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# TinkerPop training

3 days (21 hours)

## Presentation

Tinkerpop uses an agnostic system to support any language that compiles to a Gremlin traversal.

With TinkerPop, a graph language designer no longer has to worry about the sequential, parallel or distributed execution of his language.

What's more, if a graph system provider implements the GraphComputer API, Gremlin traversals can run on their multi-machine partitioned graphs.

Apache TinkerPop is an Open Source framework for graph databases (OLTP) and analytical graph systems (OLAP) using the Gremlin language.

This TinkerPop training course introduces you to the latest [version 3.5](#).

## Objectives

- Be able to install and use TinkerPop and its new features independently
- Understand the concept of a graph and be able to use it in Tinker Pop
- Handle large volumes of data using best practices in Tinker Pop

## Target audience

- Developers
- Architects
- Data Analyst
- Data Scientist

## Prerequisites

- Basic knowledge of SQL
- Basic knowledge of Python

## TinkerPop training program

### Introduction to Graph Computing

- The Graph Structure
  - Mutating
- Graph Process
  - Cross
- On Gremlin Language Variants
- Graph System Integration

### Graph

- Features
- Vertex property
- Variables
- Transactions
  - Configuration
  - Retries
  - Threaded
- Gremlin I/O
  - GraphML Reader/Writer
  - GraphSON Reader/Writer
  - Types embedding
  - Gryo Reader/Writer
  - Data Migration with TinkerPop2
- Namespace Conventions

### Traversal

- Steps
- Vertex property
- Predicate
- Barriers
- Lambdas
- Strategy
- Java
- Python

### GraphComputer

- VertexProgram
- MapReduce

- Collection
  - PageRankVertexProgram
  - PeerPressureVertexProgram
  - BulkDumperVertexProgram
  - BulkLoaderVertexProgram
  - TraversalVertexProgram
  - Distributed Gremlin Gotchas
- Graph Filter

## Gremlin Applications

- Console
  - Mode: Execution - Interactive
- Server
  - Configuration
  - Serialization
  - Remote
  - Tuning
- Plugins
  - Credentials Plugin
  - Gephi Plugin
  - Server Plugin
  - Sugar Plugin (Traversal Methods, Range Queries, Logical Operators)
  - Benchmark
- Gremlin Archetypes

## Implementations

- TinkerGraph-Gremlin : Configuration
- Neo4j-Gremlin
  - Indices
  - Multi / Meta-Properties
  - Cypher
  - Multi-Label
  - Loading with BulkLoaderVertexProgram
  - High Availability Configuration
- Hadoop-Gremlin
  - Installation
  - Properties Files
  - OLTP Hadoop-Gremlin
  - OLAP Hadoop-Gremlin: SparkGraphComputer, GiraphGraphComputer
  - Input/Output Formats Gryo, GraphSON, Script
  - Storage Systems (HDFS, Spark)

## Gremlin Variants

- Gremlin-Java
- Gremlin-Groovy

- Gremlin-Python
  - RemoteConnection Submission
  - Gremlin-Python Sugar
  - Static Enums and Methods
  - Bindings
  - Traversal Strategies
  - The Lambda Solution
  - Custom Serialization

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.