

# Certified Entry-Level Tester with Python

**Duration: 2 Days**

**Course Description:**

The "Certified Entry-Level Tester with Python" course is designed to equip aspiring software testers with fundamental testing methodologies, coupled with practical Python programming skills. Over the span of five days, participants will gain hands-on experience in writing test cases, understanding testing lifecycle, and utilizing Python to automate testing processes. By the end of the course, learners will have a strong foundation to pursue a career in software testing with Python as a tool to enhance their testing capabilities.

**Target Audience:**

The Certified Entry-Level Tester with Python course equips individuals with foundational skills in software testing and Python programming, ideal for aspiring testers and professionals aiming to enhance their technical skills.

- Aspiring Software Testers
- Junior Quality Assurance Analysts
- Entry-Level Test Engineers
- Software Development Interns
- Python Developers interested in testing
- IT Professionals transitioning to testing roles
- Technical Support Engineers focusing on product quality
- Students pursuing IT or Computer Science degrees
- Freelancers seeking to expand their skill set
- Career changers exploring opportunities in software testing
- Educators teaching software development and testing methodologies

**Prerequisites:**

To ensure a successful learning experience in the Certified Entry-Level Tester with Python course, students should have the following minimum knowledge and skills:

- Basic understanding of software testing concepts and methodologies.
- Familiarity with Python programming fundamentals, including variables, conditions, loops, and functions.
- Basic knowledge of using a computer and navigating development environments.
- A willingness to learn and experiment with new concepts in testing and programming.

These prerequisites will help students maximize their understanding and engagement throughout the course, setting them up for success as they embark on their journey to becoming proficient testers with Python.

**Course Objectives:**

- Understand the principles and importance of software testing.
- Gain proficiency in Python programming for test automation.
- Learn various testing types, including unit, integration, and acceptance testing.
- Develop skills in writing test cases and documenting testing processes.
- Familiarize with the software development lifecycle and testing methodologies.
- Explore tools and frameworks supporting Python in testing environments.
- Improve debugging techniques to identify and resolve issues effectively.
- Understand the concepts of continuous integration and testing.
- Learn to create and maintain automated test scripts.
- Cultivate the ability to collaborate with development teams for enhanced product quality.

**Course Outlines:**

**Day 1: Introduction to Software Testing and Python Basics**

- Overview of Software Testing: Understand the importance of software testing in the software development lifecycle and the role of a tester.
- Types of Testing: Learn about various testing types, including manual and automated testing, unit testing, and integration testing.
- Introduction to Python Programming: Get acquainted with Python syntax, data types, and basic operations.
- Setting Up Python Environment: Install Python and configure the development environment for writing and executing Python scripts.
- Writing Your First Python Script: Practice writing simple Python scripts to reinforce basic programming concepts.

**Day 2: Python Programming for Testers**

- Python Control Structures: Explore loops, conditionals, and control flow to handle different scenarios in test scripts.
- Functions and Modules in Python: Understand how to define functions and organize code into reusable modules.
- Error Handling and Debugging in Python: Learn techniques to handle exceptions and debug Python code effectively.
- File Handling in Python: Gain skills in reading from and writing to files, crucial for managing test data.
- Introduction to Python Libraries: Discover popular Python libraries used in testing such as unittest and pytest.

**Day 3: Fundamentals of Test Case Design**

- Understanding Test Case Design: Learn the principles of creating effective and comprehensive test cases.
- Writing Test Cases in Python: Write test cases using Python's unittest framework and understand the structure of a test case.
- Test Data Management: Explore techniques for managing and organizing test data for various testing scenarios.
- Test Execution and Reporting: Execute test cases and generate reports to analyze test results.
- Introduction to Test Automation: Discuss the benefits and challenges of test automation and its role in software testing.

**Day 4: Advanced Python for Testing**

- Advanced Python Concepts: Delve into object-oriented programming, decorators, and generators to write more efficient test scripts.
- Using Pytest for Testing: Learn to use the pytest framework for advanced testing capabilities, including fixtures and parametrization.
- Mocking and Patching in Python: Understand how to use mock objects to isolate test environments and simulate real-world conditions.
- Continuous Testing with Python: Explore continuous testing practices and integrate Python test scripts into CI/CD pipelines.
- Understanding Code Coverage: Learn to measure code coverage and ensure comprehensive test coverage of the codebase.

**Day 5: Real-World Testing Scenarios and Certification Preparation**

- Testing Web Applications with Python: Gain skills in using Selenium with Python to automate web application testing.
- Testing REST APIs with Python: Understand how to test RESTful APIs using Python libraries such as requests.
- Performance Testing Basics: Introduction to performance testing techniques and tools to assess application performance.
- Preparing for the Certification Exam: Review key concepts and practice sample questions to prepare for the certification exam.
- Final Project: Apply the skills learned throughout the course in a capstone project that simulates a real-world testing scenario.

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