

## Polyglot Data Modeling for NoSQL Databases, Storage Formats, REST APIs, and JSON in RDBMS

### The Challenges of Leveraging Big Data

Organizations worldwide are gathering, analyzing, and evaluating huge data volumes from a large variety of sources, with the goal of increasing productivity and efficiency, providing insights into user behavior, stopping credit card fraud, anticipating hardware failures, avoiding network congestions, improving operations, and increasing revenues. Big Data feeds Artificial Intelligence, Machine Learning, Natural Language Processing.

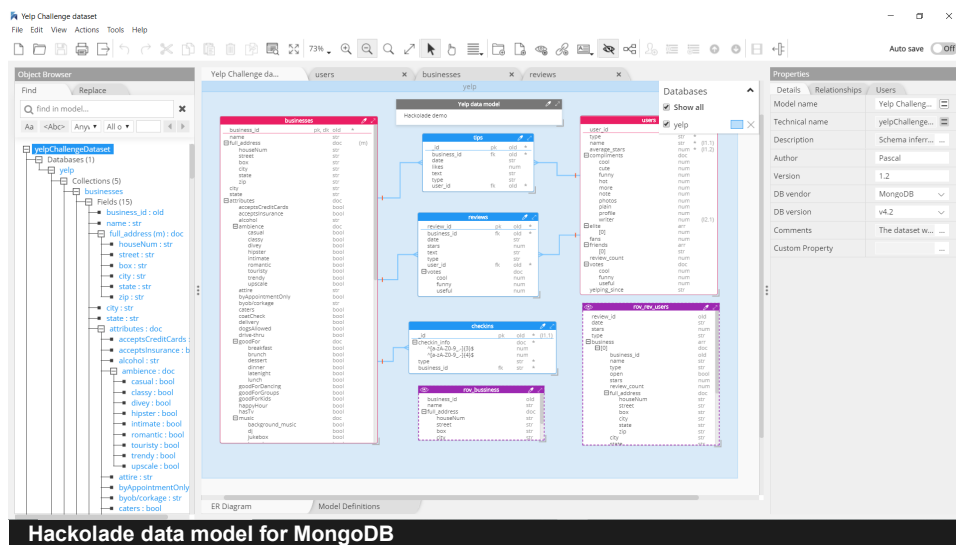
But the problem with data, is that it is difficult—if not dangerous—to interpret it without a clear description of its meaning. Raw data must be described. An effective way to describe data is with the concept of “data models” and “schemas”, a sort of “blueprint” for databases and data exchanges.

### Data Modeling Provides a Shared Understanding of Data

A well-designed, dynamic database schema is like a solid foundation for a house. The data modeling process ensures that architects think through the details of their vision.

The data modeling output, an Entity-Relationship Diagram, then serves as a communication medium to validate the vision and implementation details with application stakeholders, business owners and developers.

A good data model allows agile evolutions, reduces development time, increases application quality, and lowers execution risks across the enterprise.



### Product Overview

Hackolade is pioneering the field of data modeling and schema design for modern technologies serving data-at-rest (storage) and data-in-motion (communication.)

The tool presents the unique ability to infer schemas and represent hierarchical and polymorphic structures into user-friendly Entity-Relationship Diagrams.

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

It facilitates the dialog between analysts, designers, architects, developers, and DBAs, enabling higher data quality and data governance to reliably feed AI, ML, and NLP.

### Hackolade Overview

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

### Company Website

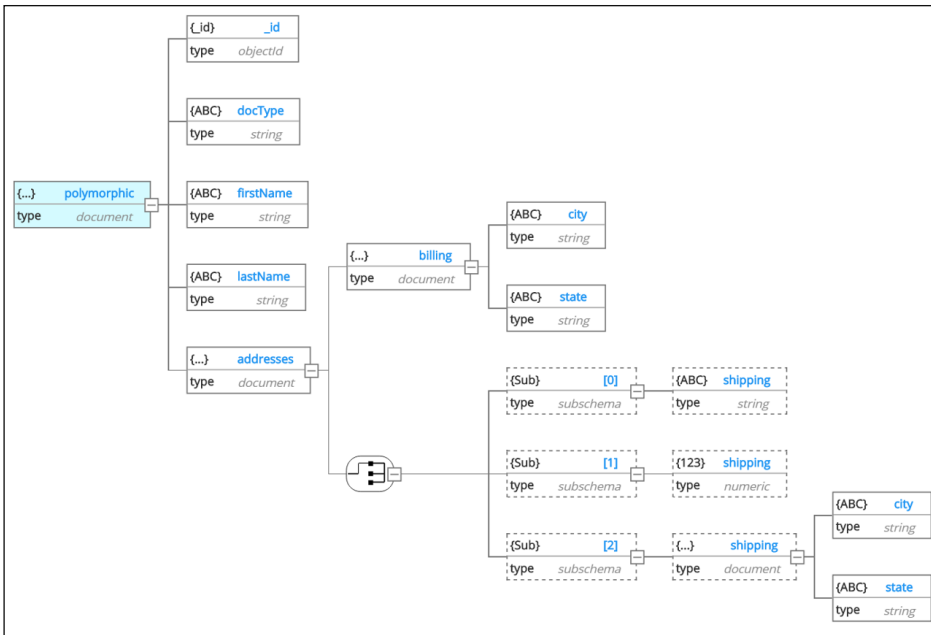
<https://hackolade.com>

### 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 JSON nested objects, entities and attributes, and their respective properties
- Different views: ERD, tree, graph
- Library of reusable definitions
- Naming conventions
- Bulk editing in Excel with export/import
- Forward- and Reverse-Engineering
- Generation of scripts, and DDLs
- Model-Driven API generation
- HTML, Markdown, and PDF documentation
- Command-Line Interface
- Assistance in migrating from RDBMS SQL
- Multi-platform application: Windows, Mac, or Linux



**Native support for JSON object nesting and polymorphism**

## Major Benefits of Solution

### *Increase your data agility*

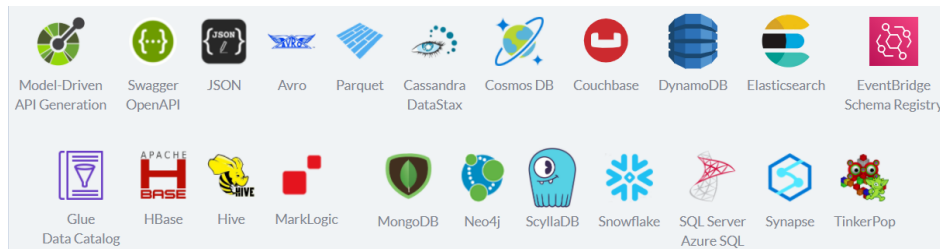
Our data modeling tool lets developers leverage the benefits of dynamic schemas and modern storage models, increase data quality, and consistency, and boost excellence in agile application development. Hackolade dynamically generates DDLs or equivalent and scripts to create entities, relationships, attributes, properties, indexes, and constraints. Model-driven API generation contributes to higher consistency and quality.

### *Integrate semi-structured data in your enterprise data governance*

The solution enables you to include all of your metadata into a central data dictionary across your different data 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 Hackolade

Hackolade is the pioneer for data modeling of NoSQL databases, big data storage formats, REST APIs and JSON in RDBMS. 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 modern technologies for data-at-rest and data-in-motion. Today, it is the only data modeling provider for MongoDB, Neo4j, Cassandra, Avro, Parquet, Couchbase, Cosmos DB, DynamoDB, Elasticsearch, Firebase, Firestore, EventBridge Schema Registry, Glue Data Catalog, HBase, Hive, JanusGraph, MariaDB, MarkLogic, Snowflake, SQL Server, Synapse, 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 data 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.

## Key Vertical Markets

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

## Security

When connecting to database instances for reverse-engineering operations, Hackolade uses authentication and encryption mechanisms, including if applicable: SSL and SSH for cloud instances, LDAP and Kerberos, single sign-on, and AWS, Azure, and Google Cloud authentication..

## For additional information, contact us

Hackolade

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