Advanced Python in an AI World

- 3 Days
- Lecture and Hands-on Labs

Course Overview

In this advanced Python course you'll deepen your mastery of the language by exploring complex data structures and file I/O, building robust CLI tools with argparse, enforcing code quality with pylint and unit tests, and interacting with REST APIs and web data through requests and Beautiful Soup. You'll utilize pandas for real-world data analysis, leverage virtual environments for dependable dependency management, and apply object-oriented design patterns and detailed logging to create scalable, maintainable applications. By the end, you'll be writing senior-level Python code that automates workflows, integrates third-party services, and stands up to production demands.

Review this course online at https://www.alta3.com/courses/py102

Who Should Attend

- Software Developers
- Project Managers

What You'll Learn

- Solidify Python fundamentals: work confidently with lists, dicts, strings, loops, conditionals, and file I/O.
- Leverage GitHub and GitLab for source control—branching, merging, and collaborating like a pro.
- Consume and produce data via RESTful APIs, CSV/JSON parsing, web scraping with Beautiful Soup, and form automation with Selenium.
- Control your runtime: build CLI tools with argparse, manage environment variables, write unit tests, and timestamp operations.
- Design and implement robust OOP solutions and analyze data using classes, Jupyter notebooks, and pandas.

Outline

Software Control Management

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

Day 01 - Python Review

- Lecture + Lab: Collect user input()
- Lecture: Python Lists
- Lecture + Lab: List Objects and Methods
- Lecture: Python Dictionaries
- Lecture + Lab: Python Dictionaries

- Lecture + Lab: Getting dir(obj) help() and pydoc
- Lecture: Python Strings
- Lecture + Lab: String Methods
- Lecture + Lab: Introduction to looping
- Lecture: Reading and Writing to Files
- Lecture: Conditionals
- Lecture + Lab: Testing if conditionals
- Lecture + Lab: Using while, if, elif, else (Monty Python)
- Lecture + Lab: pip, import and PyPi Packages to Know
- Lecture + Lab: os.walk() the Directory Tree

Day 02 - APIs and Front End Web Calls

- Lecture + Lab: Timestamping - import time datetime
- Lecture + Lab: Best Practice and pylint
- Lecture + Lab: Restful Open APIS with Standard Library
- Lecture + Lab: CSV data - Standard Library and pandas dataframes
- Lecture + Lab: Pandas dataframes with Excel, csv, json, HTML and beyond
- Lecture + Lab: APIs, pip, and requests
- Lecture: Introducing the Dell PowerFlex
- Lecture + Lab: Web Scraping Data with Beautiful Soup
- Lecture: Automating Front-End Web Forms
- Lecture + Lab: Packaging Python Projects

Day 03 - Runtime and Review

- Lecture + Lab: Using Argparse
- Lecture + Lab: requests library - Open APIs
- Lecture + Lab: APIs and Dev Keys
- Lecture + Lab: RESTful APIs and Dev Keys
- Lecture + Lab: Controlling run time with Environmental Variables
- Lecture + Lab: Python Unit Testing
- Lecture + Lab: VMWare NSX Automation
- Lecture + Lab: Creating Classes
- Lecture + Lab: Inheritance
- Lecture + Lab: Using Classes
- Lecture + Lab: Introduction to Jupyter Notebook
- Lecture + Lab: Examining Cashflow with Pandas

Prerequisites

- PY100 or similar basic python experience