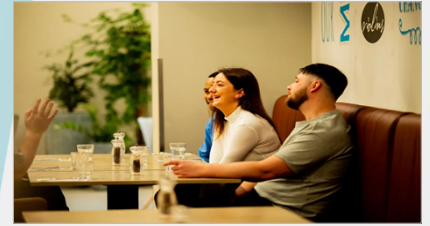


Advanced Python programming

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 explicit 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 properties

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