Certified Assoicate in Python Programer (PCAP)

Course Duration: 2 Days
Exam Reference: PCAP

Course Overview

Python® is a versatile programming language that has many benefits for aspiring programmers and other industry professionals. Going beyond the basics of the language will help unlock significant capabilities for optimizing development time and incorporating robust program logic.

In this course, you will apply intermediate-level concepts and skills associated with Python 3, including object-oriented programming, modules and packages, string manipulation, input/output operations, and more.

Prerequisites

To ensure your success in this course, you should have knowledge of Python basics, including syntax, data types, data structures, conditional statements, loops, functions, and basic exception handling. You should also be comfortable writing simple Python code.

You can obtain this level of skills and knowledge by taking the *Certified Entry-Level Python Programmer (PCEP™)* course.

PythonPCourse Objectives

In this course, you will employ Python skills at an intermediate level. You will:

- Perform input/output operations.
- Handle strings.
- Use an object-oriented approach to developing Python applications.
- Streamline code logic and scope.
- Work with modules and packages.
- Handle exceptions.

APPLIED TECHNOLOGY ACADEMY

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Course-Specific Technical Requirements

Hardware:

For this course, you will need one computer for each student and one for the instructor. Each computer will need the following minimum hardware configurations:

- 2 gigahertz (GHz) 64-bit (x64) processor that supports the VT-x or AMD-V virtualization instruction set *and* Second Level Address Translation (SLAT).
- 8 gigabytes (GB) of random-access memory (RAM).
- 20 GB available storage space.
- Mouse, keyboard, and monitor.
- High-speed, stable Internet connection.
- For the instructor's computer, a method to project and/or share the screen as needed for local and remote class participants.

Software:

- Microsoft® Windows® 10 or 11 64-bit.
- Oracle® VM VirtualBox version 7.0.6 (**VirtualBox-7.0.6-155176-Win.exe**). *VirtualBox is distributed with the course data files under version 2 of the GNU General Public License (GPL).*
- If necessary, software for viewing the course slides. (Instructor machine only.)

NOTE: While it is possible to run VirtualBox on other operating systems, this course was written and tested using Windows 11. If your classroom computers will use a different operating system, it is highly recommended that you install and test VirtualBox and the course VM on the computers to make sure you can key through the course successfully before delivering a class.

NOTE: The Linux operating system is already installed on the VM that will be loaded in VirtualBox. Specifically, this VM runs the Lubuntu 22.04 ("Jammy Jellyfish") distribution.

NOTE: The system on the VM is configured to log the user in automatically. If you or your students are prompted at any time to log in, the account is named **student** and the password is **Pa22w0rd**.

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Course Outline

Lesson 1: Performing Input/Output Operations
- Topic A: Output Data to Files
- Topic B: Input Data from Files

Lesson 2: Handling Strings
- Topic A: Work with Character Encodings
- Topic B: Operate on Strings

Lesson 3: Using an Object-Oriented Approach
- Topic A: Implement Object-Oriented Programming
- Topic B: Define and Instantiate Classes
- Topic C: Work with Class Inheritance

Lesson 4: Streamlining Code Logic and Scope
- Topic A: Perform List Comprehensions
- Topic B: Use Lambda Functions
- Topic C: Use Closures

Lesson 5: Working with Modules and Packages
- Topic A: Import and Use Modules
- Topic B: Work with Built-In Python Modules
- Topic C: Create Custom Modules and Packages

Lesson 6: Handling Exceptions
- Topic A: Work with Built-In Exceptions
- Topic B: Work with Custom Exceptions