Course : Neo4j, getting started and development

Practical course - 2d - 14h00 - Ref. NLP
Price : 1680 CHF E.T.

Neo4j is a graph-oriented NoSQL database in which data is represented as nodes linked by arcs (each node consisting of key-value pairs). During this course, you'll learn how to query the database directly, and then build applications using Neo4j.

Teaching objectives

At the end of the training, the participant will be able to:

- Understanding the emergence of NoSQL databases versus RDBMSs
- Know how to install Neo4j and integrate it into your developments
- Understanding data structure and vocabulary in Neo4j
- Know how to manipulate data in graph form
- Improving performance with indexes
- Access Neo4j data from third-party programs (Java, JavaScript, Python) and via REST or GraphQL APIs

Intended audience

Anyone needing to develop solutions around Neo4j or wishing to discover the potential of a graph database.

Prerequisites

Knowledge of database principles and Java, Python or JavaScript programming languages.

Course schedule

1 Introduction

- The historical dominance of relational databases.
- The emergence of NoSQL databases and the different types of NoSQL databases.
- A presentation of Neo4j, its positioning and advantages.

Demonstration
Examples of Neo4j use.

PARTICIPANTS
Anyone needing to develop solutions around Neo4j or wishing to discover the potential of a graph database.

PREREQUISITES
Knowledge of database principles and Java, Python or JavaScript programming languages.

TRAINER QUALIFICATIONS
The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS
The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Installation

- Supported platforms and system requirements.
- Linux and Windows installations.
- Service creation, launch and configuration.

Hands-on work
Install Neo4j on your development workstation (with Linux or Windows).

3 Data structure in Neo4j

- What is a graph?
- Nodes: properties and labels.
- Relationships: properties, types and meanings.
- Properties: types and arrays.
- Data paths and routes.
- Schemas, indexes and constraints.

Hands-on work
Handling different graphs.

4 The Cypher language

- Syntax: expressions, variables, parameters, operators, patterns, arrays, etc.
- Clauses: readings, writings, unions, projections, etc.
- Functions: mathematics, aggregations, scalars, related to arrays and strings, etc.
- Indexes: creating, using, deleting and adding constraints.
- Optimization of queries and execution plans.
- Importing data.

Hands-on work
Import sample database and run queries via web interface.

5 Access Neo4j from your own programs

- An overview of how to embed Neo4j in a Java program.
- Neo4j drivers (.Net, Java, JavaScript, Python).
- Focus on a driver of your choice (Java, JavaScript, Spring or Python).
- Server connections and authentication, read/write requests and transactions.

Hands-on work
Execute requests via the Java, JavaScript or Python driver.

6 REST API and GraphQL

- REST API versus GraphQL.
- Root and authentication. JSON flows. Transactional service.
- Direct node manipulation and direct relationship manipulation.
- Historical service (transactional and non-transactional).
- Identification of properties, labels and relationship types used in the database.
- Managing indexing and constraints.

Hands-on work
Execute requests via the REST API.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

Dates and locations

REMOTE CLASS
2026 : 19 Mar.