Python Programming 1

Duration: 4 Days **Course Code: PYP1**

Overview:

Python Programming 1 Course Overview

English - Please note this course is only available in English.
Nederlands - Let op: deze training is alleen in het Engels beschikbaar.
Français - Veuillez noter que ce cours est uniquement disponible en anglais.

Python is an object oriented rapid development language deployed in many scenarios in the modern world.
This Python Programming 1 course i

Target Audience:

Who will the Course Benefit?

The Python Programming 1 course is aimed at those who want to improve their Python programming skills,and for developers/engineers who want to migrate to Python from another language,particularly those with little or no object-oriented knowledge. For those wishing to learn Python and have no previous knowledge of programming,they should look to attend our foundation course Introduction to Programming - Python.

Objectives:

- Course Objectives
- This course aims to provide the delegate with the knowledge to be able to produce Python scripts and applications that exploit all core elements of the language including variables,expressions,selection and iteration,functions,objects,collections,strings,modules,pattern matching,exception handling,I/O,and classes.

Prerequisites:

Delegates attending this course should have some previous programming experience and be able to define general programming concepts including: compilation,execution,variables,arrays,sequence,selection,iteration ,functions,objects,and classes. Moreover delegates should be able to navigate the filesystem (on the command line ideally),edit and save text files and browse the web. This knowledge can be obtained by attendance on the pre-requisite Introduction to Programming - Python course.

Follow-on-Courses:

Further Learning

- Python Programming 2
- Apache Web Server
- PHP Developer
- Ruby Programming
- Introduction to MySQL
- Introduction to MariaDB

Content:

Python Programming 1 Training Course
Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: GETTING STARTED

- About Python
- Python versions
- Python documentation
- Python runtimes
- Installing Python
- The REPL shell
- Python editors

Session 2: PYTHON SCRIPTS ; SYNTAX

- Script naming
- Comments
- Docstring
- Statements
- The backslash
- Code blocks
- Whitespace
- Console IO (to enable the writing of simple programs)
- A first Python program
- Script execution

Session 3: VARIABLES ; DATA TYPES

- Literals
- Identifiers
- Assignment
- Numbers (bool,int,float,complex)
- Binary,octal,and hexadecimal numbers
- Floating point accuracy
- Collections (str,list,tuple,set,dict)
- None
- Implicit and explicit type conversion (casting)
- The type function

Session 4: OPERATORS ; EXPRESSIONS

- Arithmetic Operators
- Assignment Operators
- Comparison Operators
- Logical Operators
- Membership Operators
- Bitwise Operators
- Identity Operators

Session 5: CONDITIONS ; LOOPS

- Conditional statements (if,elif,else)
- Nested conditional statements
- Short hand if/if else
- Python's alternative to the ternary operator

Session 6: FUNCTIONS

- Declaration
- Invocation
- Default values for parameters
- Named arguments
- args and kwargs
- Returning multiple values
- None returned
- Variable scope
- Masking and shadowing
- The pass keyword
- Recursive functions

Session 7: OBJECTS AND CLASSES

- About objects
- Attributes and the dot notation
- The dir function
- Dunder attributes
- Mutability
- The id function
- Pass by reference
- Introduction to Classes
- Class Declaration and Instantiation
- Data attributes
- Methods
- Composition

Session 8: LISTS

- About lists
- List syntax including slicing
- Getting and setting list elements
- Iterating over a list
- Checking for the presence of a value
- The len function
- List methods incl. append,insert,remove,pop,clear,copy,sort ,reverse etc.
- The del keyword
- Appending to and combining lists
- List comprehension

Session 9: TUPLES

- About tuples
- Tuple syntax
- Getting tuple elements including unpacking
- Iterating over a tuple
- Checking for the presence of a value
- The len function
- Appending to and combining tuples

Session 10: SETS

- About Sets
- Dictionary syntax
- Creating,adding and removing set elements
- Iterating over a set
- Membership Testing

Session 13: MODULES ; PACKAGES

- About modules
- Inbuilt modules math,random and platform
- the dir() and help() functions
- Creating and using modules
- the __pycache__ and the .pyc files
- The module search path
- Importing modules
- Namespaces
- Importing module objects
- The import wildcard
- Aliases
- Importing within a function
- Executable modules
- Reloading a module
- About packages
- Importing packaged modules
- Importing packaged module objects
- Package initialisation
- Subpackages
- Referencing objects in sibling packages
- The Standard Library
- Installing modules and packages using pip

Session 14: PATTERN MATCHING

- About regular expressions
- Regular expression special characters
- Raw strings
- About the re module
- re module functions incl. match,search,findall,full match,split,sub
  Python Programming 1 Training Course
  Course Contents - DAY 4

Session 15: EXCEPTION HANDLING

- About exceptions and exception handling
- Handling exceptions (try,except,else,finally)
- Exception types
- The exception object
- Raising exceptions
- Custom exception types
- Built-in exceptions hierarchy

Session 16: FILES ; THE FILESYSTEM

- The open function
- Methods for seeking (seekable,seek)
- Methods for reading from a file (readable,read,readline,readlines)
- Iterating over a file
- Methods for writing to a file (writable,write,writelines)
- Introduction to context managers
- Text encoding schemes,codepoints,codespace
- ASCII and UNICODE (UTF schemes)
- UTF-8,binary and hexadecimal representations
- The ord() and chr() functions

- Iterative statements (while,for,else)
- The range function
- Iterating over a list
- Break
- Continue
- Nested conditional/iterative statements Python Programming 1 Training Course Course Contents - DAY 2

- Sorting
- Copying
- Set methods incl. union,intersection,difference,symmetric_difference etc. Python Programming 1 Training Course Course Contents - DAY 3

Session 11: DICTIONARIES

- About dictionaries
- Dictionary syntax
- Getting and setting dictionary elements
- Iterating over a dictionary (keys,values,and items)
- Checking for the presence of a key
- The len function
- Dictionary methods incl. keys,values,items,get,pop,popitem,clear etc.
- The del keyword
- Dictionary comprehension

Session 12: STRINGS

- About strings
- String syntax including slicing
- Escape characters
- Triple-quoted strings
- Concatenation
- Placeholders
- The format method
- Other methods e.g. endswith,find,join,lower,replace,split,startswith,strip,upper etc.
- A string as a list of bytes

- Binary files,bytes and bytearray
- I/O layered abstraction.
- About the os module
- os module functions incl. getcwd,listdir,mkdir,chdir,remove,rmdir etc.
- OSError numbers and the errno module

Session 17: DATABASES

- The DB-API
- DP-API implementations
- Establishing a connection
- Creating a cursor
- Executing a query
- Fetching results
- Transactions
- Inserting,updating,and deleting records

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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