



1 Python Training for Manual ETL Testers and Python Testers

 Duration: 20+ Hours

 Target Audience: Manual ETL Testers with no or limited Python experience (Python Tester also can attend)

 Prerequisites: Basic understanding of ETL, SQL, and databases

Module 1: Introduction to Python for ETL Testers

- Why Python for ETL testing?
- Installing Python, setting up IDEs (Jupyter, PyCharm, VS Code)
- Writing your first Python script

Module 2: Python Fundamentals for ETL Testers

- Variables, Data Types, Operators
- Conditional Statements (if-else)
- Loops (for, while)
- Functions and Lambda Expressions
- Exception Handling

Module 3: File Handling for ETL Data

- Reading/Writing Text and CSV Files
- Handling Excel Files with openpyxl
- Parsing JSON and XML

Module 4: Database Connectivity with Python

- SQL Basics Refresher (Joins, Aggregations, Queries)
- Connecting to Databases with pyodbc and SQLAlchemy
- Executing Queries and Handling Stored Procedures

Module 5: Pandas for ETL Data Handling

- Introduction to Pandas DataFrames
- Data Cleaning (Handling Missing Values, Duplicates)
- Data Transformation (Sorting, Filtering, Aggregation)
- Exporting Data to CSV, Excel, and Databases

Module 6: Introduction to Testing Frameworks in Python

- Why Automated Testing for ETL?
- Introduction to unittest and pytest
- Writing Test Cases for ETL Data Validation

Capstone Project: Manual ETL Testing with Python

- End-to-End ETL Data Validation
- Reading Source Data, Transforming, and Comparing with Target
- Generating Test Reports