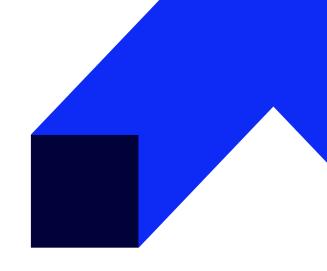


training code: PYTH01 / ENG DL 5d / EN

Programming basics in Python language





Training recipients

The training is intended for people who would like to learn how to design and develop applications using Python language.



Benefits

Students are acquainted with the advantages of programming in high-level Python language, particular emphasis is put on working out instinctive ways to solve issues encountered during work with that language. Theoretical and practical knowledge gained during training constitutes a solid basis for further development on the programmer's path.



Training program

- 1. AN INTRODUCTION TO THE PYTHON LANGUAGE
 - o what is Python?
 - o a brief history of the language
 - philosophy of language (the Zen of Python)
 - first application
 - o installation of the environment
 - working in interactive mode (interactive shell)
 - o choice of integrated environment (IDE)
- 2. BASIC CONCEPTS
 - identifiers
 - o data blocks
 - comments
 - variables



- assignment instructions
- o built-in primitive types and operators
- o control statements conditional statements
- o control statements loops

3. COMPLEX DATA TYPES

- character strings
- formatting strings
- o operations on texts
- tuples
- ranges
- lists
- o access to sequence elements
- o perations on sequences
- sets
- o operations on sets
- dictionaries
- o operations on dictionaries

4. FUNCTIONAL PROGRAMMING

- functions introduction
- defining functions
- function parameters
- o functions with a variable number of parameters
- scopes of variables and the LEGB rule
- functions as arguments
- lambda functions
- o dynamic typing vs. static typing
- o documenting the function code

5. CLASSES AND OBJECTS

- the OOP paradigm (Object-Oriented Programming)
- classes and objects basics
- class attributes
- methods
- class instances
- o instance attributes
- o attribute access control
- defining and using properties
- o data models
- inheritance
- attribute resolution order
- magic methods

6. MODULES AND PACKAGES



- module objects
- o import statement
- o module attributes
- o from statement
- o main program
- o packages
- o package attributes

7. FILE OPERATIONS

- o context manager
- o io package
- o pening files
- closing files
- o attributes and methods of file objects

8. EXCEPTIONS

- o exceptions theory
- o exception handling
- standard exception classes
- custom exception classes
- o assertions

9. IMPORTANT BUILT-IN MODULES AND LIBRARIES

- built-in types
- o built-in functions
- standard library
- o built-in modules
- o popular libraries



Expected preparation of the participant

Recommended knowledge of programming language (structural and object) and knowledge of Linux/Unix/Windows environment.



Duration

5 days / 35 hours



Language

• Training: English