DataBases Models and MER

DataBase Foundations

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Outline

1. Databases Types
2. Entity-Relation Model (MER)

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1 Databases Types

2 Entity-Relation Model (MER)

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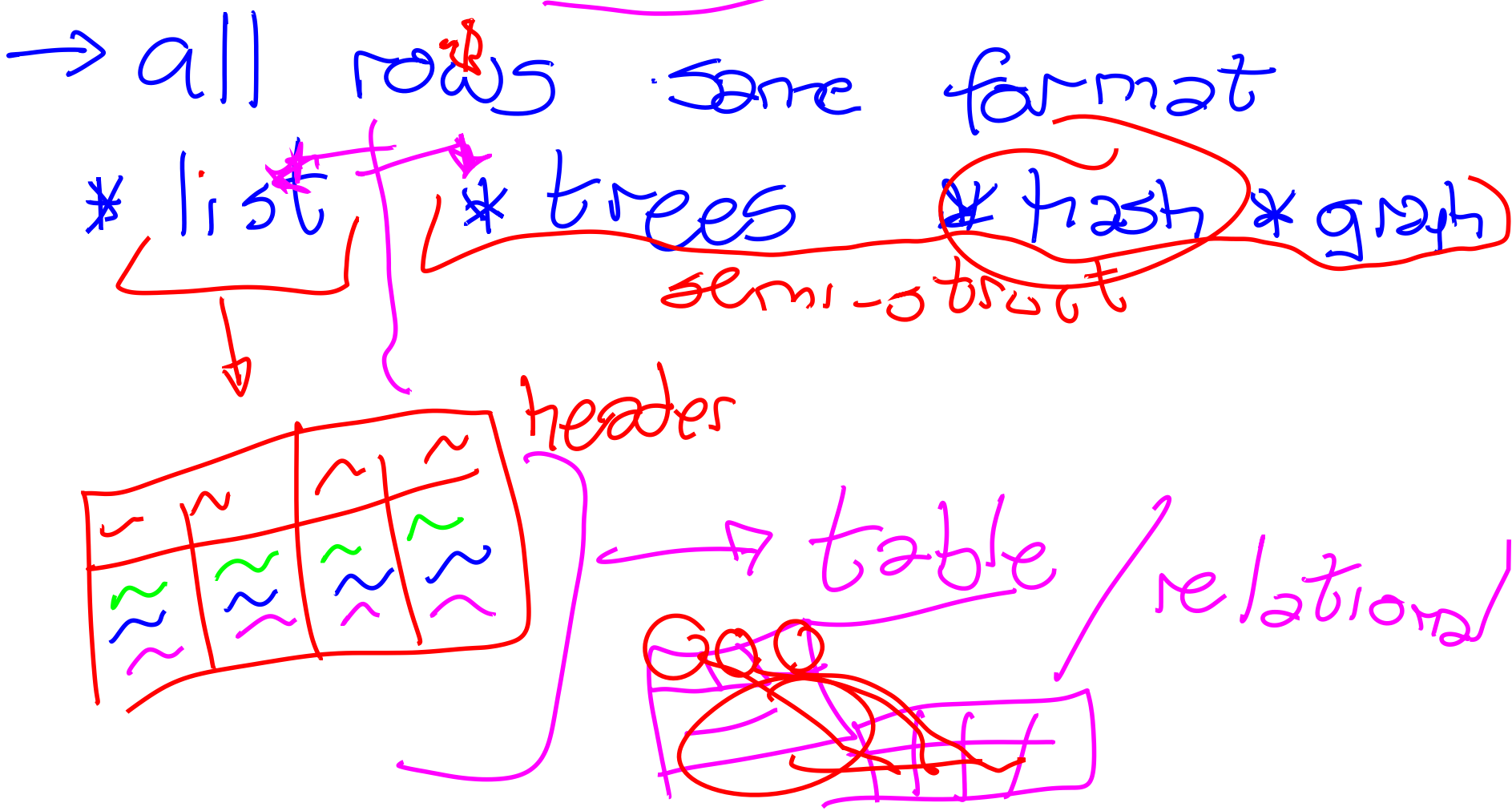
Relational DataBases I - ~~Structured~~ Data



Relational DataBases II - Tables & Keys

Fields → column

data structure

Name

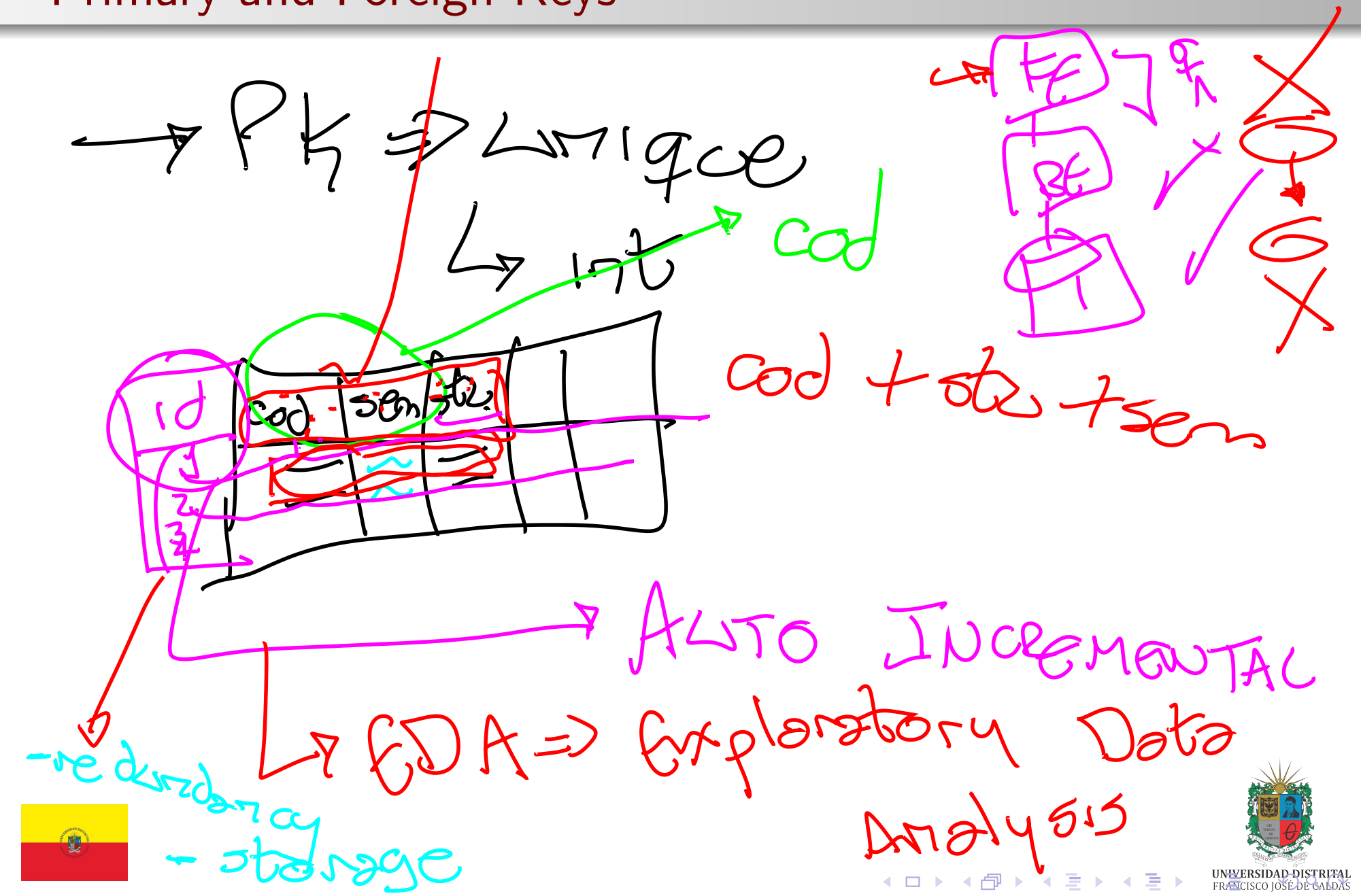
type

constraints

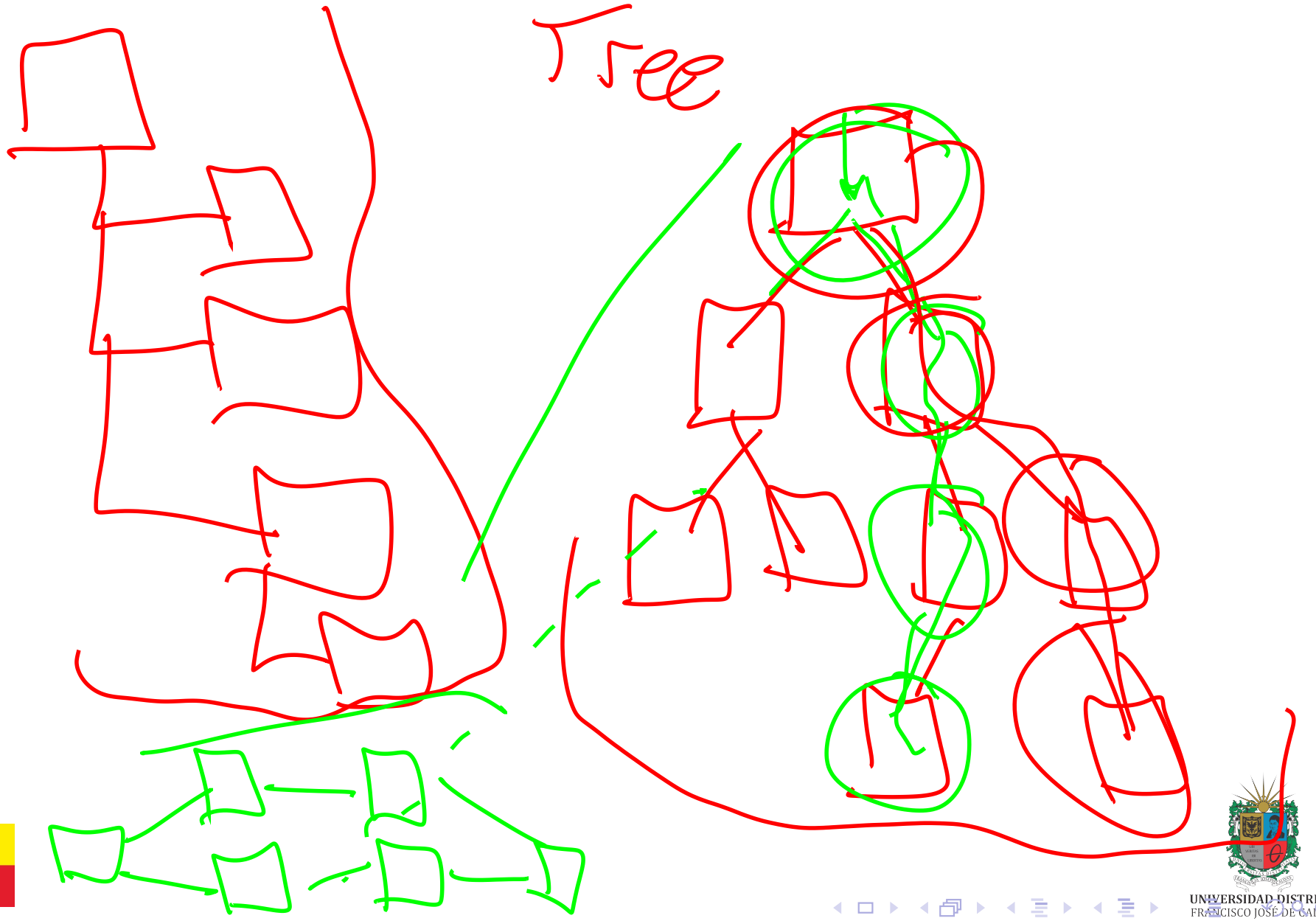
validation

data integrity

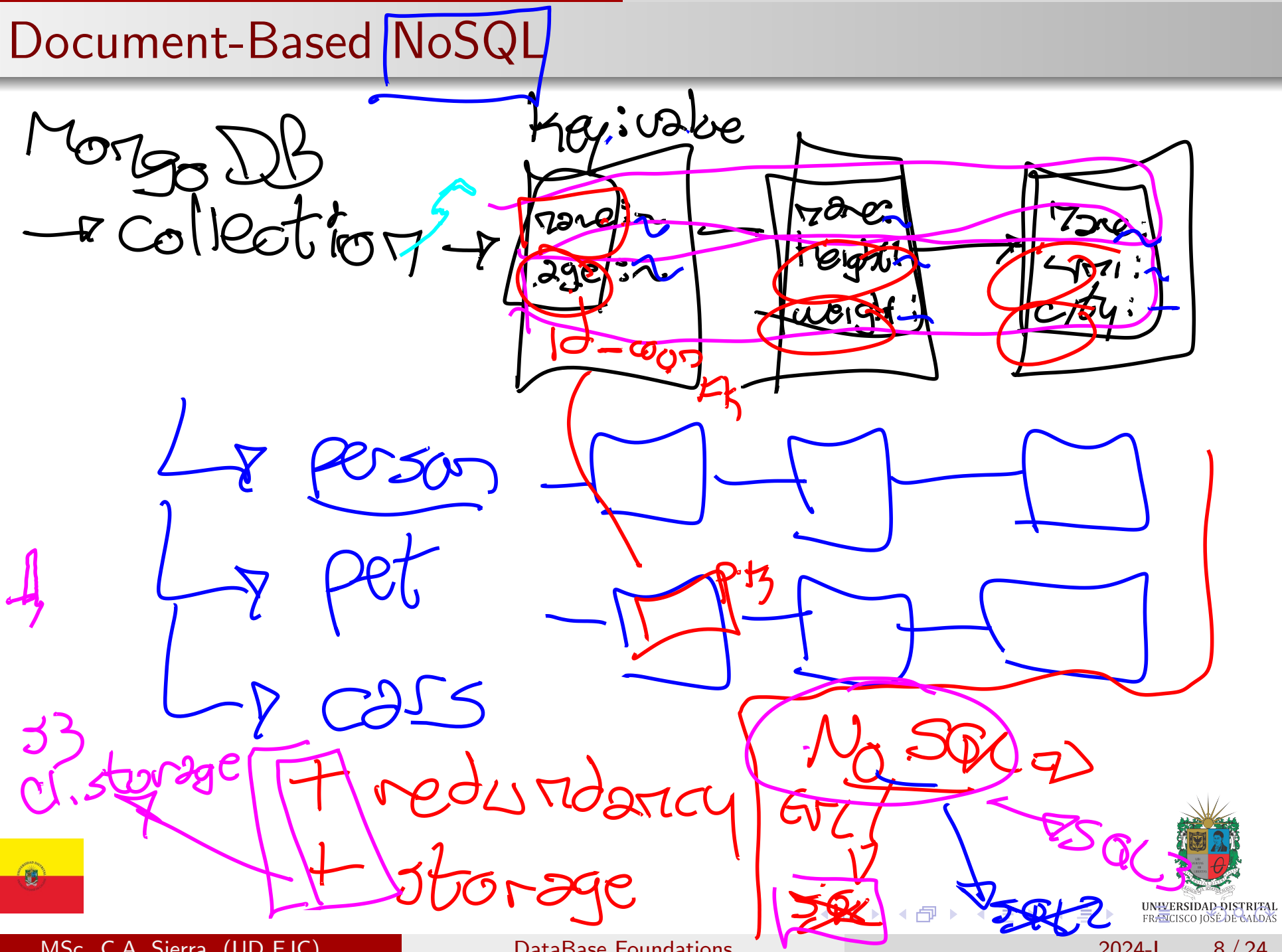
Primary and Foreign Keys



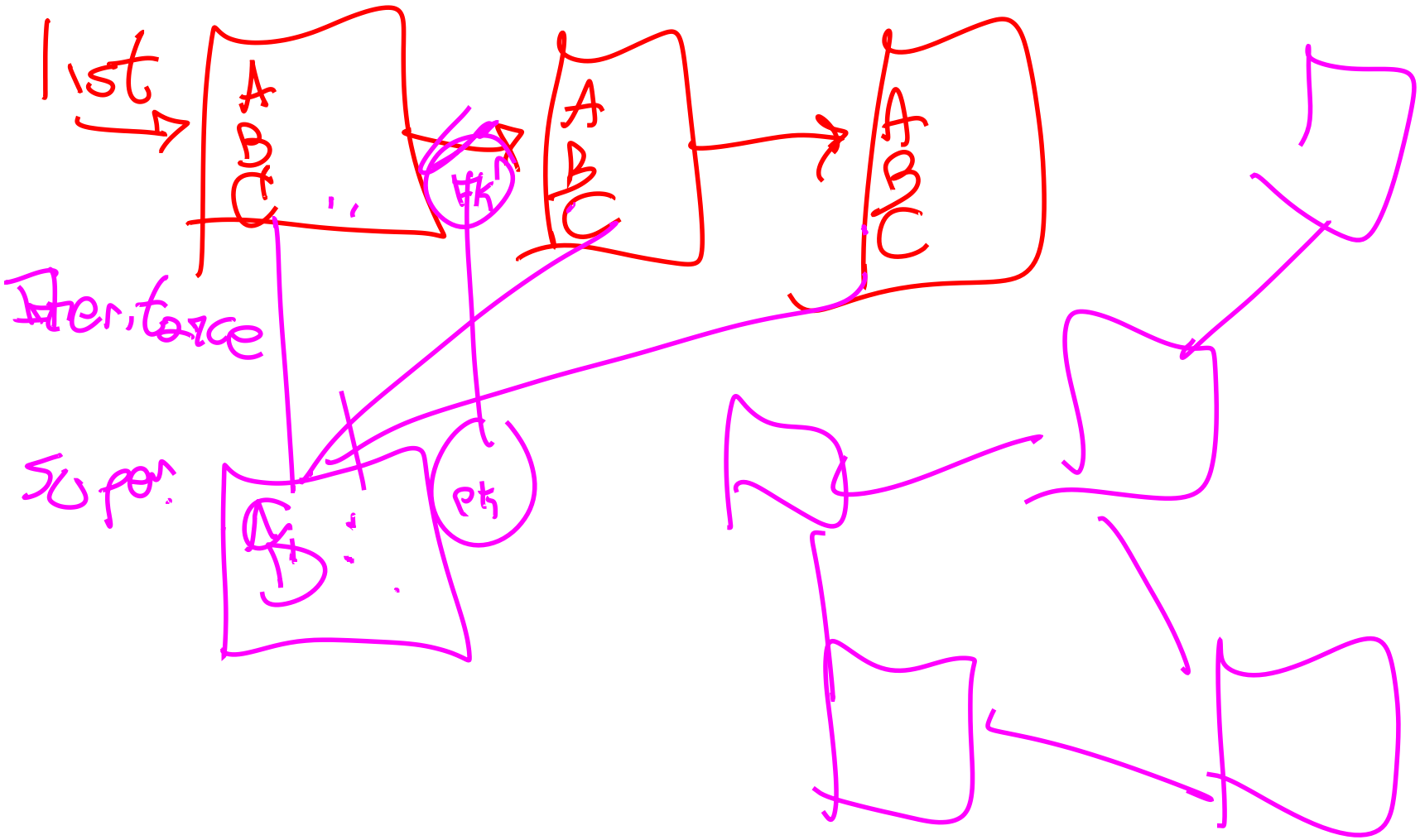
Semi-Structured Data



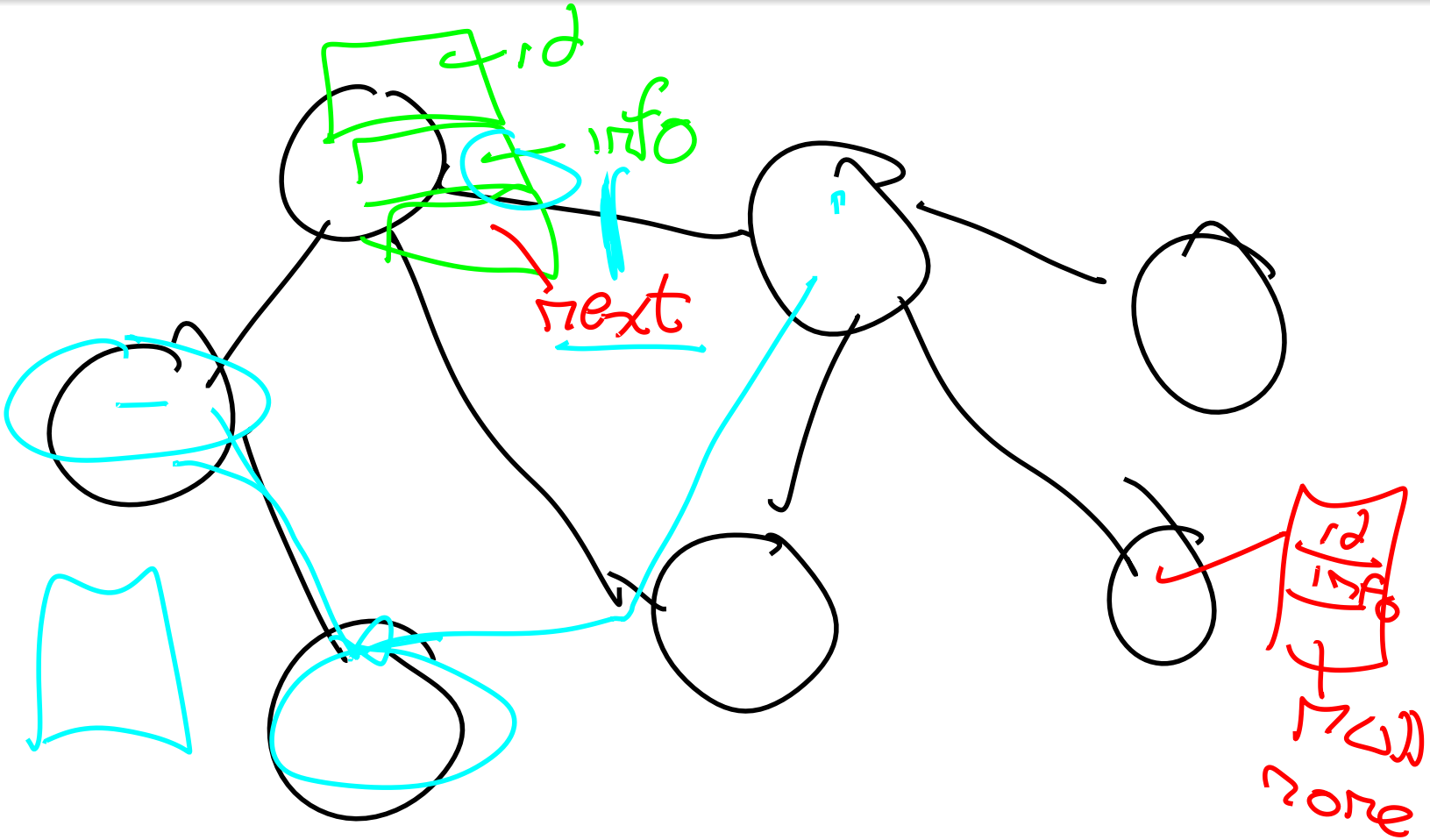
Document-Based NoSQL



Object-Oriented NoSQL



Graph-Based NoSQL



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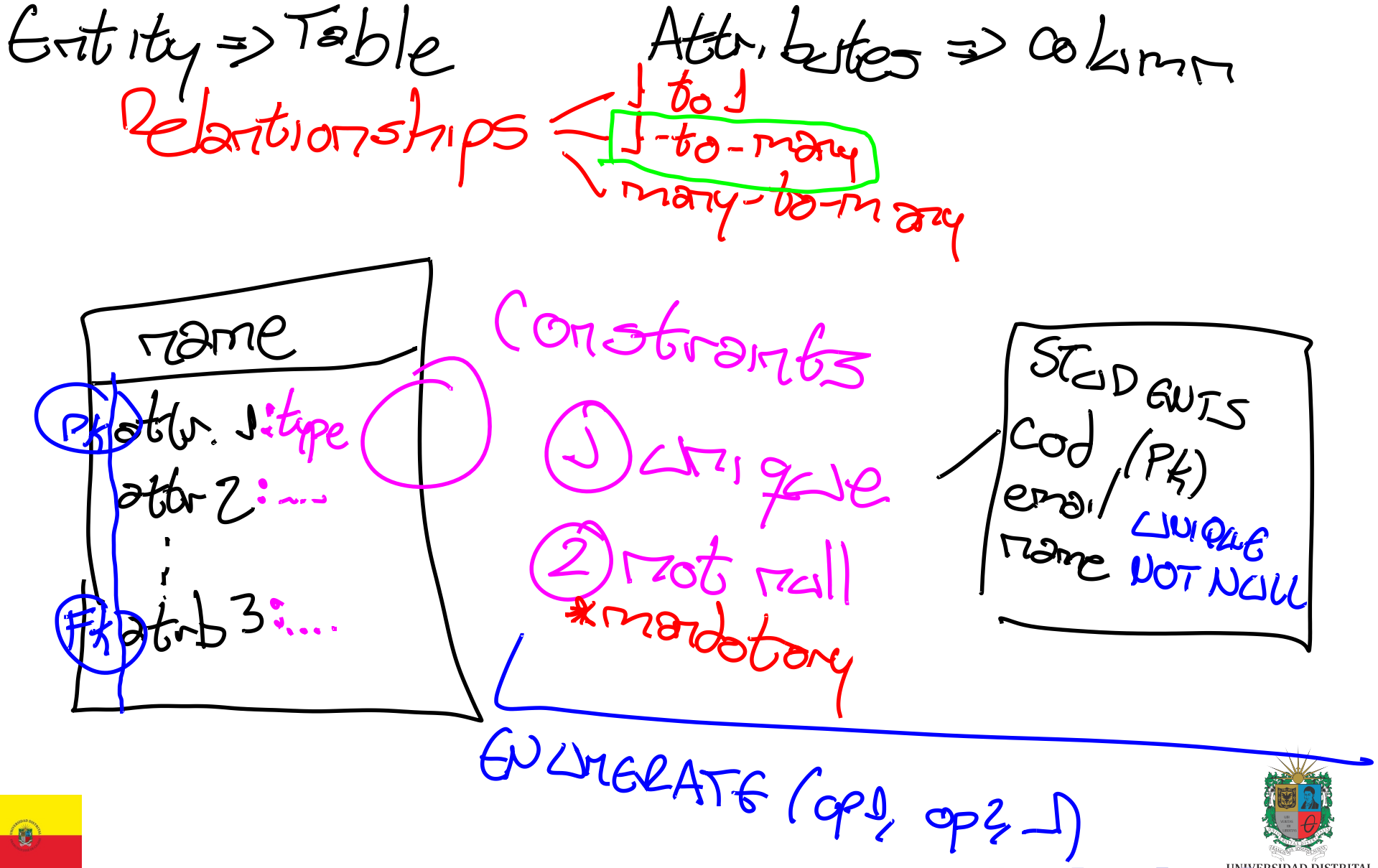
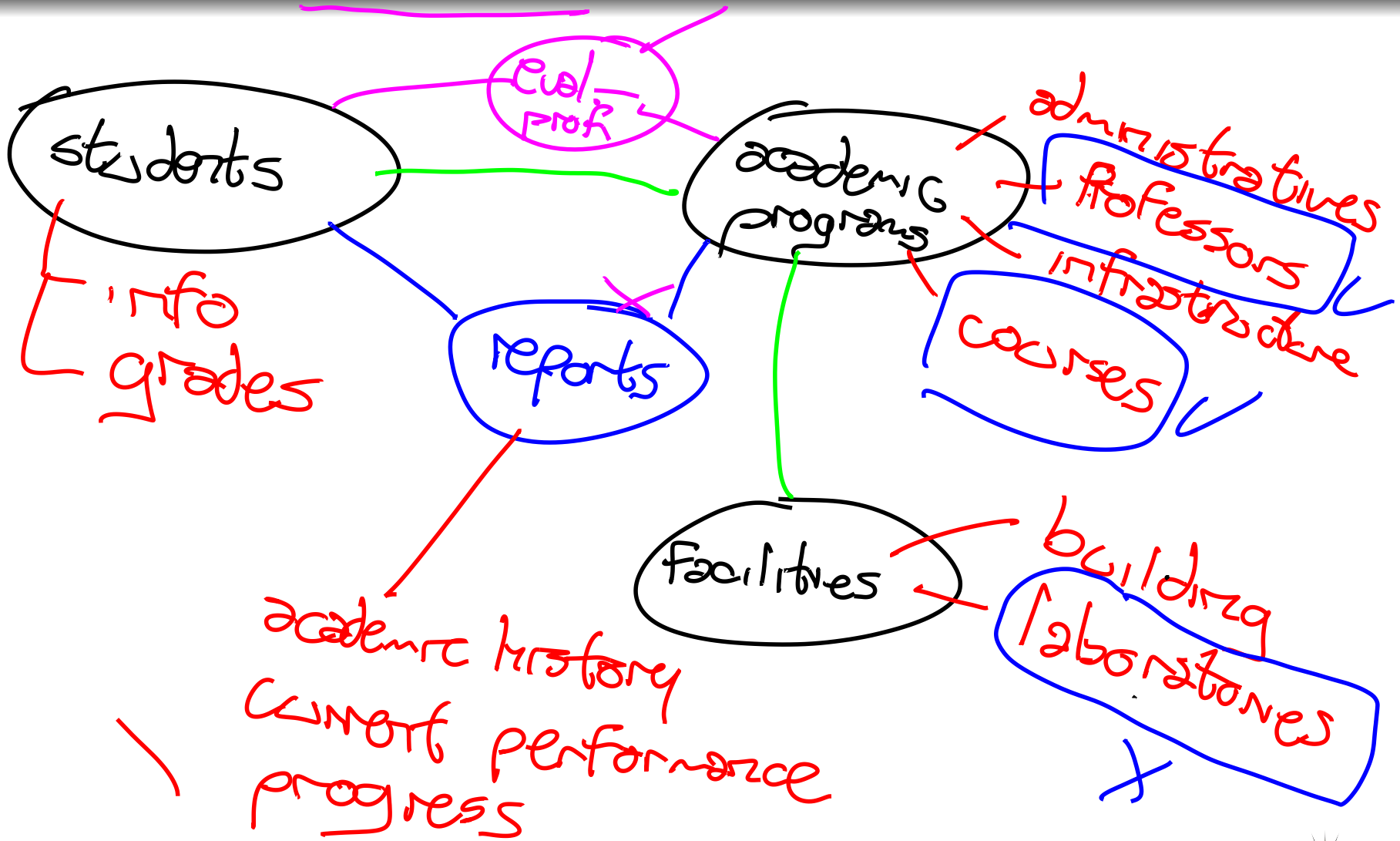
Basic Concepts



Step 0. Define Components



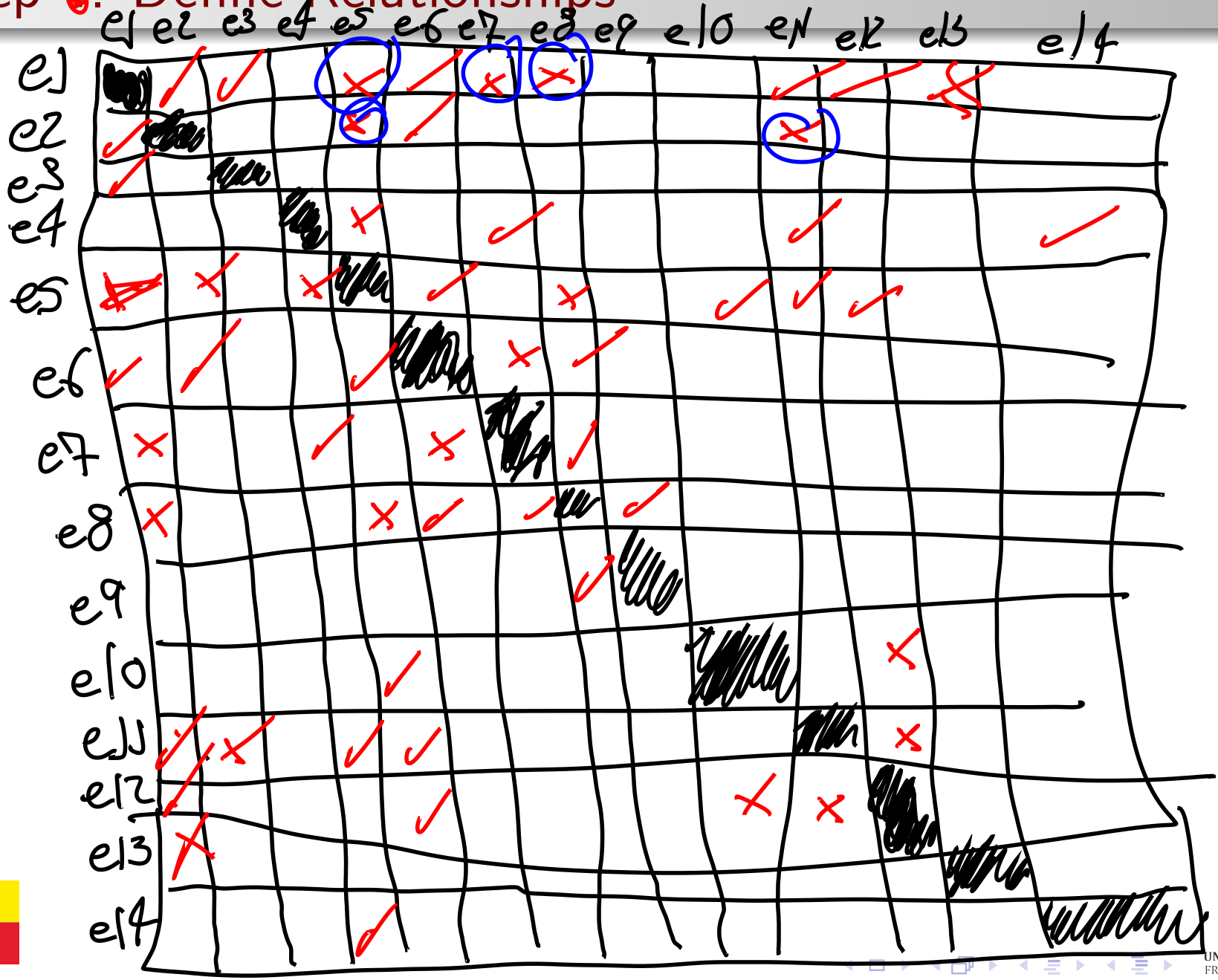
Step 1. Define Entities

e1. students
e2. grades
e3. parents
e4. administrative_staff
e5. professors
e6. courses
e7. buildings
e8. classroom
e9. type_classroom
e10. type_professor
e11. academic_program
e12. professor_eval
e13. type_parentship
e14. rol_staff

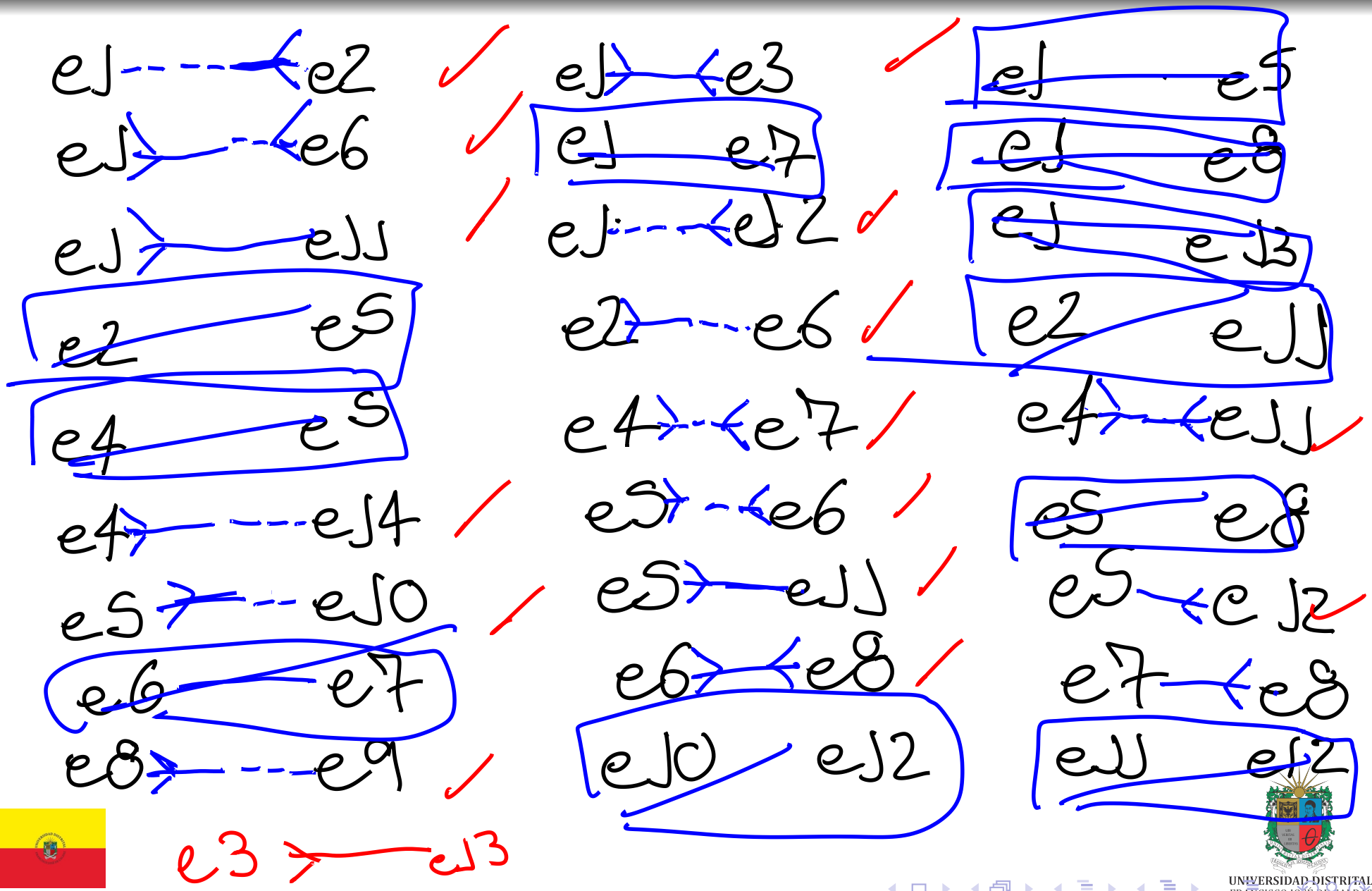
Step 2. Define Attributes per Entity

e1. => cod, name, email, phone, address
e2. => value, student, course, period
e3. => id, name, student, type
e4. => id, name, rol
e5 => id, name, email, academic_program, bachelor
e6 => cod, name, semester, academic_program
e7 => id, name, address, latitude, longitude
e8 => number, building, type_classroom
e9 => id, name, description] e13 e14
e10 => id, name, description]
e11 => area, name, coordinator_dean

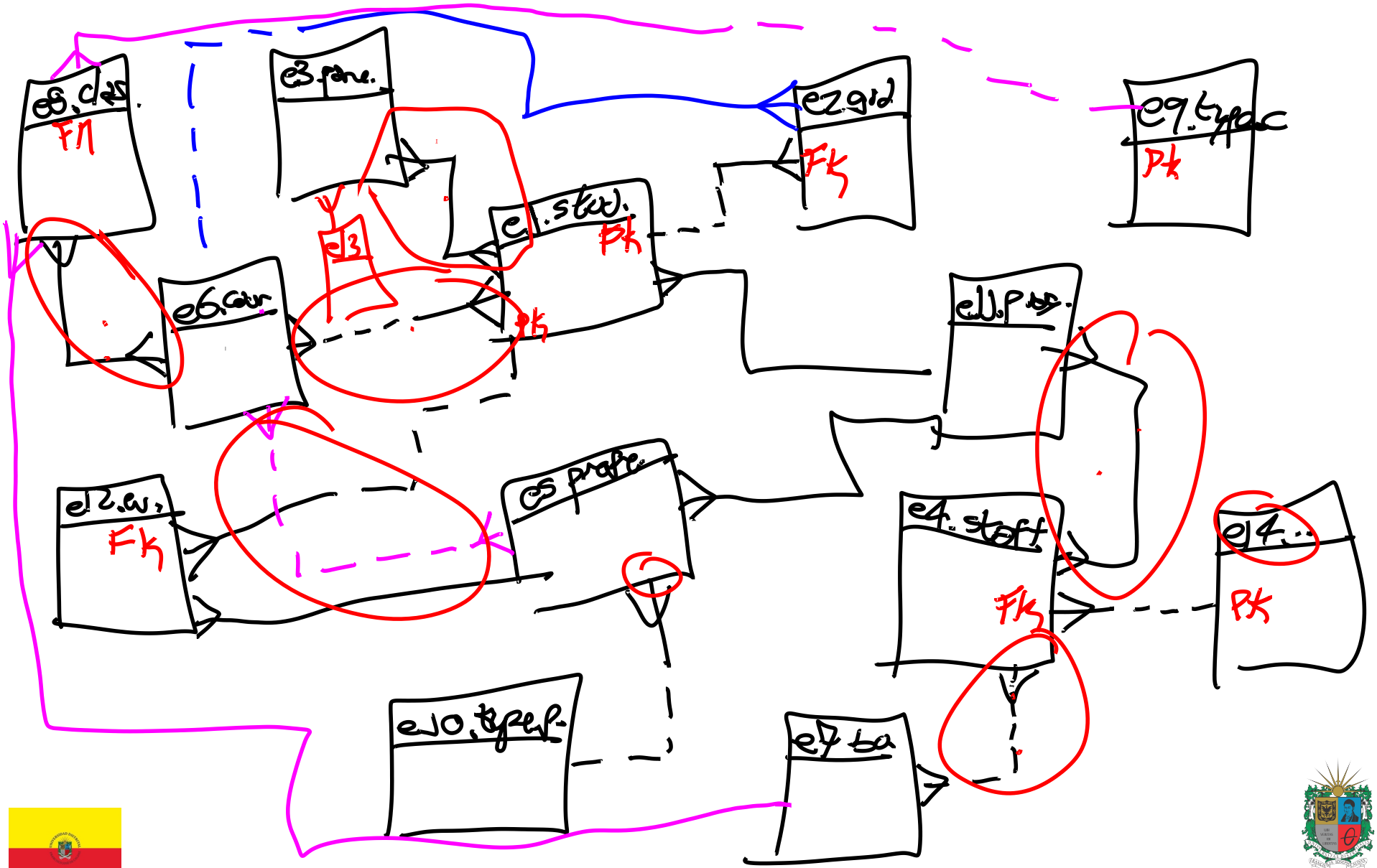
Step 3. Define Relationships



Step 4. Define Relationships Types



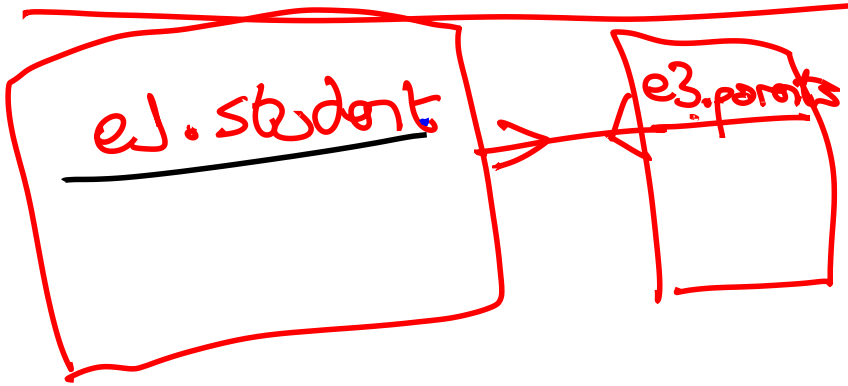
Step 6.5 First Entity-Relationship Draw

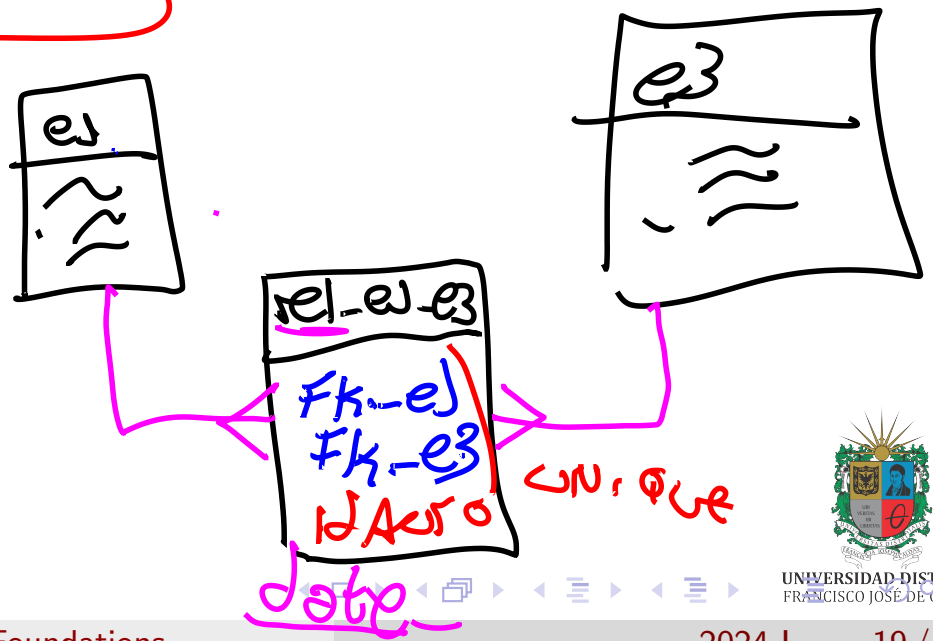


Step 7. First Split Many-to-Many Relationships

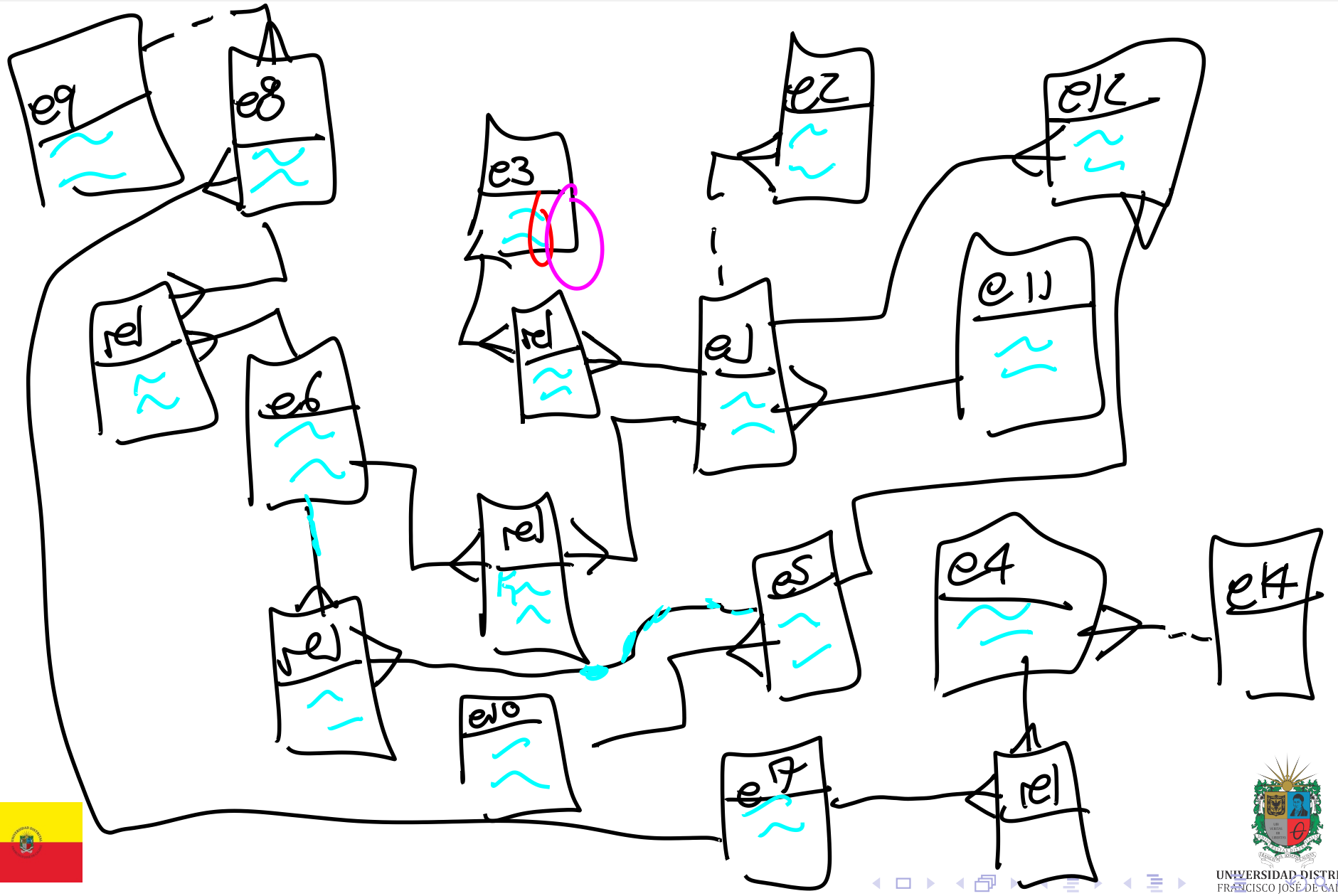
e1 => Fk_Program
e4 => Fk_bol_staff
e8 => Fk_type_classroom
Fk_building
e3 => Fk_type_parent

e2 => Fk_student
e3 => Fk_type_professors
Fk_program
e12 => Fk_student
Fk_professors

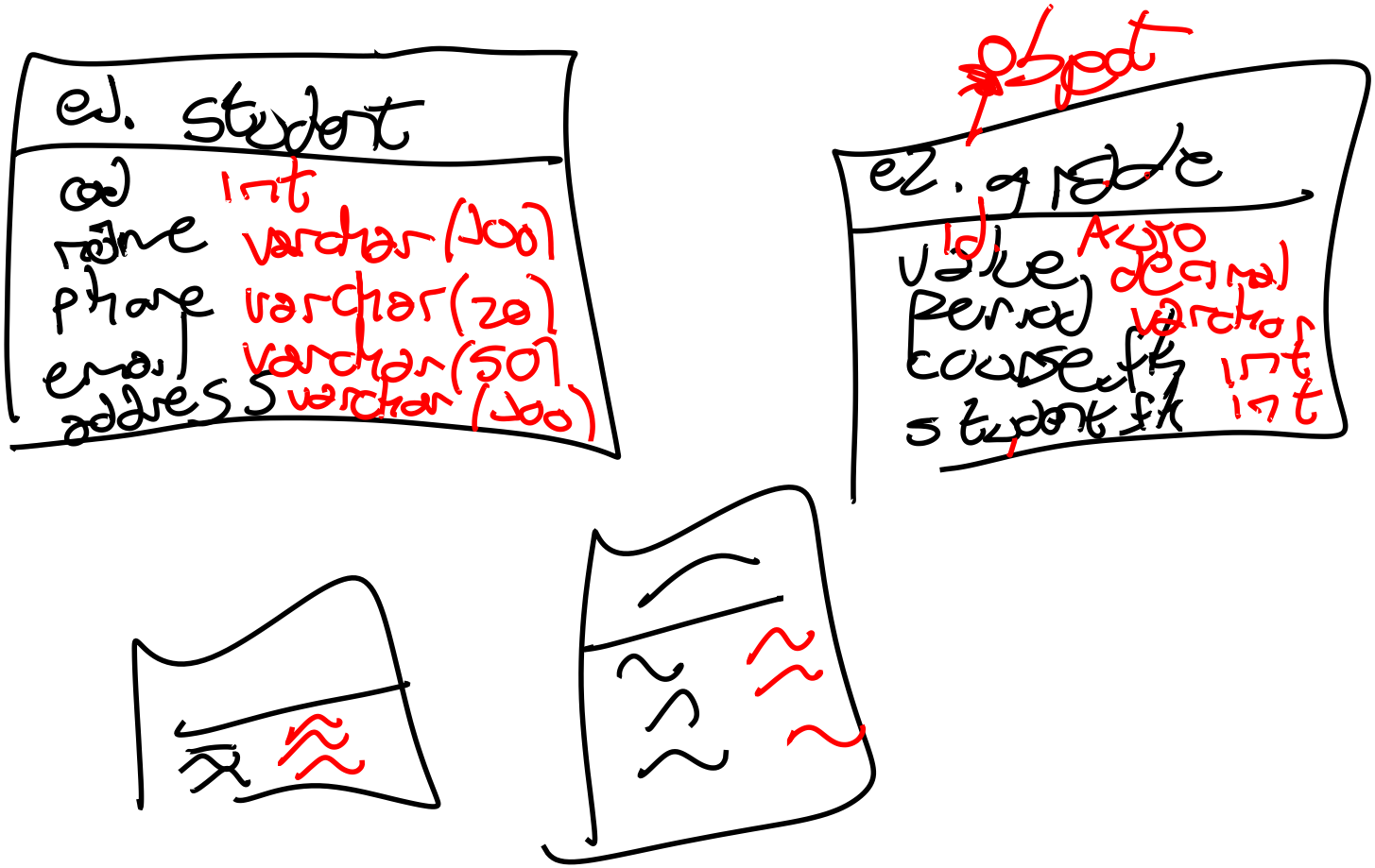




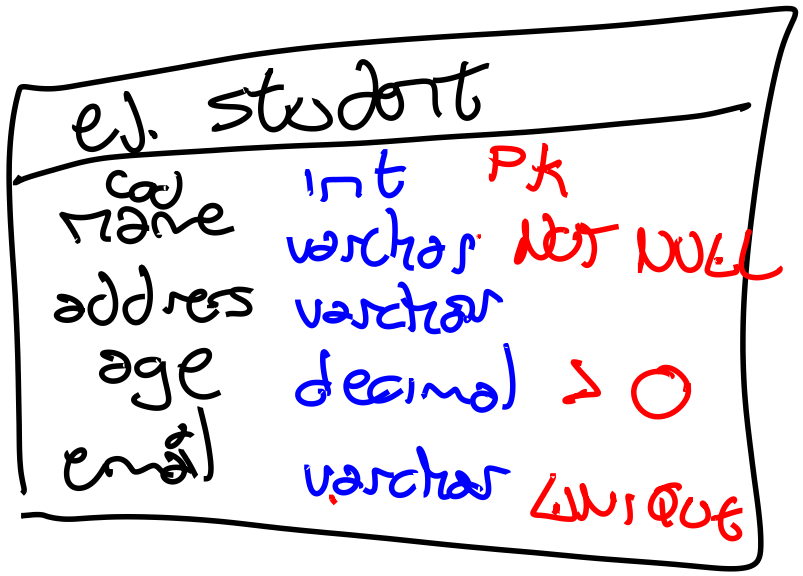
Step 8. Second Entity-Relationship Draw



Step 9. Get Data-Structure E-R M



Step 10. Define Constraints and Properties of Data



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Thanks!

Questions?

Repo: *github.com/engandres/ud-public/courses/databases-foundations*

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