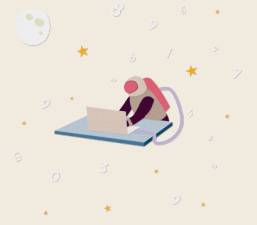# Programming with Python

Level: Intermediate

Duration: 6 hours

The benefit of using a programming language such as Python is that we can automate repetitive tasks. This course covers the fundamental techniques such as functions, for loops and conditional expressions. By the end of this course, you will understand what these techniques are and how they can be applied to solve real-world data wrangling tasks.

Course Outline

- **Control Flow**: Get a handle on the basics of program control flow for your scripts. We will examine iterative looping structures (for loops) and conditional expressions (if statements).
- **Functions**: Define and use your own functions.
- **Comprehensions**: Building new data structures like lists and dictionaries from existing data structures.
- **Help**: Acquiring sources of help from the Python community, to help when debugging.

Learning Outcomes

Session 1:

By the end of session 1 participants will...

- gain understanding of Booleans and conditional statements.
- be comfortable using if-statements to control program flow.
- have learnt how to use loops to perform repetitive tasks.
- understand the enumerate and zip functions to iterate over multiple objects.
- have knowledge on how Booleans can be used to conditionally extract data.

Session 2:

By the end of session 2 participants will...

- know how to write and utilise their own custom functions.
- have learnt how to add documentation for explaining what functions do using docstrings.
- be able to quickly and concisely populate lists and dictionaries with Python's comprehensions.

This course does not include:

- *Extensive* knowledge of Boolean expressions and operators.
- Advanced data analysis, wrangling and manipulation techniques.
- Enough knowledge to compose *complex* visualisations and interactive plots, see our Data Visualisation with Python course.
- Machine and deep learning modelling techniques, see our website for courses on this topic.

Prior Knowledge

The course follows on from the Introduction to Python course. It is assumed that all students have attended this course (or have equivalent skills).

Attendee Feedback

- "Jack (presenter) was excellent, really knew his stuff, answered all the questions, responded to emails between sessions, split the material up well."

Contact

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