



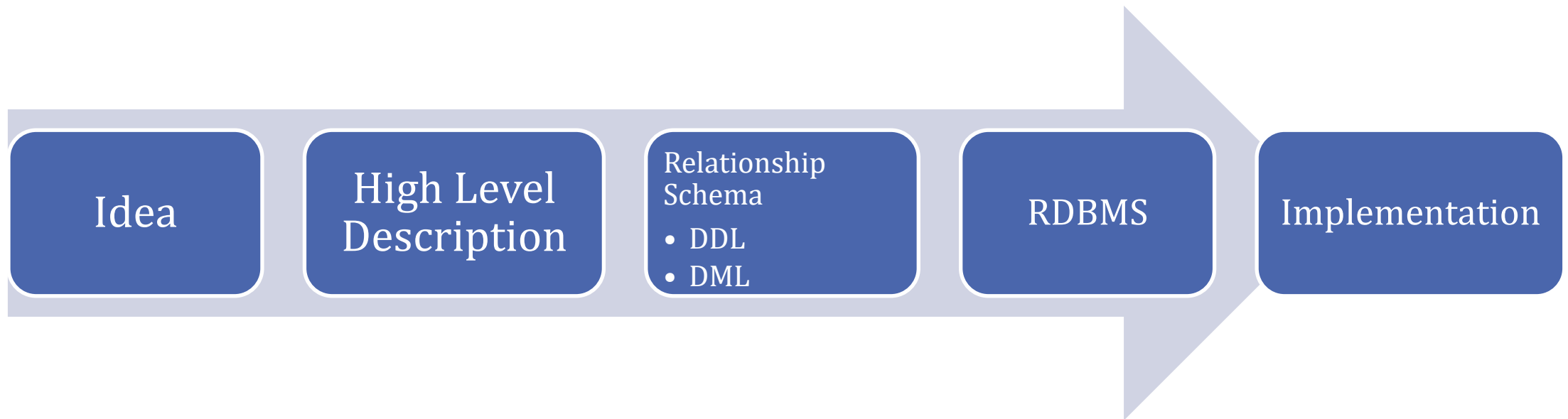


# CSE3103 : Database FALL 2020

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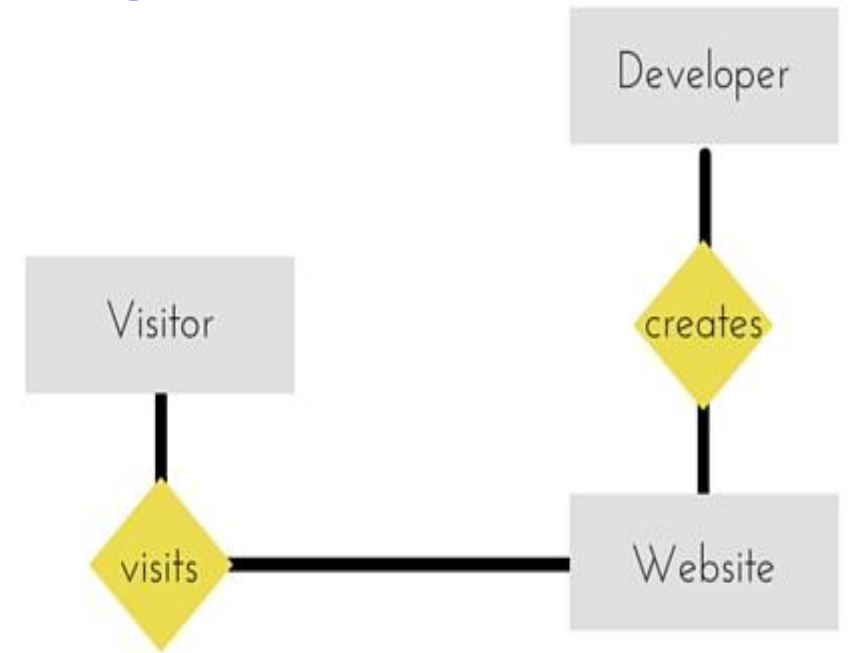
# ER (Entity Relationship) Modeling

- **Requirement Analysis:** Firstly you need to generate an idea about a project. From there you need to develop a High Level Description which is also called ER Modeling. The symbols which are used in ER Modeling that are representing the requirements.



# ER (Entity Relationship)Diagram

- The diagram which represents ER Model that is ER diagram.
- There are 3 (three) main parts in ERD
  - Entity
  - Relationship
  - Attributes
- There are also many small parts in ERD.



# Entity

- It's all-time singular noun and concise.
- After Requirement Analysis we have to find out the Entity and Relationships.
- Entity will be a real object from the problem Domain and Data will be stored in the database on Entity.
- Distinguishable from the other objects and Entity is described using a set of attributes.
- Examples:
  - People – employee , students , patients
  - Place – store , warehouse
  - Objects – Machine, products, Vehicle
  - Events – lectures, sales, registration
  - Concept – Account , Course

# Entity



People



Places



Companies



Products



Who?

Intentions?

Buy or quit?

How many?

Positive or negative?

Which competitors?

What industry?

Where?

Compared to?

Evidence?

# Entity : Example:

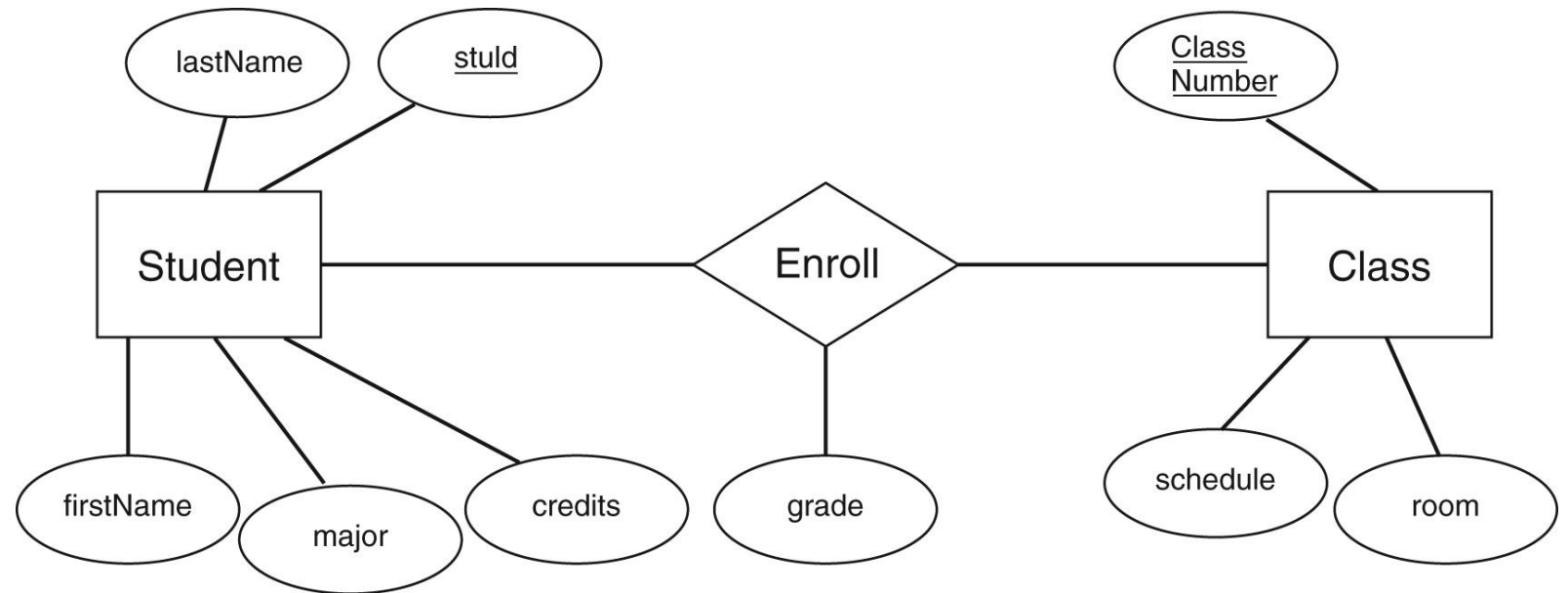
There are many students in AUST Students can enroll in different courses and receive grades.

## Possible Entity:

- Student
  - ~~AUST~~
  - Courses
  - ~~Grades~~
- 
- All entities in a entity set have some set of attributes.
  - Each entity set has a key.
  - Each attributes has a domain.

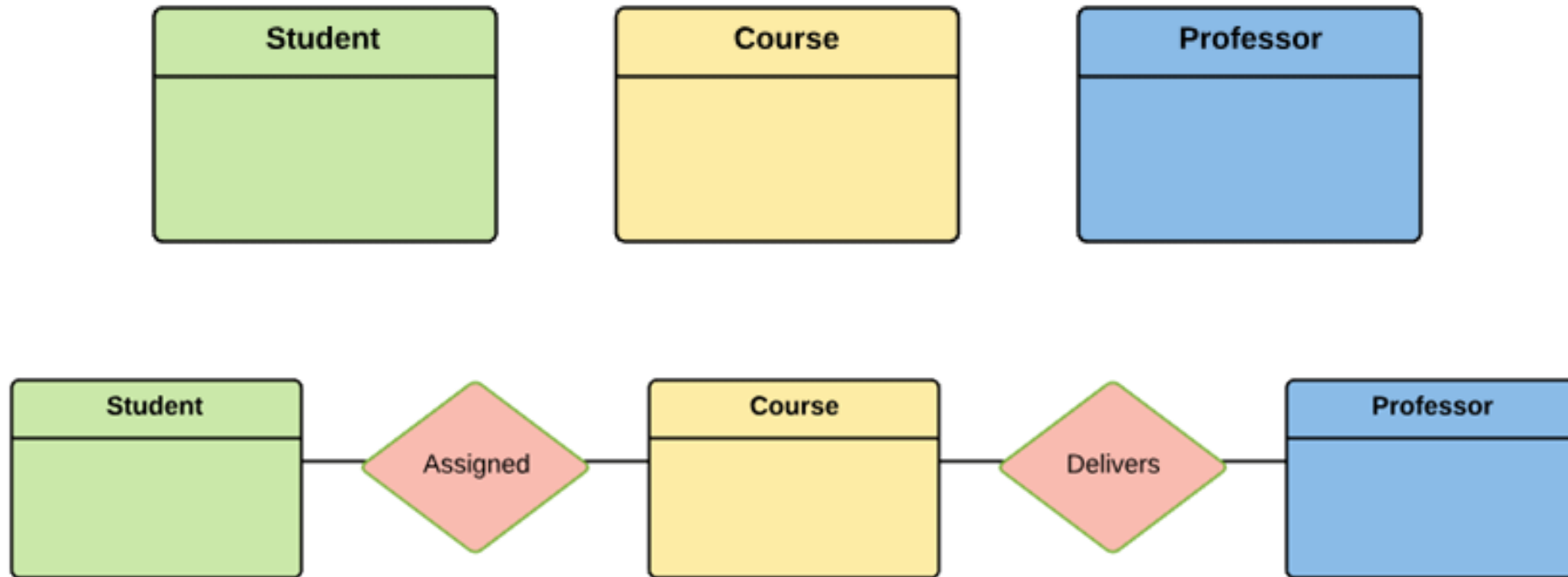
# Relationship

- The interaction between Entity Set.
- Relationship is always a Verb and it can have own attributes.
- Association among two or more attributes.
  - Types:
    - Communication
    - Interaction
    - Multiplication
    - Join





# Relationship : Example:



# Relationship : Example:

There are many students in AUST. Students can enroll in different courses and receive grades.

Possible Relationship:

- ~~are~~
- Enroll
- ~~receive~~

# Attributes:

- The properties of the entity or Relationship.
  - Properties are remaining same for the entity but value can change.
  - If properties/attributes are described in story , use the given ones.
  - Other than guess the attributes and use the meaningful properties.
- Example Student:
  - ID , Name, Parents name, Address, DOB, Blood Group
  - Phone, E-mail, Eye Color, Height, Hair Color
  - NID, Passport Number, Birth Certificate

# Attributes:



Entity Name

## Entity

Person, place, object, event or concept about which data is to be maintained

**Example:** Car, Student



Attribute Name

## Attribute

Property or characteristic of an entity

**Example:** Color of car Entity Name of Student Entity



## Relation



Association between the instances of one or more entity types

**Example:** Blue Car Belongs to Student Jack

