Code
- Required Python libraries: pandas, numpy, matplotlib, jupyterlab
- Please verify installation by running in cmd: `python -version`
- Please verify installation by running in cmd: `pip install pandas numpy matplotlib jupyterlab`

LEARNING OBJECTIVES

- Explain the roles of interpreters, scripts, and notebooks
- Write basic Python programs using correct syntax and indentation
- Apply core data types and structures such as lists and dicts
- Implement control flow using conditionals, loops, and range
- Develop functions and classes to structure Python code
- Read and write text and CSV files using `open()`
- Analyse and aggregate data using Pandas Series and DataFrames
- Configure and use GitHub Copilot to generate and refactor code

5 Modules, 14 Topics

01

Python Setup & Environment

TOPICS

- Understanding interpreter, scripts, and notebooks
- Writing the first Python program - Hello World
- Understanding indentation, comments, and basic syntax

02

Lab

Core Python - Data Types, Structures & Control Flow

TOPICS

- **Data Types & Variables:** int, float, str, bool; type conversion; operators
- **Data Structures:** Lists, Tuples, Sets, Dicts; access, update, slice, iterate
- **Control Flow:** if/elif/else, for/while loops, break/continue/range

03

Lab

Functions, OOP & File Handling

TOPICS

- **Functions:** define/call, parameters, return, default/variable args, modularity
- **OOP:** classes, objects, attributes, methods, constructors (init)
- **File Handling:** read/write text & CSV, with open() for safe access

04

Lab

Data Handling with Pandas

TOPICS

- **Pandas Basics:** Series, DataFrame, read/write CSV
- **Data Analysis:** inspect, aggregate, handle missing data
- **Exporting:** save to CSV/Excel

GitHub Copilot for Python Developers

TOPICS

- **Setup & Usage:** install in VS Code, prompt writing, Copilot Labs tools
- **AI Coding Ethics:** responsible use, explain/test/refactor with Copilot

HANDS-ON LABS

Practise What You Learn

#	MODULE	ACTIVITY
02	Core Python - Data Types, Structures & Control Flow	Lab 1: Python Basics
03	Functions, OOP & File Handling	Lab 2: Advance Python
04	Data Handling with Pandas	Lab 3: Analyze Sales Data using Pandas
05	GitHub Copilot for Python Developers	■ Lab 4: Deep Research & Code Generation ■ Write docstring, generate code, optimize/refactor with Copilot

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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Flexi (Self-Paced)

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