DataBases Models and MER

DataBase Foundations

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Outline

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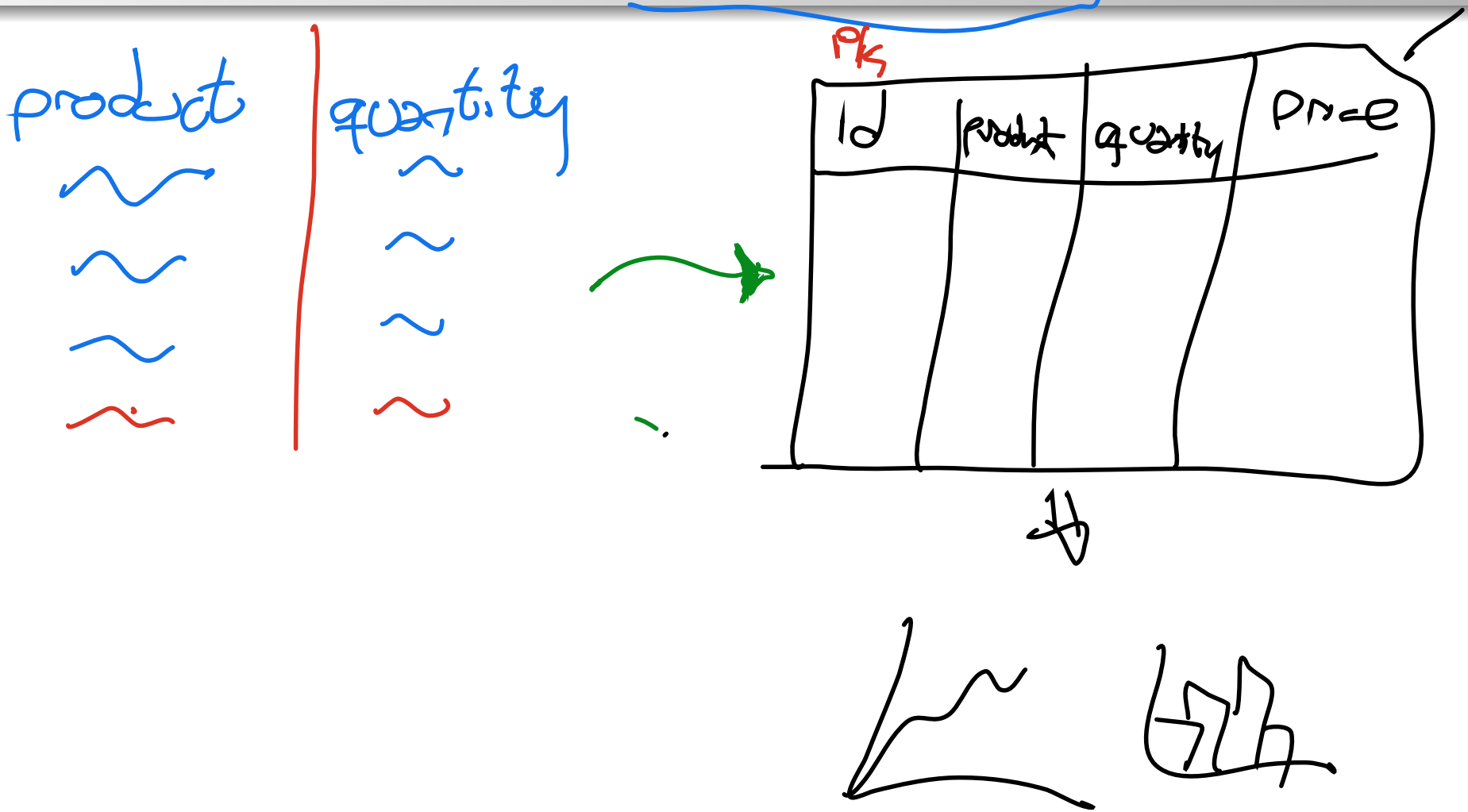
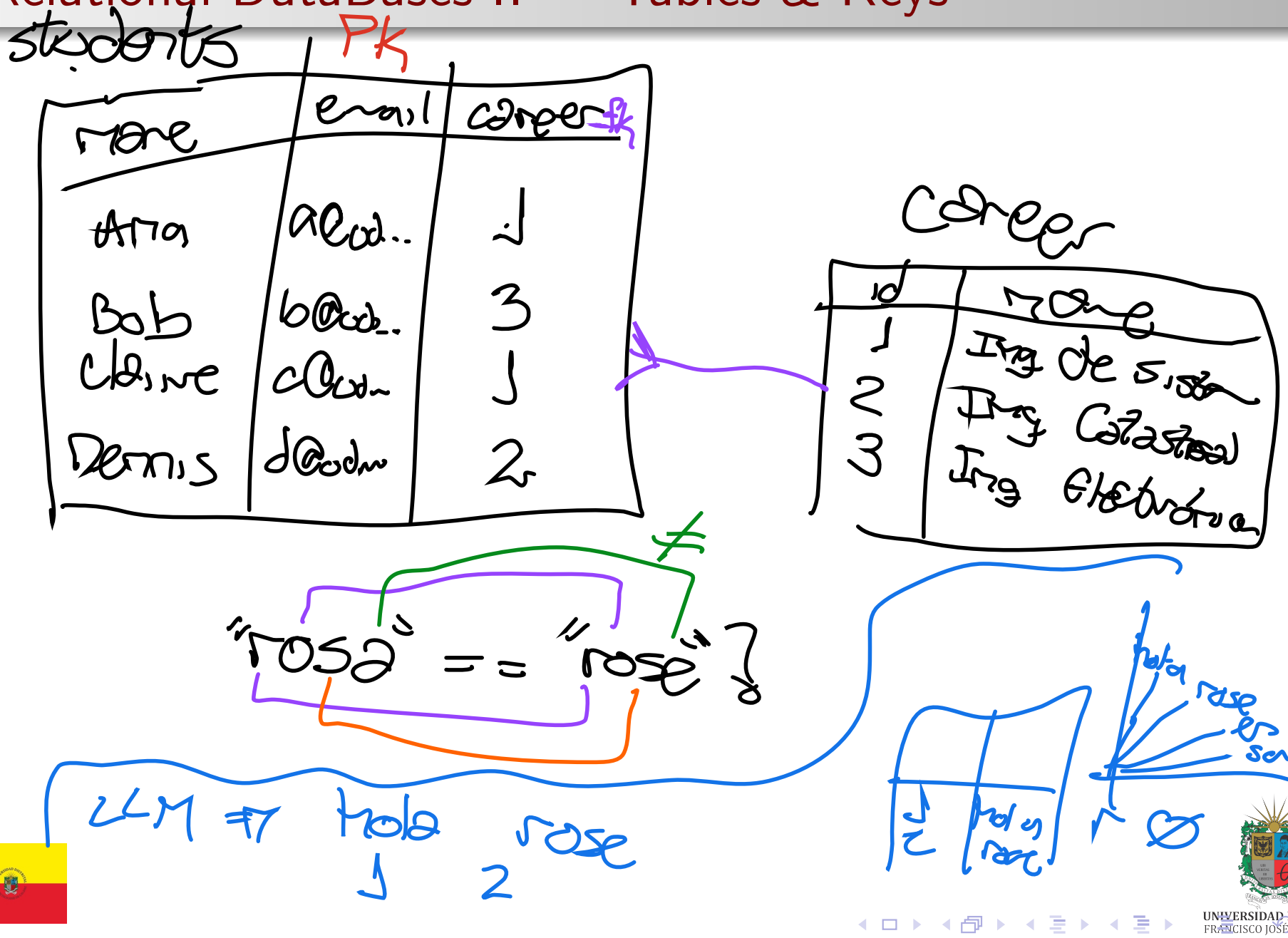
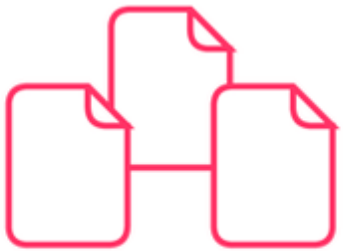
Relational DataBases I — Structured Data



Relational DataBases II — Tables & Keys

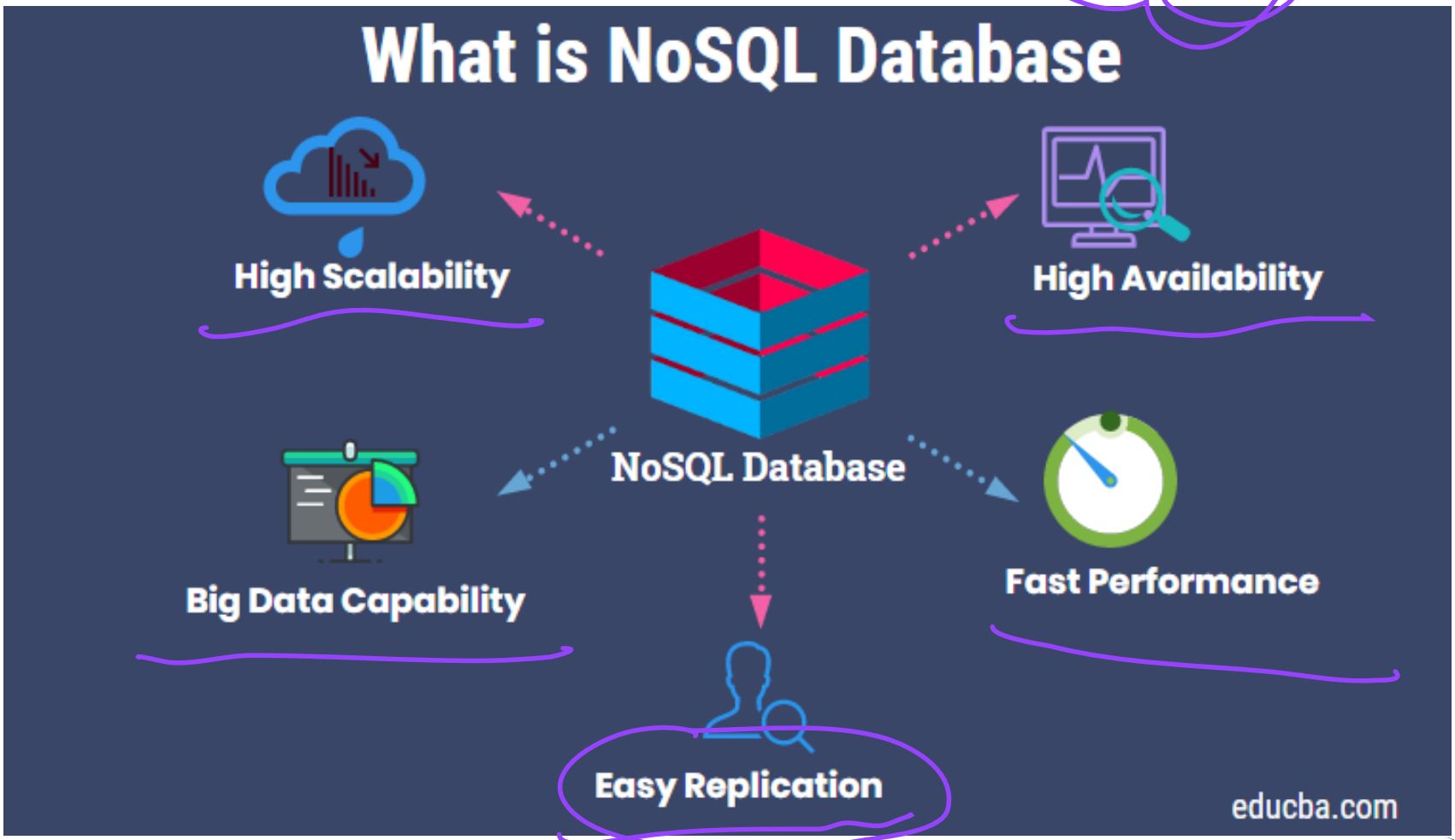


Semi-Structured Data

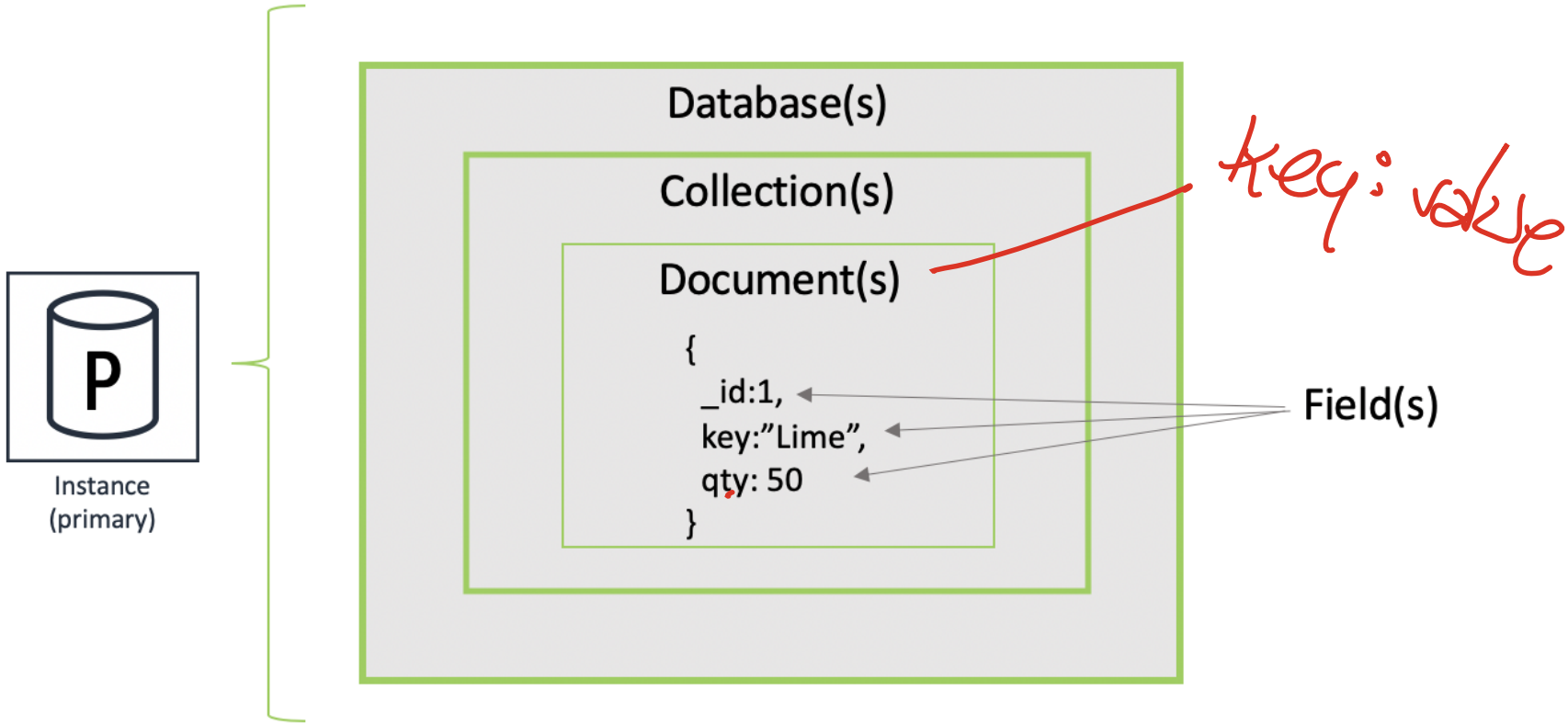


Unstructured	Semi-structured	Structured
PDFs, JPEGs, MP3, Movies, ...	CSV, JSON, XML, MongoDB, ...	Oracle, MSSQL, MySQL, DB2, ...

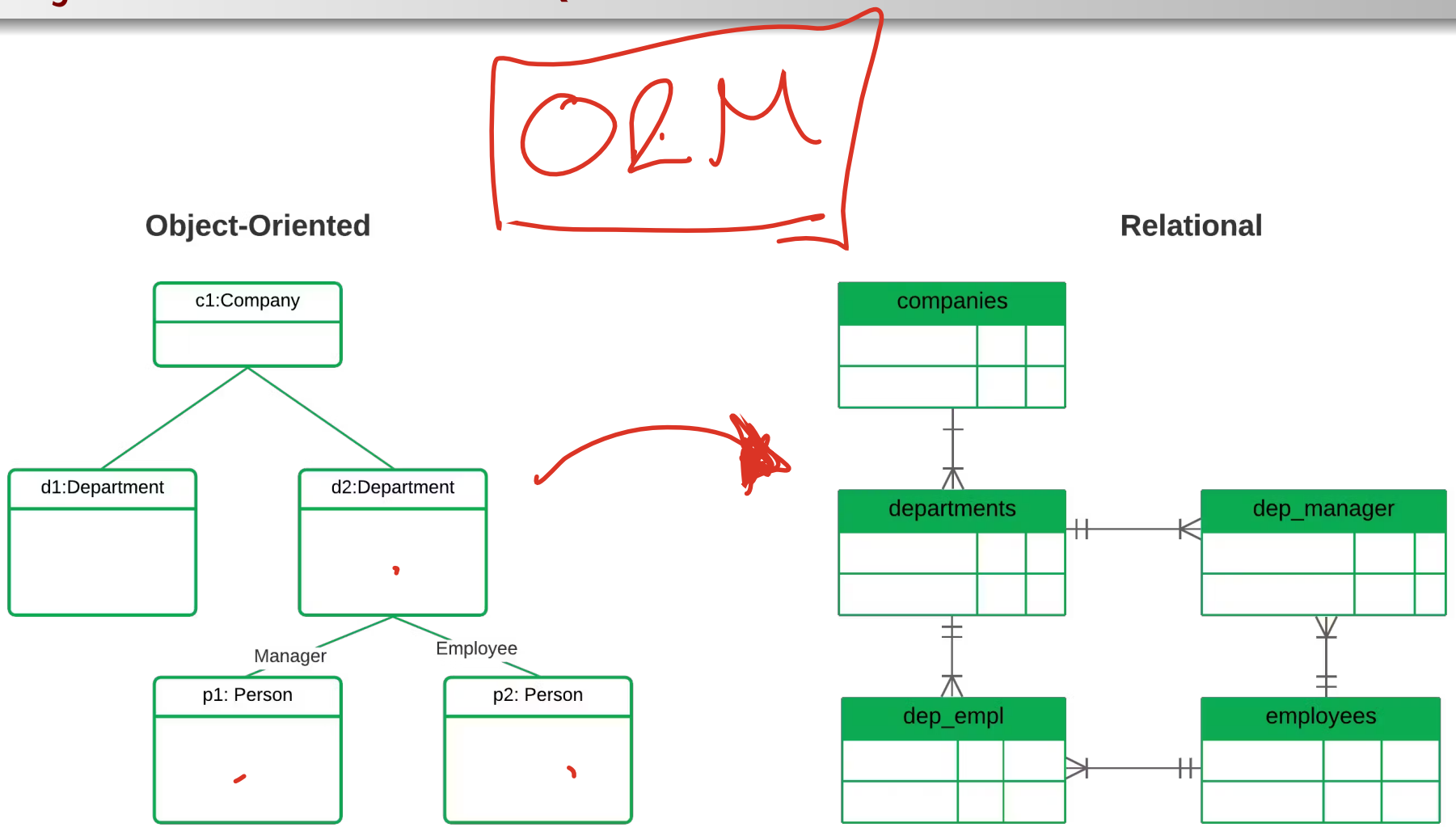
NoSQL DataBases



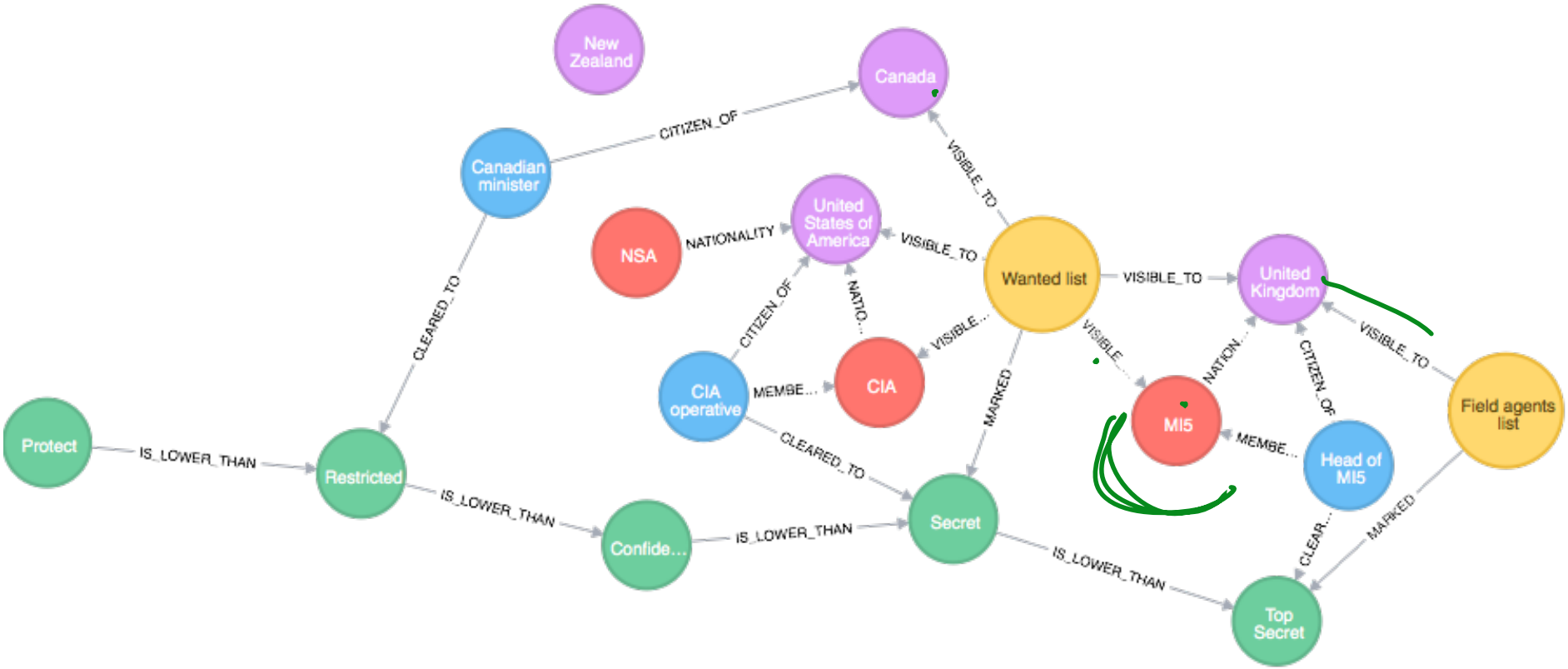
Document-Based NoSQL → MongoDB



Object-Oriented NoSQL



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.

Entity → properties
↳ information.

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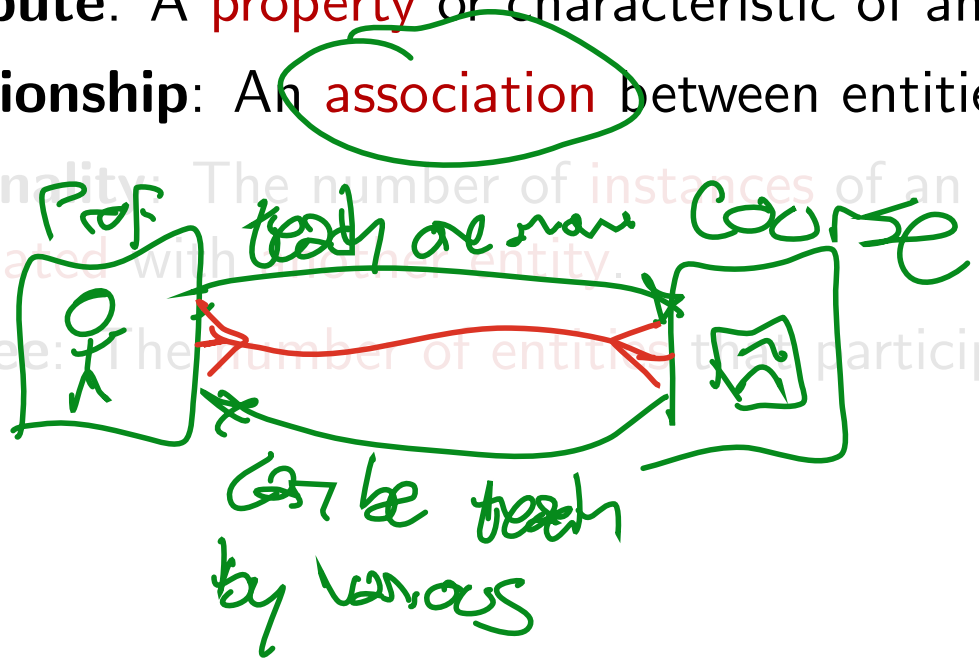

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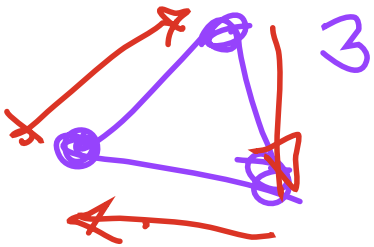

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Step 1. Define Components

Netflix → subsystem → module

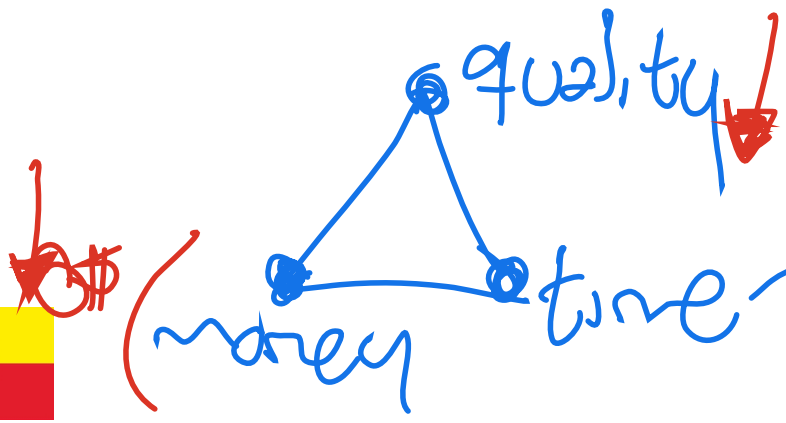
- series
- movies

Phase 1 ✓

- forums
- documentals

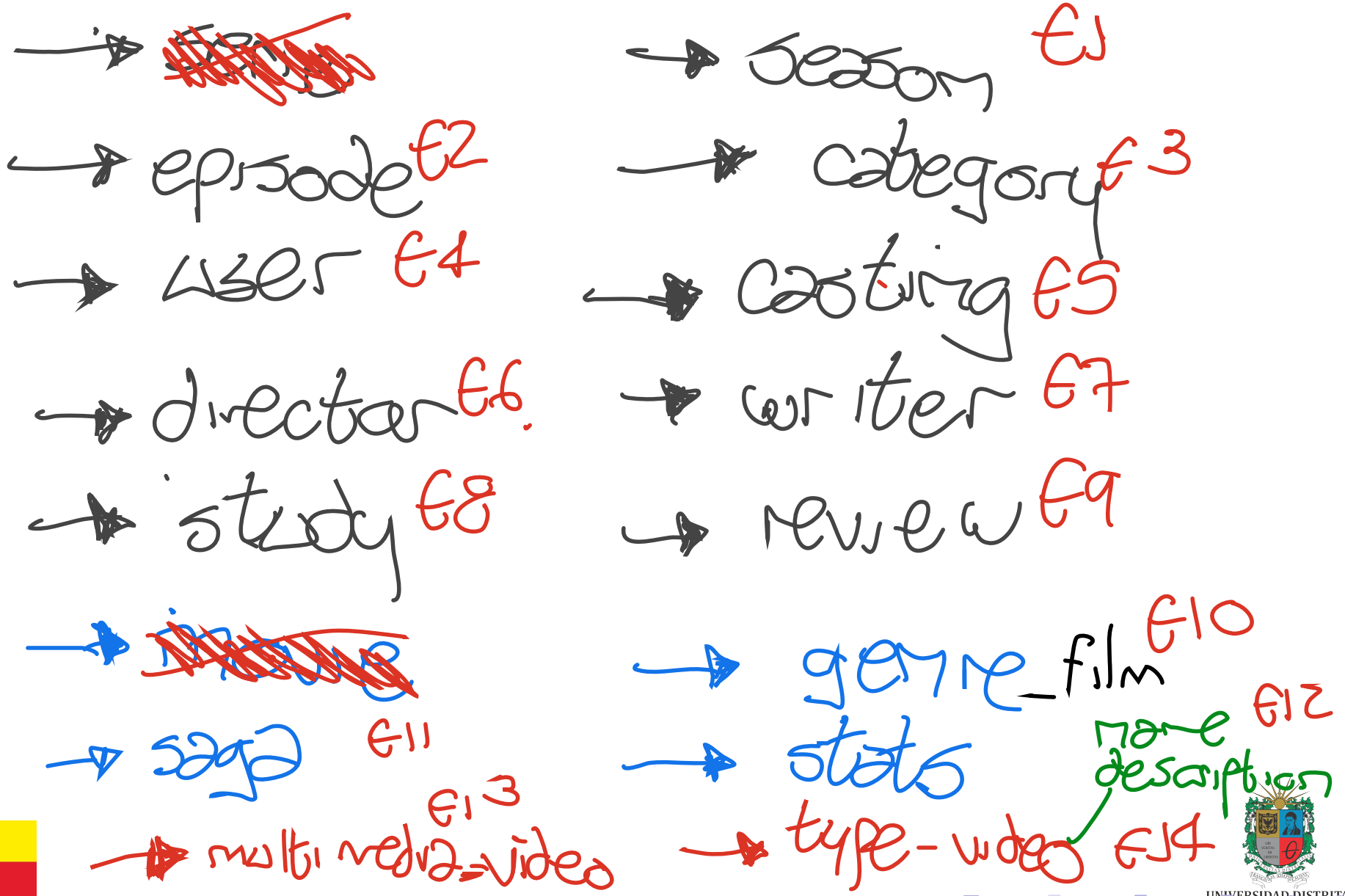
Phase 2

Future work



13 weeks
↳ 26 hours

Step 2. Define Entities



Step 3. Define Attributes per Entity

E1. Season = name, duration, date, description, rewes, episodes

E2. Episode = name, duration, date, description, casting, director, writer

E3. Category = name, minimage, stands

E4. User = id, name, email, nickname, password, birthday

E5. Casting = name, description, awards

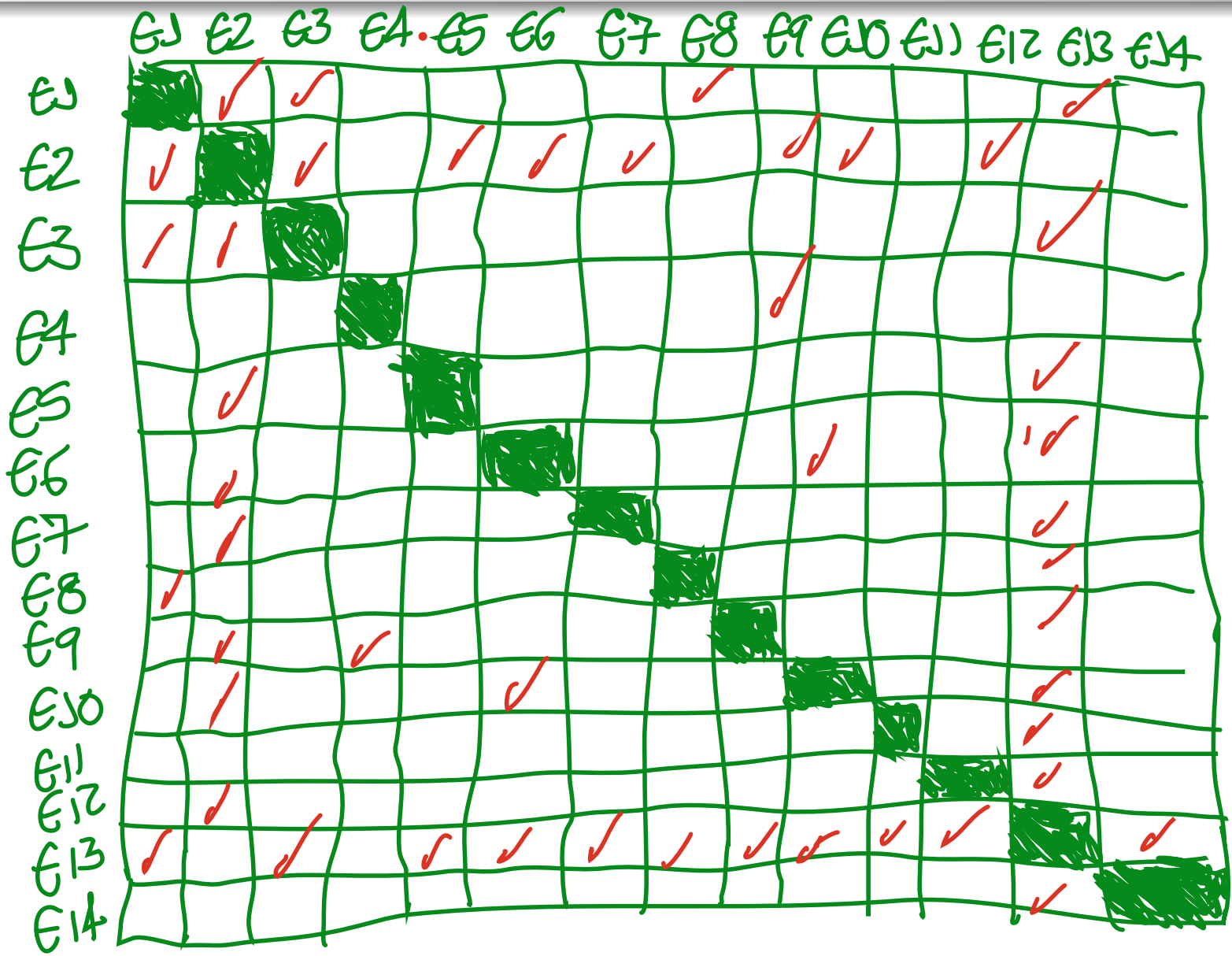
E6. Director = name, history, filmography

E7. Writer = name, history, filmography

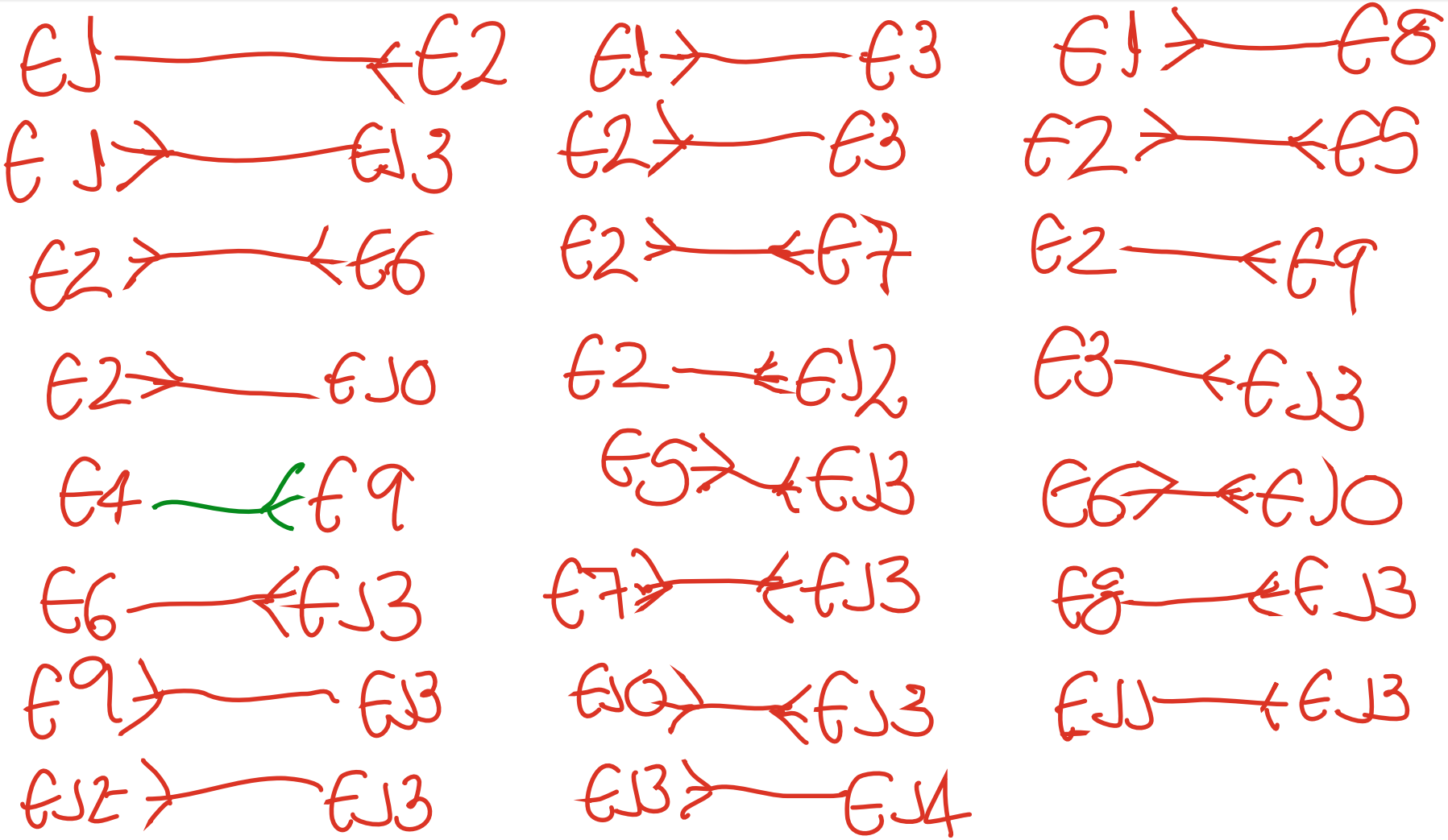
E8. Study = nit, name, description, filmography

E9. Review = stars, comment, timestamp, author

Step 4. Define Relationships

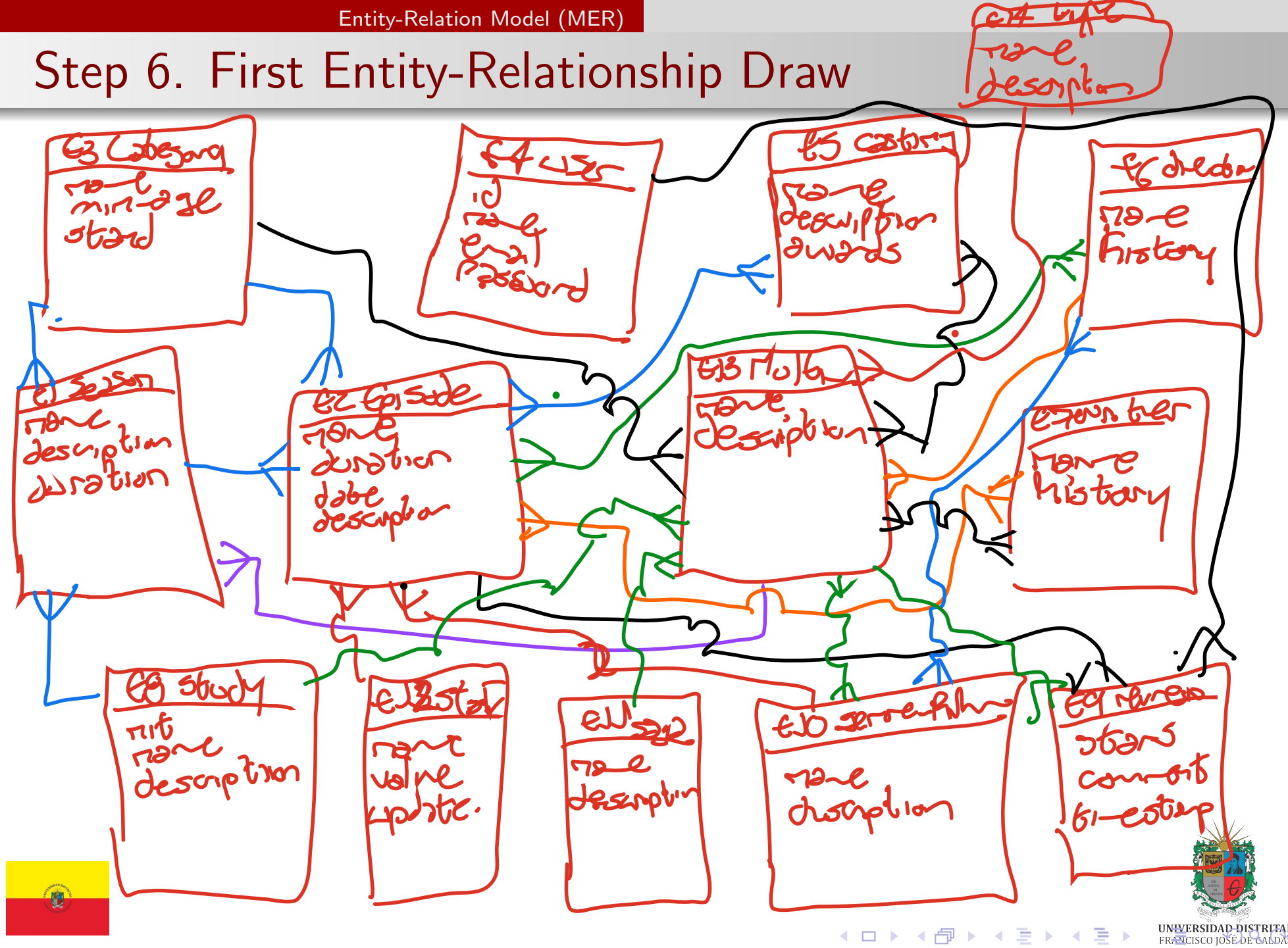


Step 5. Define Relationships Types

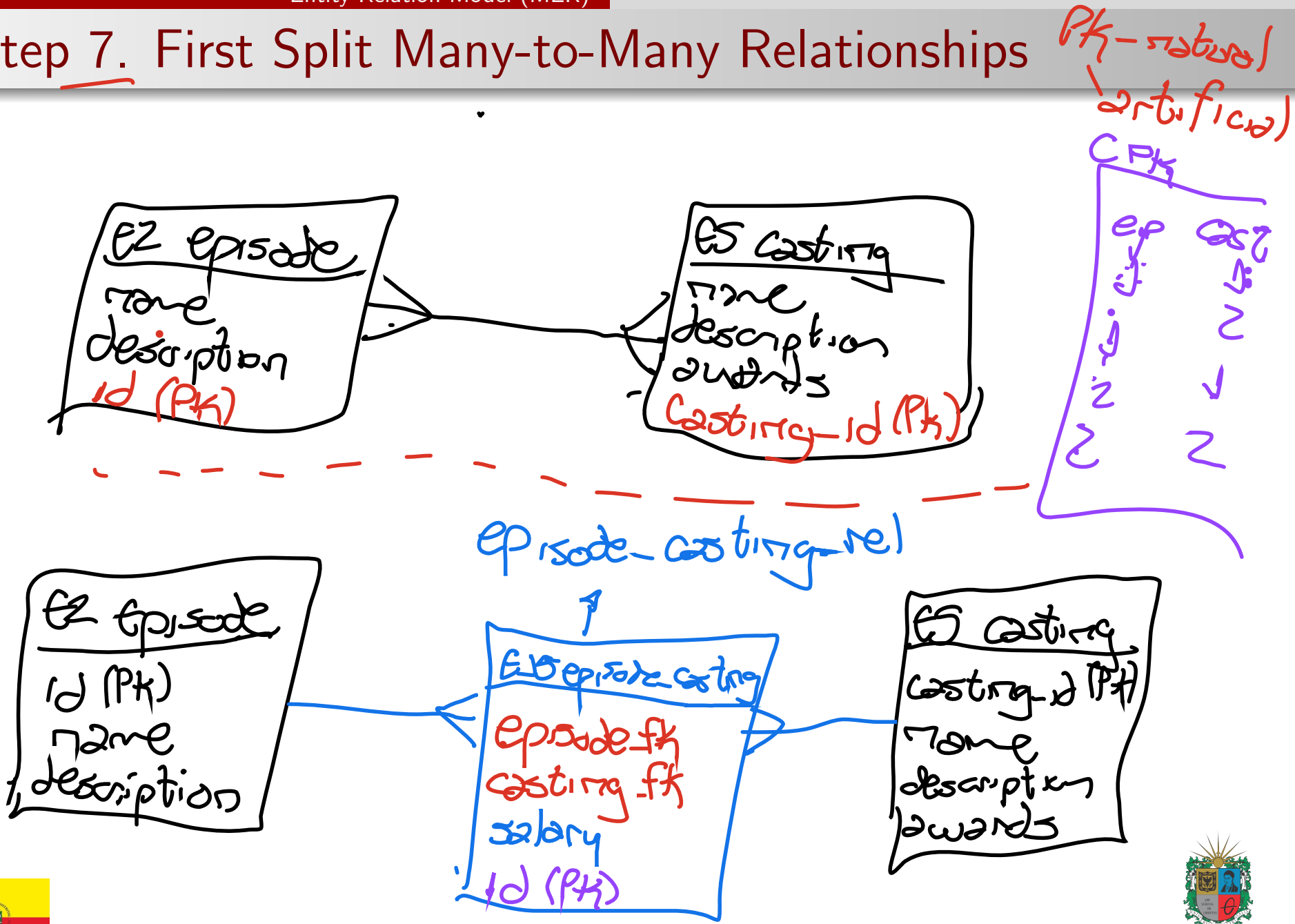


- user of wishlist

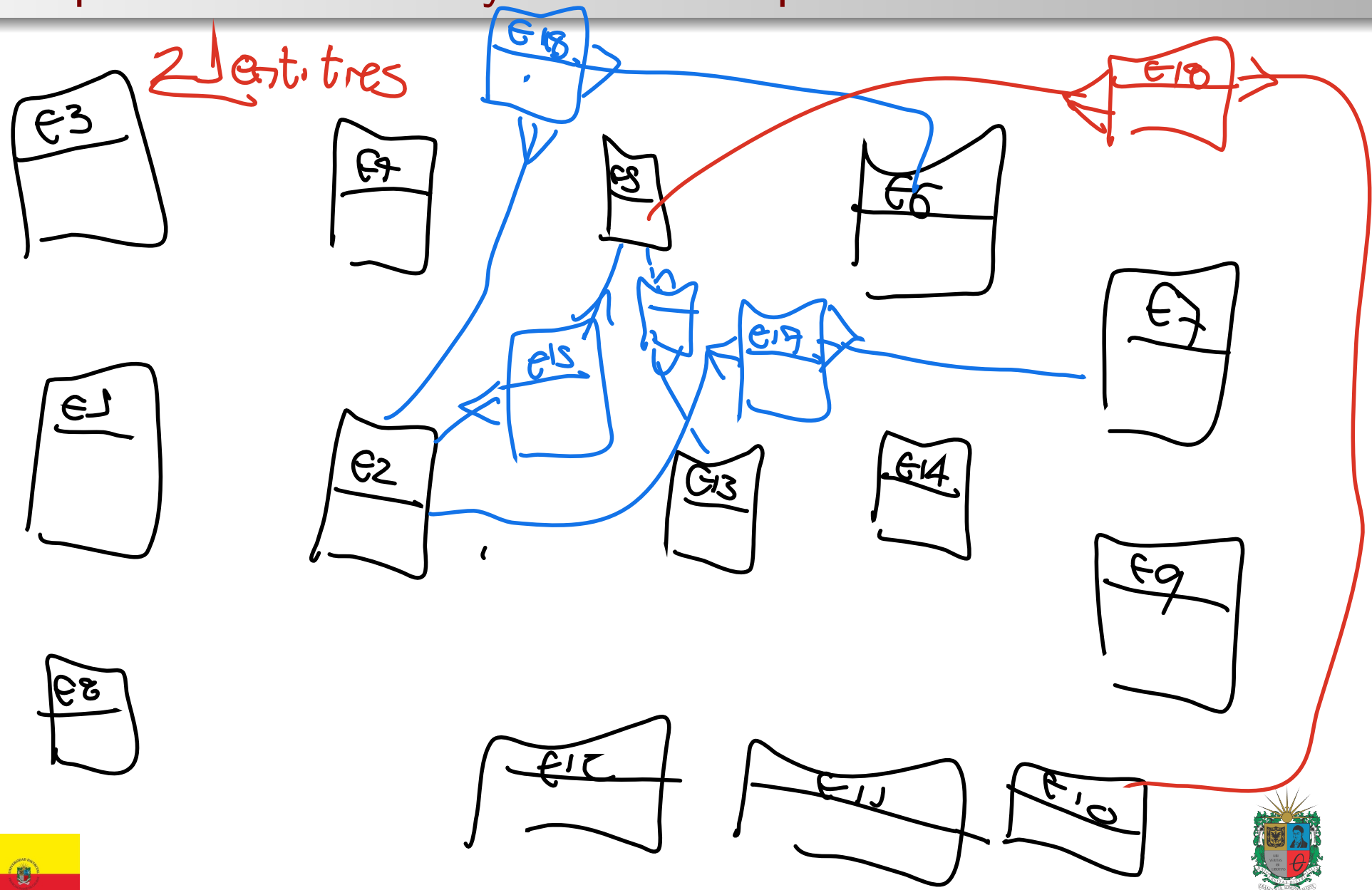
Step 6. First Entity-Relationship Draw



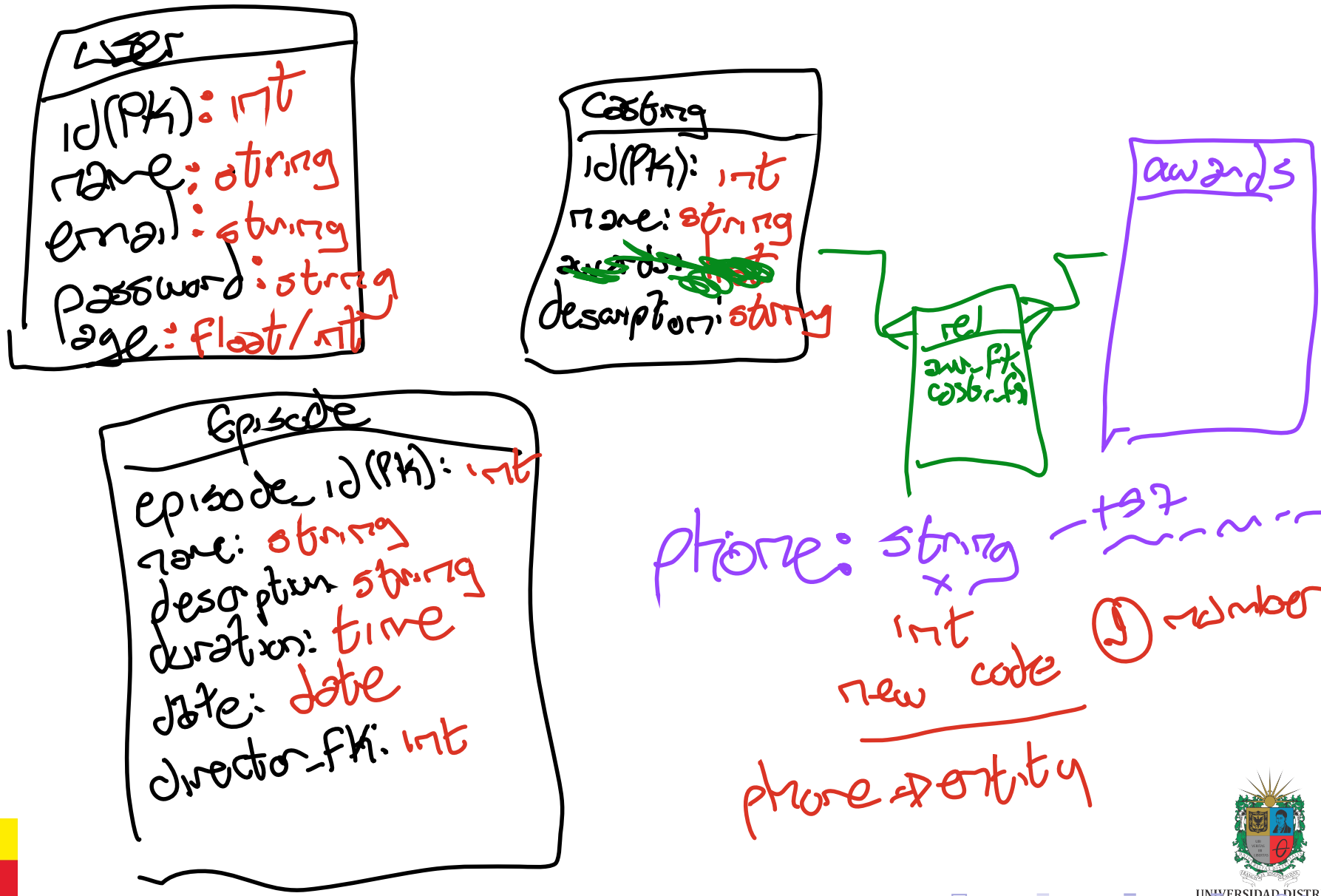
Step 7. First Split Many-to-Many Relationships



Step 8. Second Entity-Relationship Draw

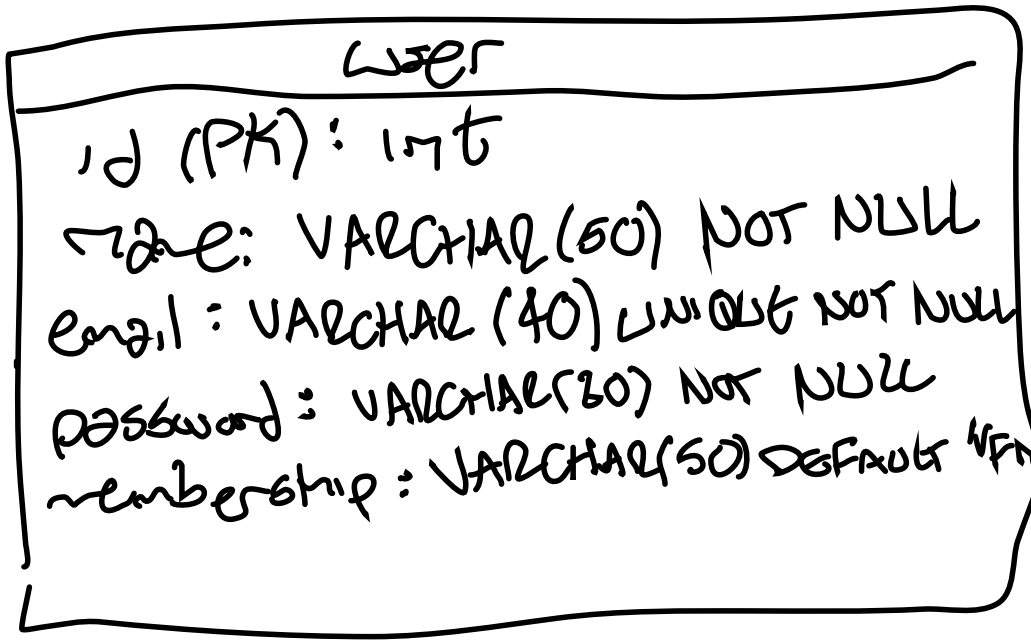


Step 9. Get Data-Structure E-R M



Step 10. Define Constraints and Properties of Data

- string → varchar (max) → limit size
- email → unique
- data
  - mandatory → NOT NULL
  - optional (NULL)
- default → age DEFAULT 18
- Artificial PK → AUTO_INCREMENTAL



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Thanks!

Questions?

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

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