

APIS AND API DESIGN WITH PYTHON

Course Code: 100417

Learn to design, build, and interact with APIs using Python.

Application Programming Interfaces (APIs) have become increasingly important as they provide developers with connectivity to everything from rich datasets in an array of formats (such as JSON) to exposing the configuration of software applications and network appliances. This class focuses on using Python to interact, design, and build APIs for automated scripting solutions for complex tasks.

What You'll Learn

Join an engaging hands-on learning environment, where you'll learn to:

- Develop Python scripts to communicate with RESTful (and non-RESTful) APIs
- Design RESTful API interfaces
- Use Python to open SSH sessions and pass commands
- Move files via SFTP
- Parse and manipulate popular data structures (JSON, XML, CSV, and YAML)
- Manage errors
- Interface with the operating system
- Create expressions for parsing

This is a lab-intensive hands-on course with engaging instruction, demos, and discussions.

Who Needs to Attend

System Administrators, Network Engineers, and Developers

Prerequisites

Before attending this course, you should have:

- Basic familiarity with any programming or scripting language

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VIRTUAL CLASSROOM LIVE

\$2,195 USD

5 days

Virtual Classroom Live Outline

1. Python Review

- Lists
- Dictionaries
- Tuples
- Conditionals (if, elif, else)
- Loops (for and when)
- Functions
- Variable Scope - Review
- Converting boiler plate code to functional code
- Writing Functions (reusable code)
- Using pip
- Useful 3rd party modules
- Publishing a module
- Documenting modules

2. OS Interfacing

- Operating System interfacing with OS module
- OS module - listdir(), getcwd(), mkdir()
- Common sys Module Attributes & Methods
- Working With the os Module & Files/Directories
- Walking File Trees with os.walk()
- File, Path and Directory Examples
- Working with os.path
- os & os.path Module Examples
- Environmental Variables
- Running Shell Commands
- Compressing and archiving (gzip, tar, zip)

3. Web and RESTful APIs

- REST

- REST APIS and HTTP CRUD
- REST and OpenStack
- URI analysis and formation
- Wireshark capturing
- cURL
- Etcd keystore
- Creating a Python client to interact with API endpoints
- API dev keys
- SSH and Python
- Secure password retrieval
- Tokens and APIs

4. Python Protocol Clients

- Scripting the browser
- Scripting with HTTP
- Creating an HTTP Client & Server
- Python and SSH
- Building an SFTP Client & Server
- Python and SFTP limitations
- Paramiko for SSH
- Netmiko and Major Network Vendors (Cisco, Juniper, Arista)

5. JSON, YAML, XML, CSV and Excel

- JSON RFC 7159
- JSON Formatting
- YAML intro
- YAML lists
- YAML dictionaries
- YAML line spanning
- Reading YAML is easy
- XML
- CSV
- Import json
- Import yaml
- Decoding json and yaml to use
- Using python to decode data structures like YAML, XML, CSV, and JSON
- Reading from Excel
- Writing to Excel

6. Generating and Sending Emails

- Overview of email modules
- Creating simple emails
- Interfacing with your email account

7. Dates and Times

- Python and Cron

- Import time and time.time()
- Suspending with sleep()
- Dealing with time
- Time formatting
- Time tuples
- Creating Calendars

8. Python Regular Expression (Regex)

- Metacharacter review
- Re modules
- search() and match()
- findall()
- Compiling regex search patterns
- Creating highly efficient searches
- Sorting data sets
- Complex sorts
- sort() vs sorted()
- Sorting with functions
- Applying Regex to file searches
- Applying Regex to API results

9. Code Review

- Best practice
- Using pylint
- Conventions
- Underscore
- Double underscore
- Monkey Patching

10. Web API Design with Flask

- Flask Overview
- Decorators
- Building APIs with Python and Flask
- APIs returning Jinja2 templating
- Returning a 'cookie'
- Building Sessions
- Redirecting from URIs
- Build an API to accept a file upload

11. SQLite

- Overview
- Connecting to Python
- Read / Write operations
- Other useful instructions
- Connecting APIs and SQLite
- Reading and Writing to Databases with APIs

12. Processes and Threads

- Threading
- Context change
- Deadlock errors
- Thread starvation
- Racing conditions and racing specifics
- Working with Locks

Virtual Classroom Live Labs

Lab 1 - Using vim

Lab 2 - Making a Github account

Lab 3 - Getting dir(obj) help() and pydoc

Lab 4 - Lists

Lab 5 - Dictionaries

Lab 6 - Python Data to JSON file

Lab 7 - Python Data to YAML file

Lab 8 - import time

Lab 9 - List and Dict Modeling

Lab 10 - try and except

Lab 11 - Construct a SimpleHTTPServer and HTTP Client

Lab 12 - RESTful Open APIs

Lab 13 - APIs and JSON Decode

Lab 14 - requests library

Lab 15 - APIs and Dev Keys

Lab 16 - RESTful APIs and Dev Keys

Lab 17 - getpass - Secure Password Retrieval

Lab 18 - Paramiko SFTP with UN and PW

Lab 19 - Paramiko SSH with RSA

Lab 20 - Scripting Commands over SSH

Lab 21 - Argument Parsing

Lab 22 - Making Excel Sheets

Lab 23 - Reading Excel Sheets

Lab 24 - Timestamping Data

Lab 25 - API Tokens and Subjects

Lab 26 - RegEx to Check IP Address

Lab 27 - Use RegEx to Search Text

Lab 28 - Search and Replace Data

Lab 29 - Compiling Search Objects

Lab 30 - Testing of a Match Exists

Lab 31 - Getting sorted()

Lab 32 - Sort Stability and Complex Sorts

Lab 33 - CSV data
Lab 34 - Unpacking Arguments
Lab 35 - XML Parsing with ElementTree
Lab 36 - Automating SMTP and Extended SMTP (Email)
Lab 37 - Archive with zipfile
Lab 38 - Building APIs with Python
Lab 39 - Flask APIs and Jinja2
Lab 40 - Flask APIs and Cookies
Lab 41 - Flask Sessions
Lab 42 - Flask Redirection and Errors
Lab 43 - Flask Uploading Files
Lab 44 - Connecting an API to a Database
Lab 45 - Learning sqlite3
Lab 46 - Tracking API Data with sqlite3
Lab 47 - Tracking Inventory with sqlite
Lab 48 - Working with Threads

Feb 14 - 18, 2022 | 10:00 AM - 6:00 PM EST

Mar 28 - Apr 1, 2022 | 10:00 AM - 6:00 PM EST



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PRIVATE GROUP TRAINING

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Visit us at www.globalknowledge.com or call us at 1-866-716-6688.

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