NoSQL

Non-relational databases

NoSQL is a term used to describe high-performance, non-relational databases.

NoSQL databases are widely recognized for ease of development, scalable performance, high availability, and resilience.

NoSQL Database Models :

- Document Databases

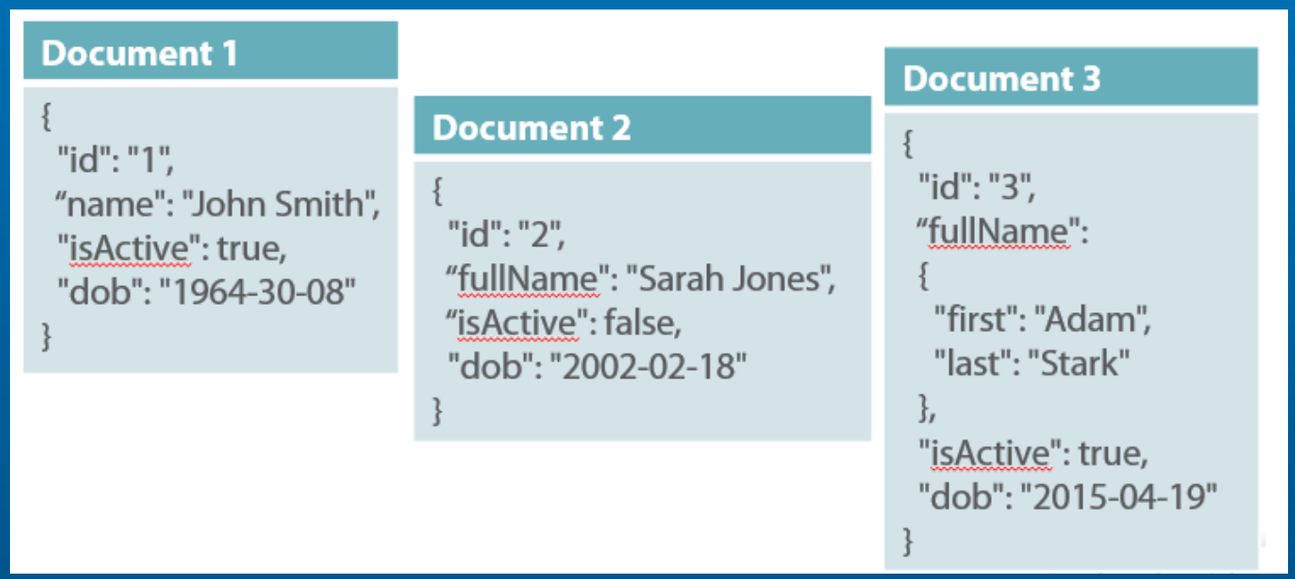
- Graph Databases

- Key-value Databases

- Columnar Databases

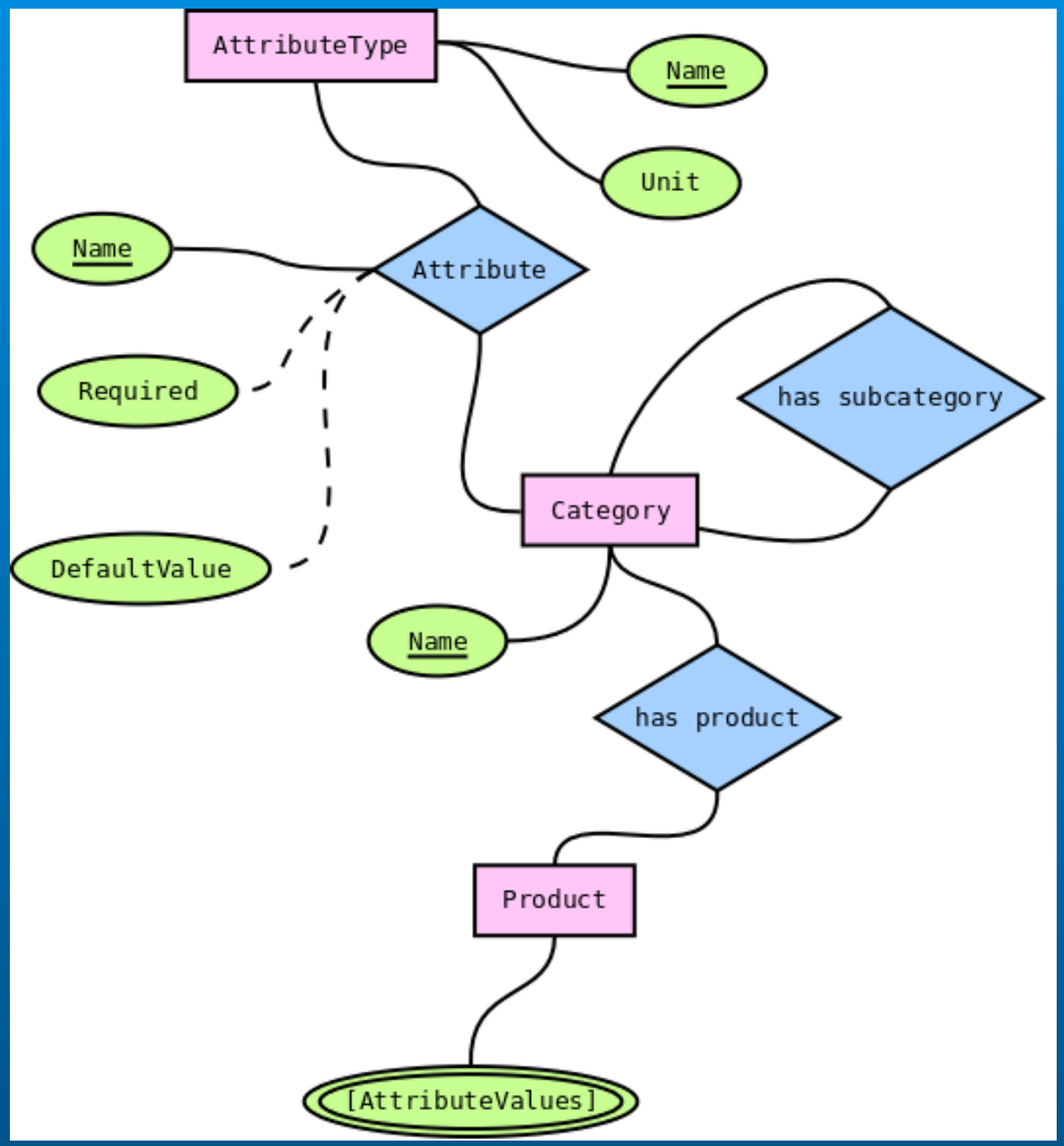
Document Databases

- Store data elements in document-like structures that encode information in formats such as JSON.
- Common use - Web and Mobile applications.
- Examples - MangoDB, CouchDB, Couchbase Server



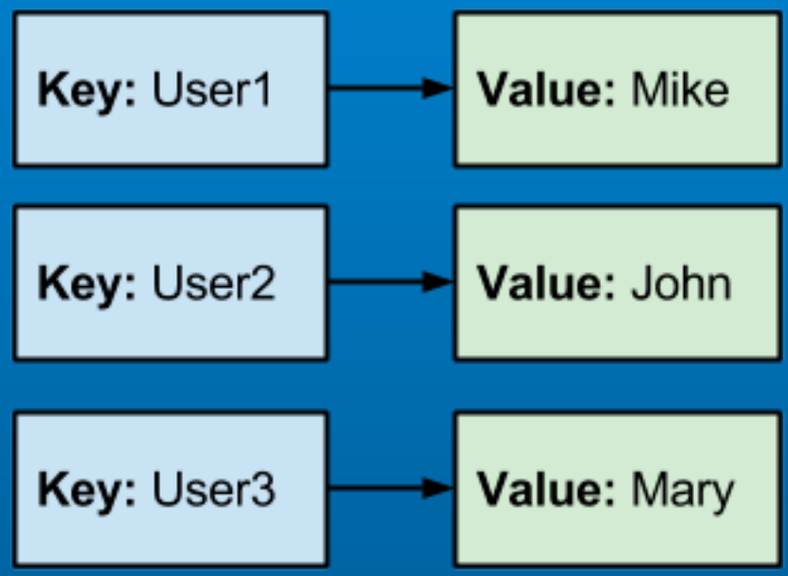
Graph Databases

- Emphasize connections between data elements, storing related “Nodes” in graphs to accelerate querying.
- Common use - Geospatial applications, recommendation engines.
- Allegrograph, IBM Graph, Neo4j



Key-Value Databases

- Simple data model that pairs a unique key and its associated value.
- Common uses - storing clickstream data and application logs
- Examples - DynamoDB, Aerospike, Redis, Riak



Columnar Databases

- Stores data across tables that can have very large numbers of columns.
- Columnar databases are optimized for reading and writing columns of data as opposed to rows of data.
- Common uses - Internet Search and other large-scale web applications.
- Examples: Casandra, HBase, SimpleDB.

Pros

- ★ Less Tables, easier to manage, high level of flexibility .
- ★ Mostly open source and low cost.
- ★ Easier scalability, designed to function with high-performance even with low cost hardware.
- ★ No need to create detailed database model and relations.

Cons

- Community is relatively new and lacks the maturity of MySQL user base.
- Lack of reporting tools for analysis and performance.
- Lack of standards. Doesn't have universal language like SQL. Can cause problems during migration