

# **Advanced Python programming**

# 3 day training course







# **Course contents**

This course will cover the following topics. Those marked with (\*) will be covered if time allows.

## Working with sets

- Sets versus lists
- Examples of set use

#### **Dictionaries**

- Key/value pairs
- · Retrieving items
- · Looping over items

# **Functions**

- · Defining functions
- Passing arguments
- Optional arguments
- Modular programming

#### Comprehensions

- List comprehensions
- Generators

# **Scraping websites**

- · Understanding HTML
- The REQUESTS module
- · Using BeautifulSoup

#### Working with CSV files

- · Reading and writing CSV files
- Dictionaries using the CSV module

# **Working with Excel**

- Using OPENPYXL
- · Workbooks, worksheets and cells
- Python for Excel or VBA?

# **Working with JSON**

- The JSON module
- · Loading and dumping data

# Working with databases

- · The PYODBC module
- · Connections and cursors

#### **Pandas**

- · Dataframes and series
- Reading/writing dataframes
- · Filtering, sorting and renaming
- Dataframe calculations

# NUMPY (\*)

- Shapes, ranks and data types
- Slicing arrays
- Array operations

#### Matplotlib

- · Getting data for charting
- · Implicit vs explict references
- Figures, axes and subplots
- · Formatting matplotlib charts

# Power BI and Python (\*)

- Getting Python data
- Python visuals using dataframes

## Introduction to classes

- · An example class
- · Designing properties / attributes
- Designing methods

# **Coding classes**

- Simple classes
- Instantiating objects

#### **Attributes**

- Instance attributes
- Setting attributes on the fly
- Class attributes

#### **Methods**

- · Instance methods
- · Different ways to instantiate
- Class methods

# Read/write properties

- · Getting and setting values
- Private underscored variables
- Action propeties

## Inheritance (\*)

- · Designing for inheritance
- · Inheriting classes
- Overloading
- Using "super"

# **Dunder methods**

- Doc strings
- String representations of objects

## **Understanding existing classes**

- Viewing definitions
- Everything is a class

# A case study (\*)

- Aim of the program
- · Choosing the objects
- Properties or methods?
- Implementing your classes



# **Pre-requisites for Advanced Python programming course**

You must already now how to program in Python to attend this course (an ideal preparation would be to attend our two-day Introduction to Python course).

# **Prices**

Venue	Address	Price per place
<u>London</u>	Landmark, 99 Bishopsgate, London EC2M 3XD	£1,995 per person + VAT
Manchester	Holiday Inn, 25 Aytoun Street, Manchester M1 3AE	£1,695 per person + VAT
Online	Your home or office!	£1,350 per person + VAT

# **Scheduled Dates**

We don't currently have any dates scheduled for this course, but it's always worth contacting us to see if we'll add some. Alternatively, ask us about organizing a customized course at your office (we'll provide and set up the computers, or an online course tailored to your needs.