

Visual Data Modeling for Neo4j

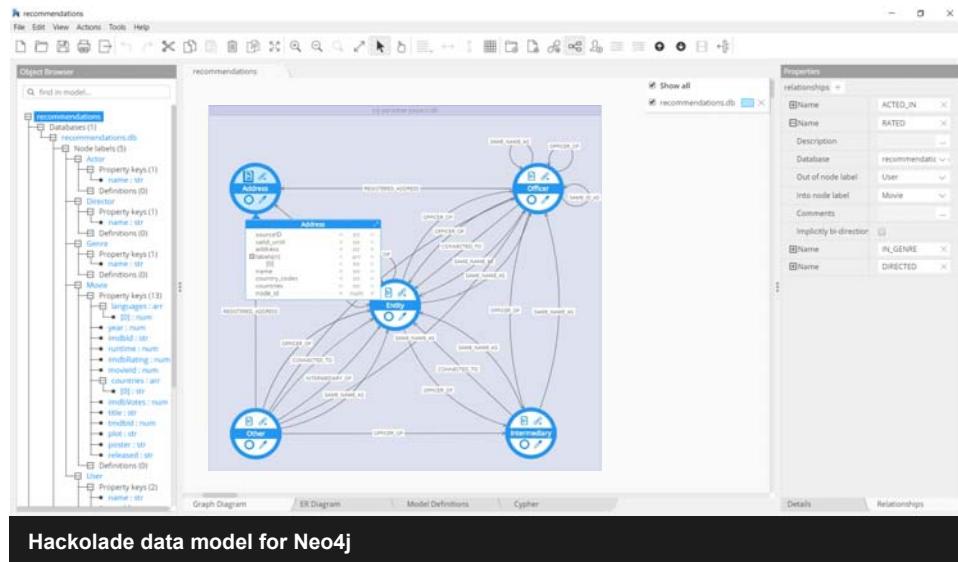
Hackolade's solution for the Neo4j property graph database

Property graph databases are known for their performance, flexibility, and agility. They generate insights from large volumes of data by giving first priority to relationships in the data, rather than having to infer connections from foreign keys or MapReduce. Businesses make decisions based on information stored in graph databases. With data being a corporate asset, data modeling becomes critical to understanding data, its inter-relationships, and its rules.

The data model for a graph database gets significantly simpler and more expressive than with relational databases. It is easier to expand the data model over time and conform to changing business needs. Hackolade increases data agility by making data structures transparent and facilitating its evolution.

Product Overview

Hackolade is pioneering the field of data modeling for NoSQL databases, big data storage formats, and the visual design of Swagger APIs, with its unique ability to represent hierarchical structures in Entity Relationship diagrams. A well-designed, dynamic database schema is like a solid foundation for a house. Data modeling is a best practice to help ensure that a graph-based application will evolve, scale, and perform well. A good data model drives reduced development time, increased application quality, and lower execution risks across the enterprise. #



Hackolade data model for Neo4j

Hackolade dynamically generates Cypher scripts as you build a data model in a forward-engineering approach. It also derives data models based on the reverse-engineering of existing graph database instances, so a data modeler or architect can enrich the model with descriptions, properties, and constraints.

A powerful and flexible HTML documentation of the data model facilitates the dialog between analysts, designers, architects, developers, and DBAs. Hackolade enables higher data quality and data governance to smooth the onboarding of NoSQL technology in enterprise IT.

Hackolade Overview

- Pioneer for data modeling of NoSQL databases, big data storage formats, and visual design of REST APIs
- Only data modeling solution for Neo4j, Cassandra, BigQuery, Couchbase, Cosmos DB, DynamoDB, Elasticsearch, Firebase, Firestore, HBase, Hive, MongoDB, MarkLogic, Snowflake, TinkerPop, etc.
- Also applies its easy and visual design to Avro, JSON Schema, ORC, Parquet, Swagger and OpenAPI, and is rapidly adding new targets.

Company Website

<https://hackolade.com>

Key Benefits of Solution

- Higher application quality
- Quicker time to market
- Lower development and maintenance costs
- Improved data quality
- Privacy and GDPR compliance
- Documentation and knowledge transfer
- Enhanced integration

Features of Solution

- Graphic visualization of complex data structures
- Modeling of nodes and edges, and their respective properties
- Graph view and ERD view of model
- Forward- and Reverse-Engineering
- Generation of Cypher scripts
- HTML and PDF data model documentation
- Command-Line Interface
- Multi-platform application: Windows, Mac, or Linux

SOLUTION BRIEF

The screenshot shows the Hackolade interface with a code editor containing a Cypher script. The script is used to create nodes and relationships for a movie database. It includes constraints like unique names for actors, directors, genres, and movies, and node keys for movies. It also creates indexes for actor, director, and genre names. The code is well-organized with comments and whitespace.

```
4 CREATE (:Actor{"name": "Mady Correlle"})-[:ACTED_IN { }]->(:Movie{"languages": ["-67"], "year": 1990, "imdb": 6.5})
5 (:director:Director{"name": "Noel Black"})-[:DIRECTED { }]->(:Movie{"languages": ["-67"], "year": 1990, "imdb": 6.5})
6 (:genre:Genre{"name": "Drama"})-[:IN_GENRE { }]->(:Movie{"languages": ["-67"], "year": 1990, "imdb": 6.5})
7 (:user:User{"name": "Michelle Taylor", "userid": 671})-[RATED { "rating": 1, "timestamp": 134904001 }]->(:Movie)
8 :commit
9 :begin
10 CREATE CONSTRAINT ON (:actor:Actor) ASSERT exists('actor','name');
11 CREATE CONSTRAINT ON (:actor:Actor) ASSERT 'actor','name' IS UNIQUE;
12 CREATE CONSTRAINT ON (:director:Director) ASSERT exists('director','name');
13 CREATE CONSTRAINT ON (:director:Director) ASSERT 'director','name' IS UNIQUE;
14 CREATE CONSTRAINT ON (:genre:Genre) ASSERT exists('genre','name');
15 CREATE CONSTRAINT ON (:genre:Genre) ASSERT 'genre','name' IS UNIQUE;
16 CREATE CONSTRAINT ON (:movie:Movie) ASSERT (:movie,'movieId') IS NODE KEY;
17 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','languages');
18 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','year');
19 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','imdbId');
20 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','runtime');
21 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','imdbRating');
22 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','movieId');
23 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','countries');
24 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','imdbVotes');
25 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','title');
26 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','imdbId');
27 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','plot');
28 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','posted');
29 CREATE CONSTRAINT ON (:movie:Movie) ASSERT exists('movie','released');
30 CREATE CONSTRAINT ON (:movie:Movie) ASSERT 'movie','movieId' IS UNIQUE;
31 CREATE CONSTRAINT ON (:user:User) ASSERT (:user,'userId') IS NODE KEY;
32 CREATE CONSTRAINT ON (:user:User) ASSERT exists('user','name');
33 CREATE CONSTRAINT ON (:user:User) ASSERT exists('user','userId');
34 CREATE CONSTRAINT ON (:user:User) ASSERT 'user','userId' IS UNIQUE;
35 CREATE CONSTRAINT ON (:rated:RATED) ASSERT exists('rated','rating');
36 CREATE CONSTRAINT ON (:rated:RATED) ASSERT exists('rated','timestamp');
37 :commit
38 :begin
39 CREATE INDEX ON :Actor('name');
40 CREATE INDEX ON :Director('name');
41 CREATE INDEX ON :Genre('name');
```

Database: recommendations.db *

Graph Diagram ER Diagram Model Definition Cypher

Dynamic generation of Cypher scripts to create nodes, relationships, properties, indexes

Major Benefits of Solution

Increase your data agility

Our data modeling tool lets developers leverage the benefits of the property graph storage model, increase data quality, and consistency, and boost excellence in agile application development. Hackolade dynamically generates the Cypher to create nodes, relationships, properties, indexes, and constraints.

Integrate property graph databases in your enterprise data governance

The solution enables you to include all of your graph metadata into a central data dictionary across your different database providers, particularly in the context of compliance with privacy laws and GDPR.

Turn your data into a conversation

Enhance the dialog between analysts, designers, architects, DBAs, and developers by providing a visual map of the data structure, leading to application design that fits with the business needs and enables better data-driven decisions.

About Neo4j

Neo4j is the leading graph database technology that drives innovation and competitive advantage at Airbus, Comcast, eBay, NASA, UBS, Walmart and more. Thousands of community deployments and more than 400 customers harness connected data with Neo4j to reveal how people, processes, locations and systems are interrelated. Using this relationships-first approach, applications built using Neo4j tackle connected data challenges including artificial intelligence, fraud detection, real-time recommendations and master data. Find out more at neo4j.com.

About Hackolade

Hackolade is the pioneer for data modeling of NoSQL databases, big data storage formats, and the visual design of Swagger APIs. The company introduced its original data modeling software for MongoDB and has grown over time, becoming the first to provide a comprehensive suite of data modeling tools for various NoSQL databases. Today, it is the only data modeling provider for Neo4j, Cassandra, BigQuery, MongoDB, Couchbase, Cosmos DB, DynamoDB, Elasticsearch, Firebase, Firestore, AWS Glue Data Catalog, HBase, Hive, MarkLogic, Amazon Neptune, Snowflake, TinkerPop, etc..

The company's software is user-friendly and simple-to-use, yet provides powerful visuals and graphic data modeling to smooth the onboarding of NoSQL technology. Its software tools help analysts, designers, architects, and DBAs involved with NoSQL database technology achieve greater transparency and control, resulting in reduced development time, increased application quality, and lower execution risks across the enterprise. Hackolade is headquartered in Brussels, Belgium, and was founded in 2016. Its products are sold direct on its website. For more information, visit www.hackolade.com

Key Vertical Markets

- Banking and Finance
- E-Commerce and Retail
- Transportation and Airlines
- Insurance and Healthcare
- Broadcasting
- Gaming and Online Casino
- IoT and Technology
- Government and Education

Security

When connecting to database instances for reverse-engineering operations, Hackolade uses authentication and encryption mechanisms, including SSL and SSH for cloud instances, and AWS IAM.

For additional information, contact us

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