

Course Outline | Python Programming Introduction

4 day(s)

Course Outline

Introduction to Python

- Python language characteristics
- The Python execution model

Leveraging Python Built-in Types Manipulating string and numeric literals

- Declaring and initialising variables
- Performing arithmetic calculations
- Making decisions and performing iterations
- Formatting and slicing strings

Aggregating related data

- Accessing positional information in lists
- Representing ordered data with tuples
- Consistently handling data collections with iterators

Organising and Structuring Code Defining and calling functions

- Positional, keyword and default arguments
- Implementing variable-length argument lists
- Iterating with generator functions

Grouping code into modules

- Importing and packages
- Referencing functions from modules by qualification
- Accessing the Standard Library

Implementing Classes and Objects Declaring and modifying objects

- Encapsulating attributes and methods in classes
- Initialising objects with constructors
- Accessing and modifying attributes with methods
- Overloading operators

Inheritance and polymorphism

- Reusing functionality through inheritance
- Extending methods from base classes
- Overriding methods for dynamic behaviour
- Tracing the scope in the namespace
- Enhancing functionality with class decorators

Manipulating the File System Managing files

- Reading and writing text and binary files
- Importing the OS module for directory management

Increasing program robustness through handling exceptions

- Maintaining program control with error handlers
- Detecting errors and raising exceptions

Interfacing with Relational Databases Establishing communication

- Creating a SQL database connection

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- Instantiating cursors to access a database

Executing SQL statements within a Python program

- Retrieving desired data sets
- Updating the database with action statements

Constructing a GUI with Tkinter Building the user interface

- Defining GUI classes with Frames
- Placing widgets and geometry managers

Listening for interface events

- Providing menu items
- Responding to mouse clicks
- Binding event handlers

Developing Web Applications Analysing the request processing pipeline

- Positioning the role of Python
- Mapping requests to Python scripts

Developing MVC with Python

- Integrating the model with a database
- Processing requests with Python controllers

Benefiting from the Django framework

- Improving productivity with code reduction
- Simplifying application development
- Accessing the database and producing HTML with Django templates