Learnsoft
ENTERPRISE TRAINING

PostgreSQL with Python

Length: 5 Days

Summary: PostgreSQL (also known as Postgres) is an open-source relational database management system or RDBMS built for handling large data workloads. Python is a dynamic and flexible programming language that supports various databases, such as MySQL, Oracle, PostgreSQL, etc.

In addition, this course will provide programmatic interaction with PostgreSQL databases. Learn techniques, syntax, and structures needed to develop quality applications using PostgreSQL backend.

This instructor-led training is aimed at developers and administrators who wish to use PostgreSQL with Python to build secure, reliable, and stable applications at scale.

By the end of this training, participants will be able to:

- Install, configure, and connect PostgreSQL with Python.
- Python programming fundamentals.
- Understand the benefits of using PostgreSQL with Python.
- Learn how to perform basic SQL operations with Python.
- Learn how to use the advanced PostgreSQL features with Python.
- Implement data safety, security, monitoring, and optimization techniques.

COURSE CONTENT

INTRODUCTION TO POSTGRESQL

- A Brief History of PostgreSQL
- Features
- Internals Summary
- Terminology
- Overview of PostgreSQL features and architecture
- Python programming fundamentals
- Advantages of Python PostgreSQL
- Python tools to use with PostgreSQL
- Connecting to PostgreSQL with Python

THE POSTGRESQL LANGUAGE

- SQL Syntax
- Data Definition
- Data Manipulation
- Queries
- Data Types
- JSON
- Functions and Operators
- Type Conversion
- Indexes

ADVANCED POSTGRESQL

- Extending SQL
- Triggers
- The Rule System
- Procedural Languages
- PL/pgSQL - SQL Procedural Language
- Error Handling
- Cursors

PYTHON AND SQL OPERATIONS
- The basics of SQL language
- Database schema and tables
- Writing a Python query
- Creating tables
- Inserting data
- Manipulating data
- Using limit clause
- Joining tables
- Full-text search
- Working with SQLite
- Examples of Python applications

ADVANCED POSTGRESQL WITH PYTHON
- Table inheritance
- Nested transactions
- User-defined types
- VIEWS, HAVING, DISTINCT
- Working with dates and times
- Multi-version concurrency control (MVCC)
- Charts, graphs, and reports using matplotlib

BEST PRACTICE & DATABASE OPTIMIZATION
- Logging in PostgreSQL
- Query Plans
- Optimizing Queries
- Statistics
- Planner Parameters
- Parallel Query Scans
- SQL Best Practices
- Indexes
- Table Partitioning