Python Programming with Red Hat

Course code: AD141

As of January 2026, only in-person Red Hat training is available for purchase under the original terms. Virtual training (VT) courses are offered exclusively as part of the annual RHLS Course subscription can be found here.How to schedule a virtual course in the Red Hat Learning Subscription can be found here.Python is a popular programming language used by system administrators, data scientists, and developers to create web applications, custom Red Hat Ansible Automation modules, perform statistical analysis, and train AI/ML models. This course introduces the Python language and teaches fundamental concepts like control flow, loops, data structures, functions, file I/O, regular expressions, parsing JSON, and debugging. This course is based on Python 3 and RHEL 9.0.

Who is the course for

- System administrators and DevOps personnel who want to use Python to automate operating system tasks
- Developers from other programming languages who want to learn Python for writing applications
- AI/ML, data scientists, and engineers who want to use Python for data analysis and machine learning

What we teach you

- Basics of Python syntax, functions and data types
- How to debug Python scripts using the Python debugger (pdb)
- Use Python data structures like dictionaries, sets, tuples and lists to handle compound data
- Learn Object-oriented programming in Python and Exception Handling
- How to read and write files in Python and parse JSON data
- Use powerful regular expressions in Python to manipulate text
- How to effectively structure large Python programs using modules and namespaces
- How to use third-party libraries using the pip CLI tool.

Required skills

- There are no prerequisites for this course.

Course outline

An Overview of Python 3

Introduction to Python and setting up the developer environment

Basic Python Syntax

Explore the basic syntax and semantics of Python

Language Components

Understand the basic control flow features and operators

Collections

Write programs that manipulate compound data using lists, sets, tuples and dictionaries

Functions

Decompose your programs into composable functions

Modules

Organize your code using Modules for flexibility and reuse

Classes in Python

Explore Object Oriented Programming (OOP) with classes and objects

Exceptions

Handle runtime errors using Exceptions

Input and Output

Implement programs that read and write files

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Data Structures

Use advanced data structures like generators and comprehensions to reduce boilerplate code

Regular Expressions

Use powerful regular expressions to manipulate textual data

Parsing JSON

Read and write JSON data

Debugging

Debug Python programs using the Python debugger (pdb)

What you need to know

Impact on the organization

Python is the language of choice for engineering and operations teams in the domain of AI/ML, data science, scientific computing, system administration scripts, and modern cloud-native microservices development. With its simple and readable syntax, its large and powerful standard library, and enormous ecosystem of third party libraries, Python allows organizations to experiment, prototype and bring solutions to market quickly and efficiently.
This course provides a thorough introduction to Python and teaches the syntax, semantics, idioms, tools and libraries to implement Python programs.

Impact of this training

As a result of attending this course, you will be able to program in Python. You will be able to achieve this through learning and demonstrating the following skills:

- Quickly prototype and experiment with using Pythons easy to read syntax, dynamic typing and powerful data types
- Read and write files and JSON data
- Structure large programs using modules and Object Oriented Programming
- Handle errors using Exceptions and troubleshoot applications using the Python debugger
- Manipulate text data using powerful regular expressions and the standard library String functions

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