

DATA BASES MODELS AND MER

DataBase Foundations

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UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

1 Databases Types

2 Entity-Relation Model (MER)



Outline

1 Databases Types

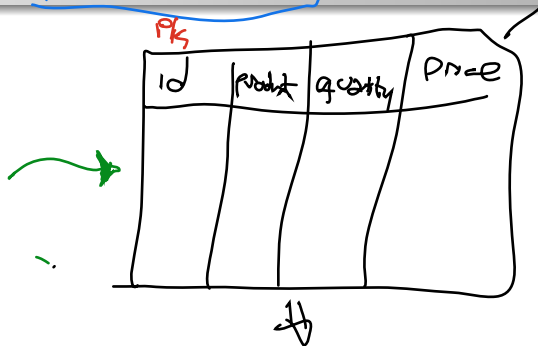
2 Entity-Relation Model (MER)



Relational DataBases I — Structured Data

product ~~~~~
 ~~~~~  
 ~~~~~  
 ~~~~~  
 ~~~~~

quantity ~~~~~
 ~~~~~  
 ~~~~~  
 ~~~~~  
 ~~~~~



Relational DataBases II — Tables & Keys

students

PK

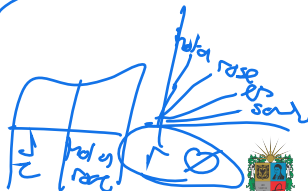
name	email	career
Aria	a@odm..	1
Bob	b@odm..	3
Charlie	c@odm..	1
Dennis	d@odm..	2

career

id	name
1	Ing de S. Sist.
2	Ing. Catastral
3	Ing. Electrónica

"ROSA" == "rose" ?

LLM #1 hola
2 rose



Semi-Structured Data



Unstructured

PDFs, JPEGs,
MP3, Movies, ...



Structured

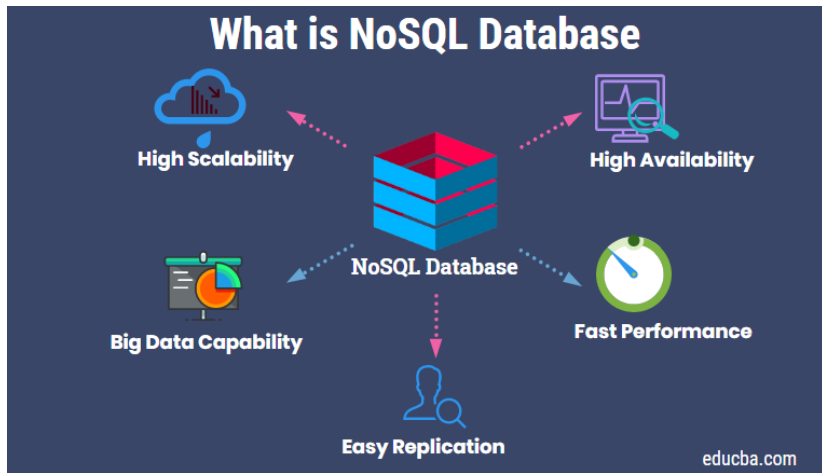
Oracle, MSSQL,
MySQL, DB2, ...

Semi-structured

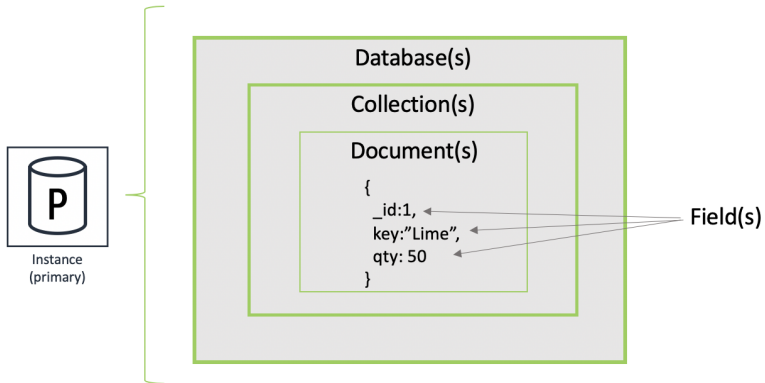
CSV, JSON, XML,
MongoDB, ...



NoSQL Databases

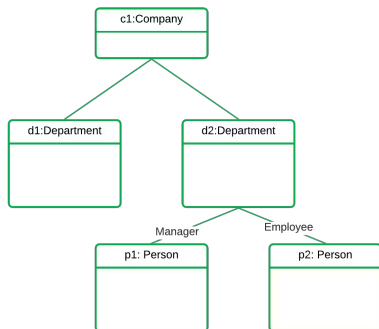


Document-Based NoSQL

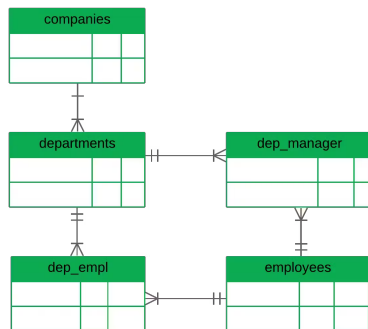


Object-Oriented NoSQL

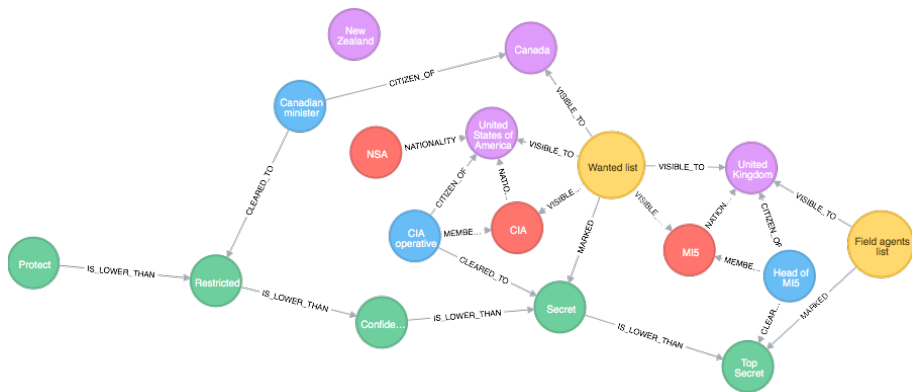
Object-Oriented



Relational



Graph-Based NoSQL



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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



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>

