# DataBases Models and MER

## DataBase Foundations

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# Outline



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# Relational DataBases I — Structured Data

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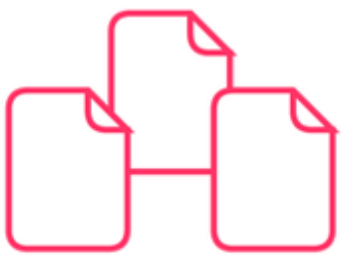
# Relational DataBases II — Tables & Keys

# Semi-Structured Data



| Unstructured | Semi-structured | Structured |
| --- | --- | --- |
| PDFs, JPEGs, MP3, Movies, ... | CSV, JSON, XML, MongoDB, ... | Oracle, MSSQL, MySQL, DB2, ... |

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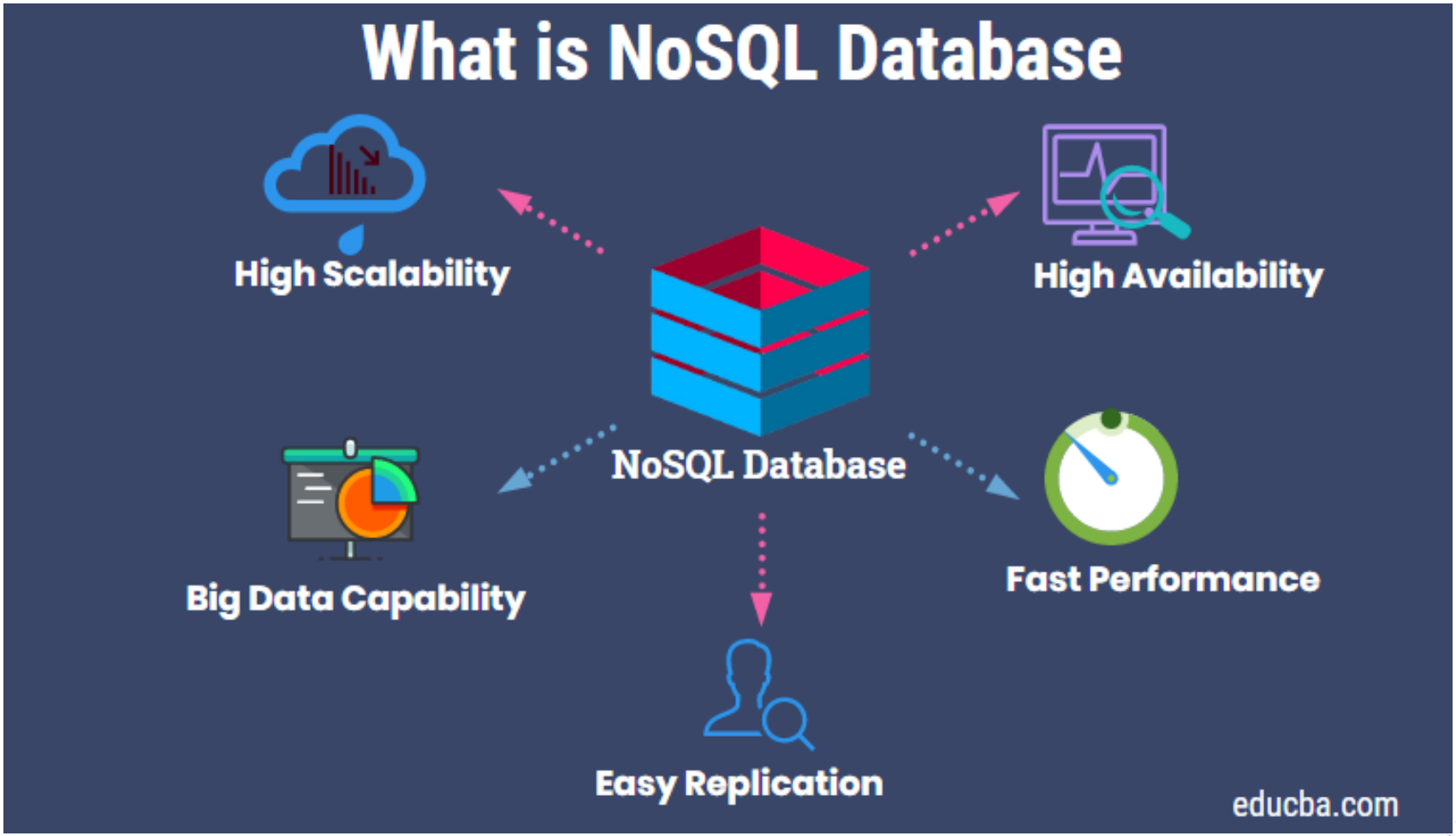
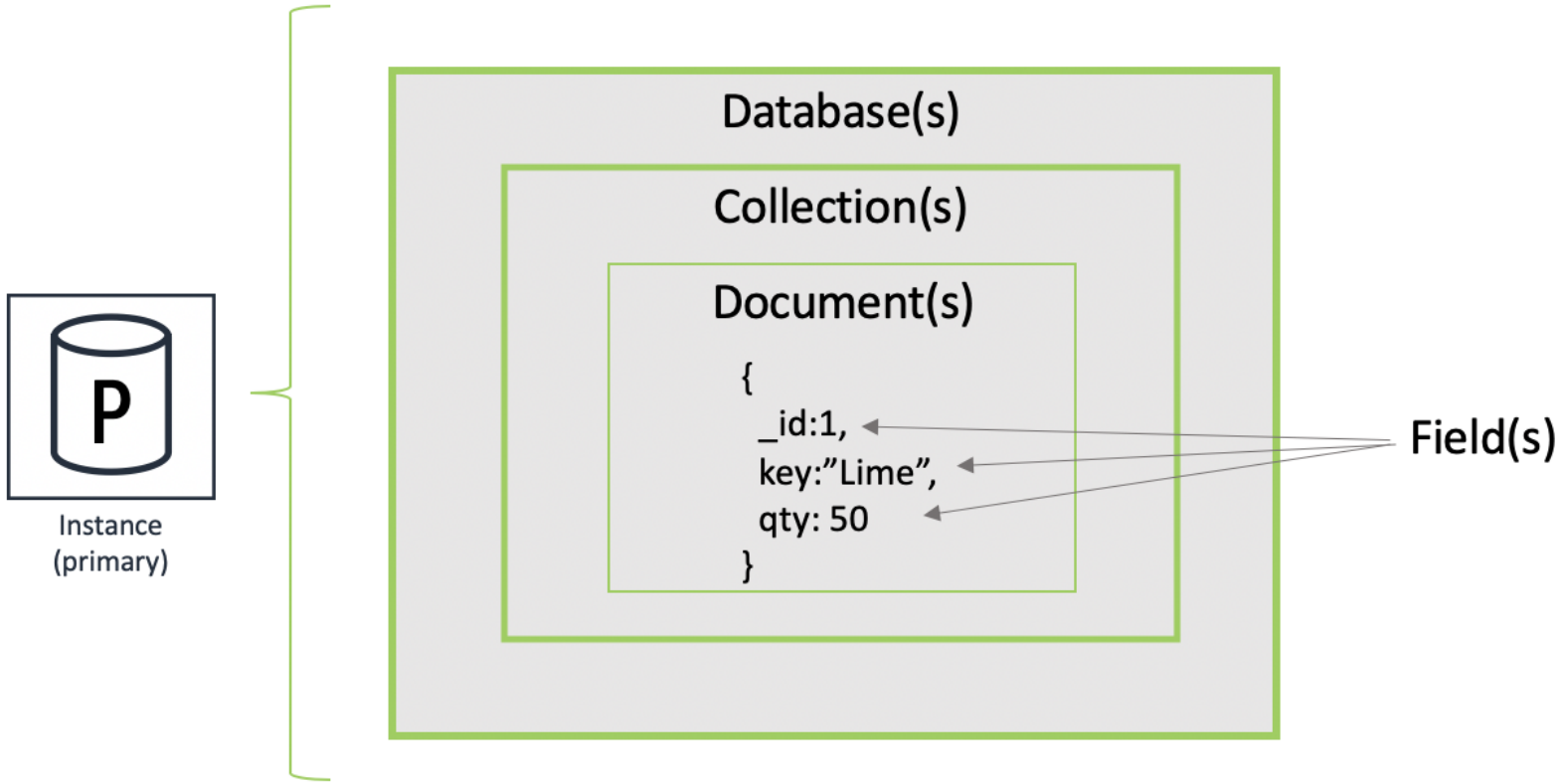
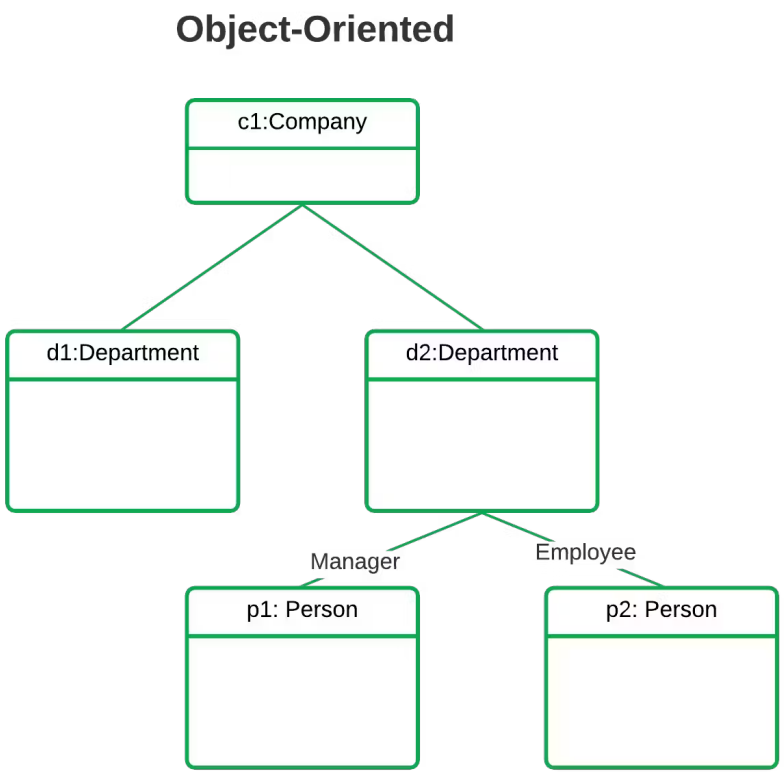
# NoSQL DataBases

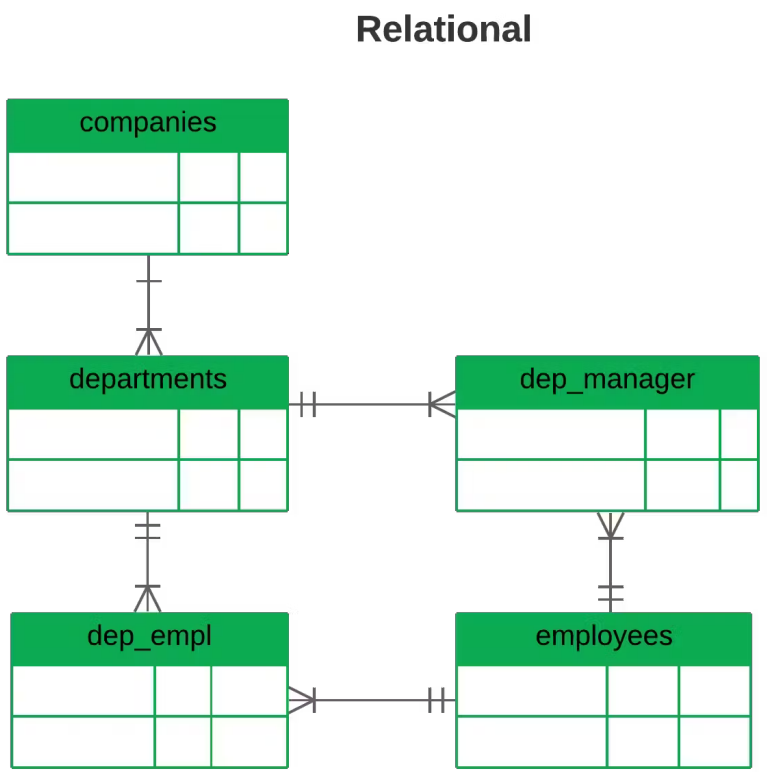


# Document-Based NoSQL

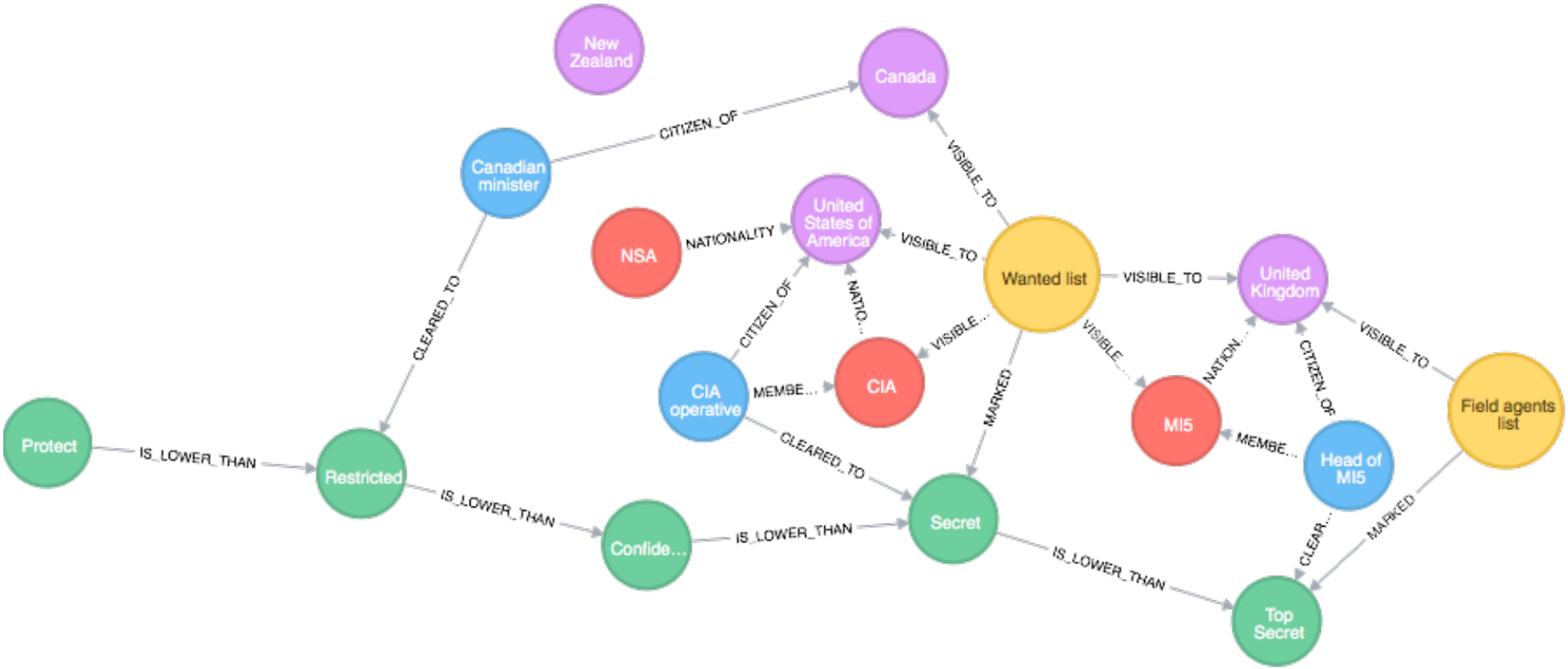


# Object-Oriented NoSQL



# Graph-Based NoSQL



# Outline



# Basic Concepts

- **Entity**: A thing or object in the real world that is distinguishable from other objects.
- **Attribute**: A property or characteristic of an entity.
- **Relationship**: An association between entities.
- **Cardinality**: The number of instances of an entity that can be associated with another entity.
- **Degree**: The number of entities that participate in a relationship.

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# Step 1. Define Components

# Step 2. Define Entities

# Step 3. Define Attributes per Entity

# Step 4. Define Relationships

# Step 5. Define Relationships Types

# Step 6. First Entity-Relationship Draw

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# Step 7. First Split Many-to-Many Relationships

# Step 8. Second Entity-Relationship Draw

# Step 9. Get Data-Structure E-R M

# Step 10. Define Constraints and Properties of Data

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# Thanks!

# Questions?

Repo: *https://github.com/EngAndres/ud-public/tree/main/courses/databases-foundations*

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