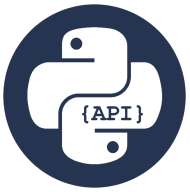

Building APIs with Python

- 5 Day Course
- Lecture and Lab
- Every course includes the opportunity to earn an API Design with Python certification from Alta3 Research.

Course Overview

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 configurability of software applications and network appliances. Lessons and labs focus on using Python to interact, design, and build APIs for the purposes of scripting automated solutions to complex tasks. Class is a combination of live demonstrations and hands-on labs.

Review this course online at https://www.alta3.com/courses/api

Who Should Attend

- System Administrators
- Network Engineers
- Software Developers
- Python Enthusiasts

What You'll Learn

- Client side Python Scripting to RESTful (and non-RESTful) APIs
- Design RESTful API interfaces with Flask Web Framework
- Overview of Django
- Deploy your Python web apps as Docker containers
- Parse and manipulate popular data structures (JSON, CSV, Excel, and YAML) as pandas dataframes
- Best practice techniques
- AI LLM prompt engineering for generating jumpstart solutions

Outline

Certification

- Lecture + Lab: API Design with Python - Alta3 Research Certification Project

Intro to APIs

- Lecture: Intro to APIs

Software Control Management

- Lecture + Lab: SCM Option #1 - GitHub
- Lecture + Lab: SCM Option #2 - GitLab

Python

- Lecture: Object Oriented Programming for APIs
- Lecture: Practical Application of Lists
- Lecture + Lab: Lists
- Lecture: Practical Application of Dict
- Lecture + Lab: Dictionaries
- Challenge: List and Dict Modeling
- Lecture + Lab: Your First API Request

Working with JSON Data

- Lecture: Python Data sets vs JSON
- Lecture + Lab: Python Data to JSON file

RESTful APIs

- Lecture: Introduction to HTTP
- Lecture + Lab: Standard vs. Third Party Libraries and Open APIs
- Lecture + Lab: requests library - Open APIs
- Lecture + Lab: requests library - RESTful GET and JSON parsing
- Lecture: APIs and JSON Decode
- Challenge: Key-pairs and HTTP GET

RESTful APIs beyond HTTP GET

- Lecture: HTTP GET vs HTTP POST
- Lecture + Lab: requests library - GET vs POST to REST APIs

Authentication

- Lecture + Lab: APIs and Dev Keys
- Lecture + Lab: RESTful APIs and Dev Keys
- Lecture: OAuth

Python WebServer and Client

- Lecture + Lab: Construct a SimpleHTTPServer and HTTP Client

Best Practice

- Lecture: RESTful API Best Practices

Building APIs with Flask

- Lecture: Intro to Flask
- Lecture + Lab: Building APIs with Python
- Lecture: Introduction to Jinja
- Lecture + Lab: Flask APIs and Jinja2
- Challenge: Jinja2
- Challenge: Jinja2 Solution
- Lecture + Lab: Flask APIs and Cookies
- Lecture + Lab: Flask Sessions
- Lecture: Controlling your APIs
- Lecture + Lab: Flask Redirection, Errors, and API Limiting
- Lecture + Lab: Flask Uploading and Downloading Files

Database Integration

- Lecture: Learning sqlite3
- Lecture + Lab: Tracking API Data with sqlite3
- Lecture + Lab: Tracking Inventory with sqlite3

APIs within Enterprise

- Lecture + Lab: Flask and waitress
- Lecture + Lab: Running Flask in a Docker Container

FastAPI

- Lecture + Lab: Introduction to FastAPI

Building APIs with Django

- Lecture: Introduction to Django
- Lecture + Lab: Introduction to Django

Django Basics

- Lecture + Lab: Intro to Django Views
- Lecture + Lab: Controlling HTTP Response Codes
- Lecture + Lab: Returning JSON with Django
- Lecture + Lab: Making requests with Django

Django App

- Lecture + Lab: Django App Design - To-Do app

Designing APIs

- Lecture + Lab: Swagger

Prerequisites

- Recommended Prerequisite: Python Basics (5 days)
- Coding experience in another language serves as an adequate prerequisite

Certification

- Alta3 Research Python 201 - API and RESTful API - Certification Project