

# Yet Another Python Course

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## Course Description

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This course is designed for non-developer professionals who want to learn Python from scratch. It focuses on practical skills that can enhance your productivity in various professional roles. The course is interactive, with hands-on exercises and projects to reinforce learning, and is structured to build from basic programming concepts to advanced applications like automation and data analysis.

## Learning Objectives

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By the end of this course, you will be able to:

- Understand basic programming concepts in Python
- Write simple Python programs to automate tasks
- Handle files and data in Python
- Scrape data from the web and interact with APIs
- (Optional) Perform basic data analysis with Python

## Course Structure

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The course is structured into the following modules:

### Module 1: Python Basics

- Introduction to Python and programming concepts
- Variables and data types (integers, floats, strings, booleans)
- Operators (arithmetic, comparison, logical)
- Control flow (if statements, else, elif)
- Loops (for loops, while loops)
- **Exercises:** Simple calculations, conditional statements, loop-based tasks
- **Project:** Write a program to calculate the total cost of items in a shopping list

### Module 2: Functions and Data Structures

- Functions (defining, calling, parameters, return values)
- Data structures (lists, tuples, dictionaries, sets)
- Operations on data structures (slicing, appending, iterating)
- **Exercises:** Create functions for common tasks, manipulate lists and dictionaries
- **Project:** Build a simple contact list application using dictionaries

### Module 3: File Handling and Automation

- Reading and writing text files, CSV files, and JSON data
- Working with directories and file paths (using `os` module)
- Basic automation tasks (e.g., renaming files, copying files)
- **Exercises:** Read/write files, automate file operations
- **Project:** Automate renaming files in a folder based on a pattern

### Module 4: Web Scraping and APIs

- Introduction to web scraping using BeautifulSoup
- Working with APIs (making HTTP requests, parsing JSON responses)
- **Exercises:** Extract data from a website, fetch data from a public API
- **Project:** Scrape weather data from a website and save it to a CSV file

### Module 5: Introduction to Data Analysis (Optional)

- Introduction to pandas for data manipulation (dataframes, series)
- Basic data operations (filtering, sorting, grouping)
- Simple data visualization using matplotlib (e.g., bar charts, line graphs)
- **Exercises:** Clean and analyze a small dataset
- **Project:** Analyze a dataset of sales data and create a bar chart to visualize sales by region