Cognixia®

COURSE CONTENT

COURSE NAME

Neo4j (Customized)

DURATION

5 Days

COURSE OUTLINE

Day 1

Introduction to Neo4j (Conceptual)

Introduction to Graph Database (Conceptual)

- What is database?
- What is graph?

Neo4j - Building Blocks (Conceptual)

- Graph Database
- Data Modeling with Graphs
  - o Node
  - o Label
  - o Property
  - o Relationship

Neo4J Data Modeling Hands-on (Practical)

Neo4J Architecture (Conceptual)

Connecting to Neo4j (Practical)

- From the command line using the Neo4j shell
- From the command line using curl
- Accessing the embedded Neo4j from Python
- Accessing Neo4j from Python using the REST bindings

The Cypher Query Language (Practical)

- Introduction
- Creating your first node and relationship using Cypher
- Querying nodes and relationships using Cypher
- Deleting data from Neo4j using the Cypher query
- Boolean operators with Cypher

- Changing the order of results with Cypher
- Limiting and skipping results with Cypher

Day 2

Installation & Configuration (Practical)

- Neo4j Desktop — About Neo4j Desktop
- Installation on Linux.
- Cloud Deployment
- Configuration
  - o An introduction to the primary configuration file in Neo4j.
  - o File locations
  - o Ports
  - o Set initial password
  - o Password and user recovery
  - o Configure Neo4j connectors
  - o Configure dynamic settings
  - o Transaction logs

Overview of Neo4j Administration (Conceptual)

- Describe common application architectures that use Neo4j.
- Determine which edition of Neo4j to use.
- Download a specific Neo4j version.
- Determine which deployment option to use.
- Describe the administrative tasks for Neo4j.

Managing a Neo4j Database (Practical)

- Start a Neo4j instance.
- Stop the Neo4j instance.
- Set the password for the neo4j user.
- Copy a Neo4j database.
- Modify the location for a Neo4j database.
- Check the consistency of a Neo4j database.
- Create scripts for modifying a Neo4j database.
- Manage plugins for a Neo4j database.
- Configure ports used by the Neo4j instance.
- Perform backup of a Neo4j database.
- Restore a Neo4j database.
- Create a database with the import tool.

Day 3

Managing Multiple Databases in Neo4j (Practical)

- Reviewing the initial databases
- Creating a new database
- Loading data and working with Movie database
- Cleaning out database within same instance

Casual Clustering in Neo4j (Practical)

- Describe why you would use clusters.
- Describe the components of a cluster.
- Deploy a cluster
- Configure and use a cluster.
- Seed a cluster with data.
- Discovery
- Monitor and manage core servers in the cluster.
- Monitor and manage read replica servers in the cluster.
- Back up a cluster.

The Raft Consensus Algorithm (Conceptual)

- What is Raft?
- Wat is consensus?
- Leader election
- Log Replication
- Safety
- Cluster membership
- Replicated State Machines
- Fault tolerance in Raft

Causal Clustering lifecycle (Conceptual)

- Introduction
- Discovery protocol
- Core membership
- Read Replica membership
- Transacting via the Raft protocol
- Catchup protocol
- Read Replica shutdown
- Core shutdown

Day 4

Security in Neo4j (Conceptual)

- Describe what security means for an application.
- Describe how to secure data-in-transit.
- Describe how to secure data-at-rest.
- Configure and use security auditing.

Monitoring Neo4j (Practical)

- Describe the categories of monitoring and measurement you can perform with Neo4j.
- Monitor:
  - queries
  - transactions
  - connections
  - memory usage
- Manage log files.
- Manage the collection of Neo4j metrics.
- Use JMX queries.

Neo4j Performance Tuning (Conceptual + Practical)

- Memory configuration
- Index configuration
- Garbage collector
- Bolt thread pool configuration
- Linux file system tuning
- Disks, RAM and other tips
- Statistics and execution plans

Day 5

Tools (Practical)

- A description of the Neo4j Admin tool
- How to check the consistency of a Neo4j database using Neo4j Admin
- How to collect the most common information needed for remote assessments
- How to display information about a database store
- How to get an initial recommendation for Neo4j memory settings

- How to import data into Neo4j using the import tool
- How to dump and load Neo4j databases using Neo4j Admin
- How to remove cluster state data from a Neo4j server.
- How to copy data from an existing database to a new database.
- How to use the Cypher Shell

Project