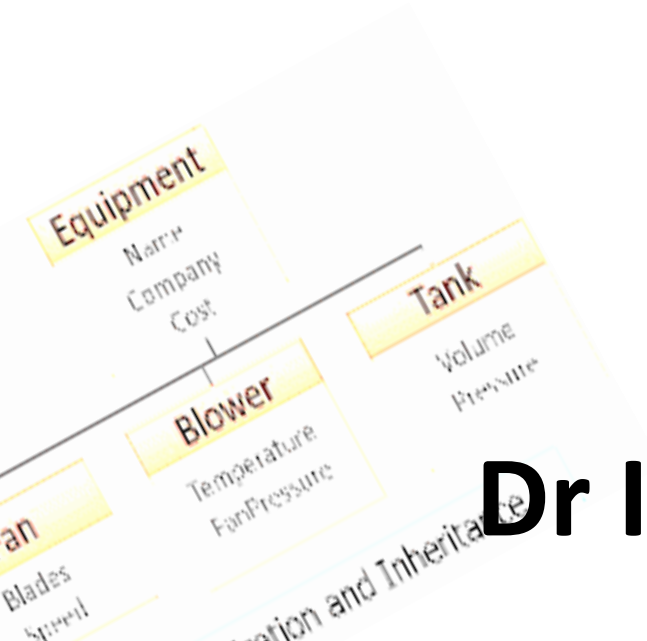
Advanced Software Engineering
CSE608



Lect 4

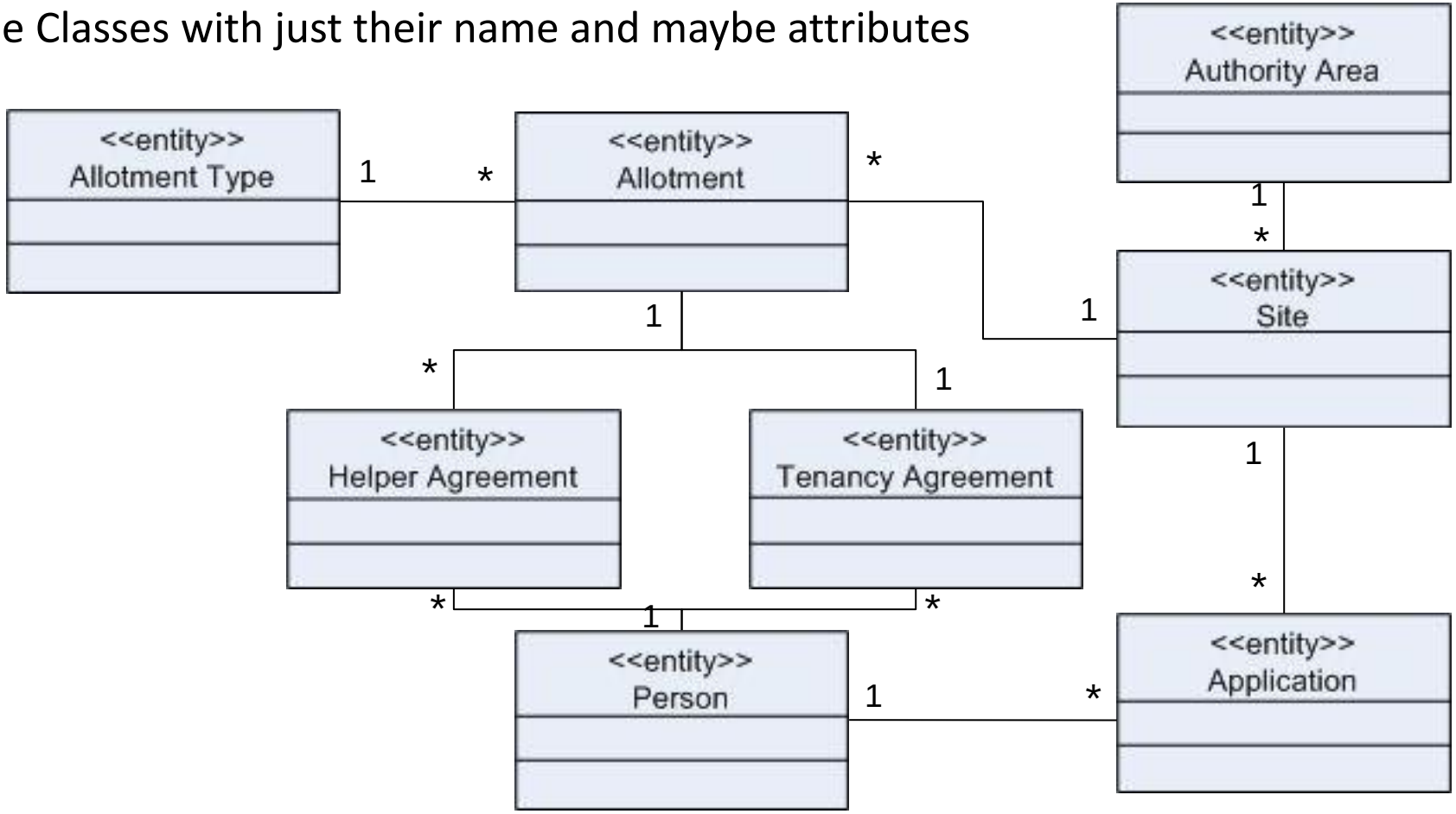
Class Modelling

UNIFIED MODELING LANGUAGE™

Dr Islam El-Maddah

Class Diagram Example

- Sometimes known as Logical Data Modelling or Entity Relationship Modelling
- Use Classes with just their name and maybe attributes



Class Diagrams

- UML Class notation
  - Association
  - Inheritance
  - Aggregation
  - Cardinality

Relationships

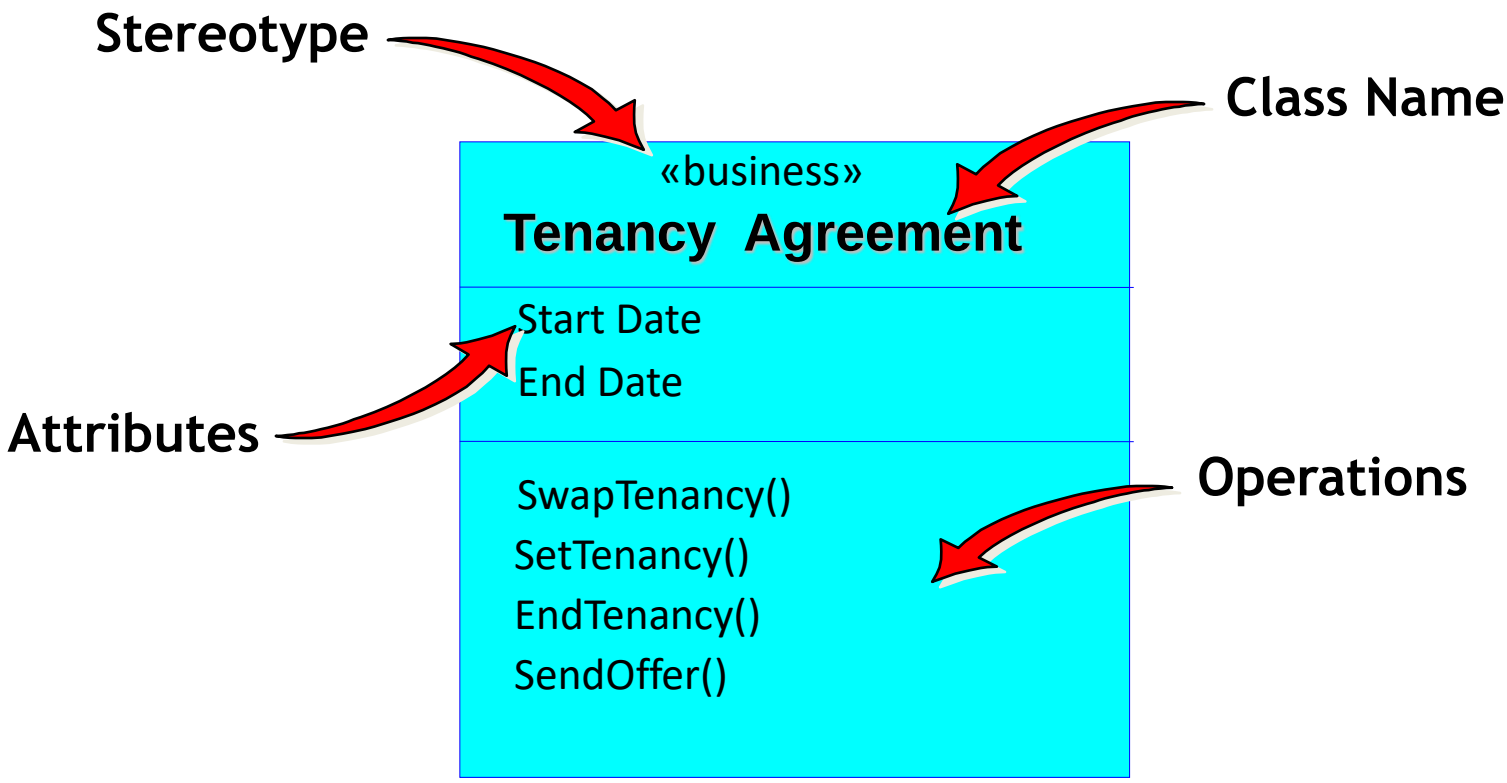
Sub-types, Super-types

Relationships (Hierarchy of Entities)

One:many; many:many; one:one

- Using UML for Business Domain Modelling

UML Notation - the Class

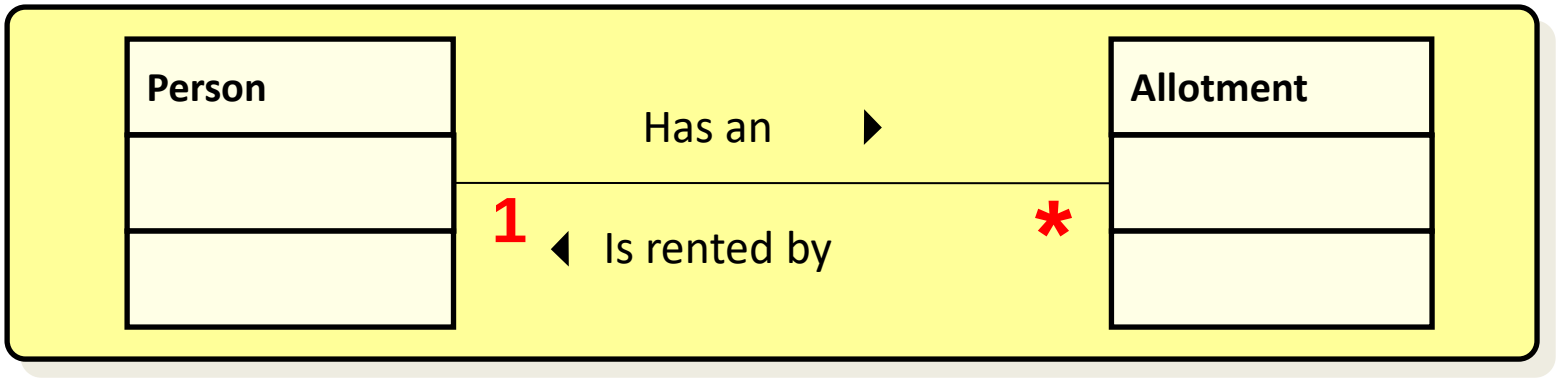


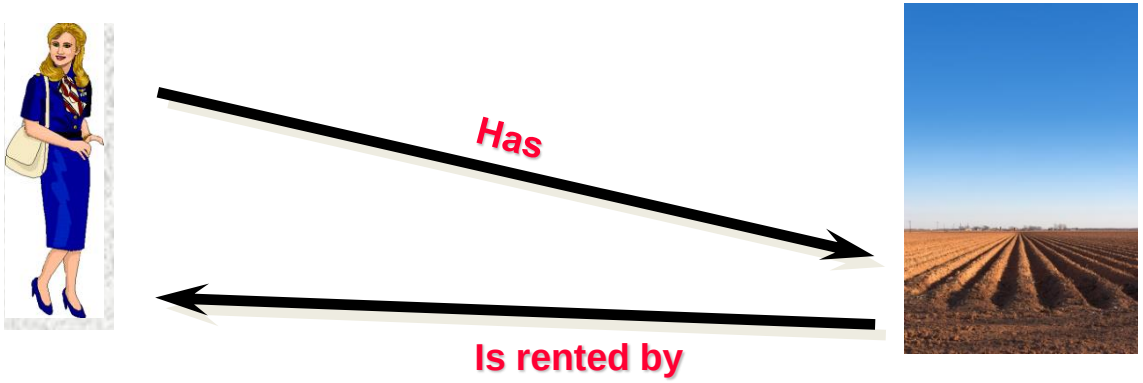
Business Domain Modelling concerned with Attributes
Similar to Entity Modelling

Association relationships

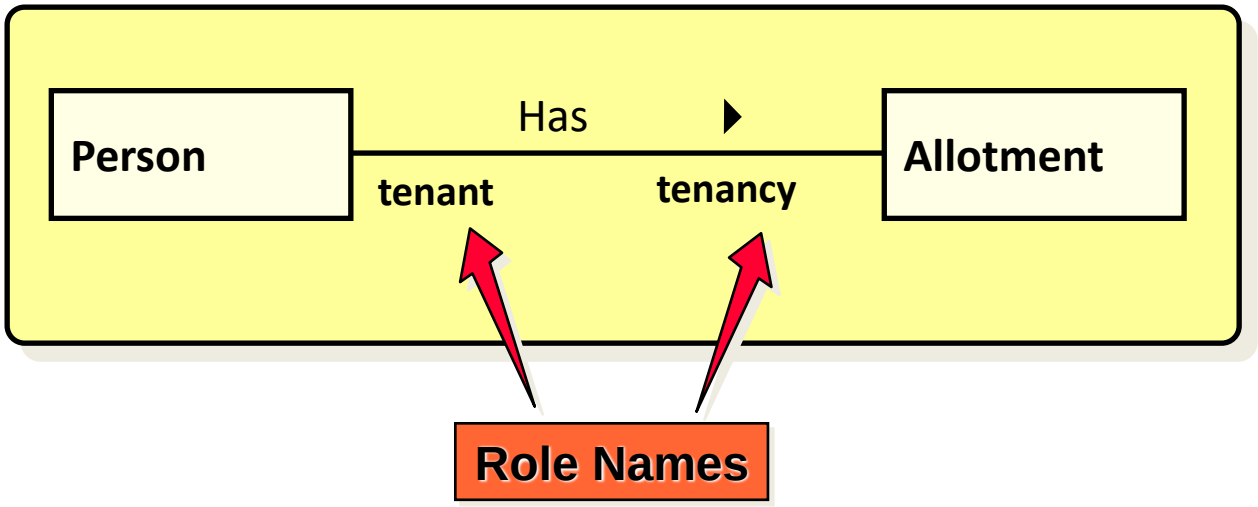
An Association is a structural relationship, specifying that objects of one element are connected to another.

Associations Relate Classes &Links Relate Objects



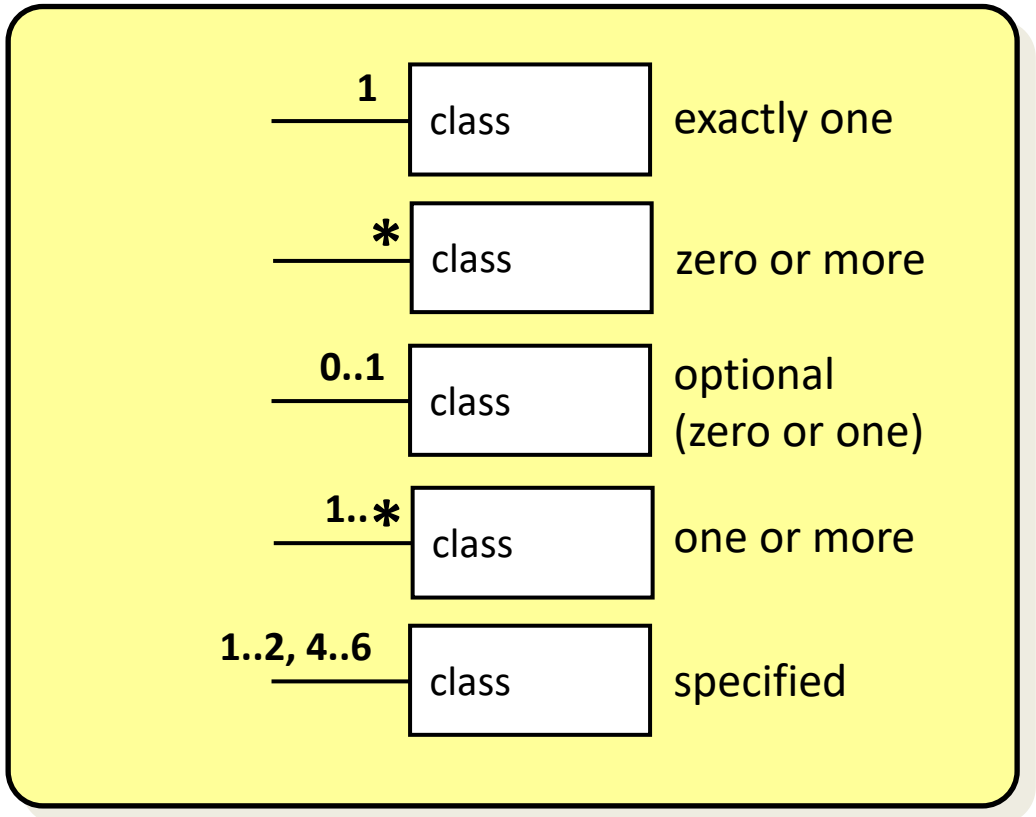


Each Class Plays a Role

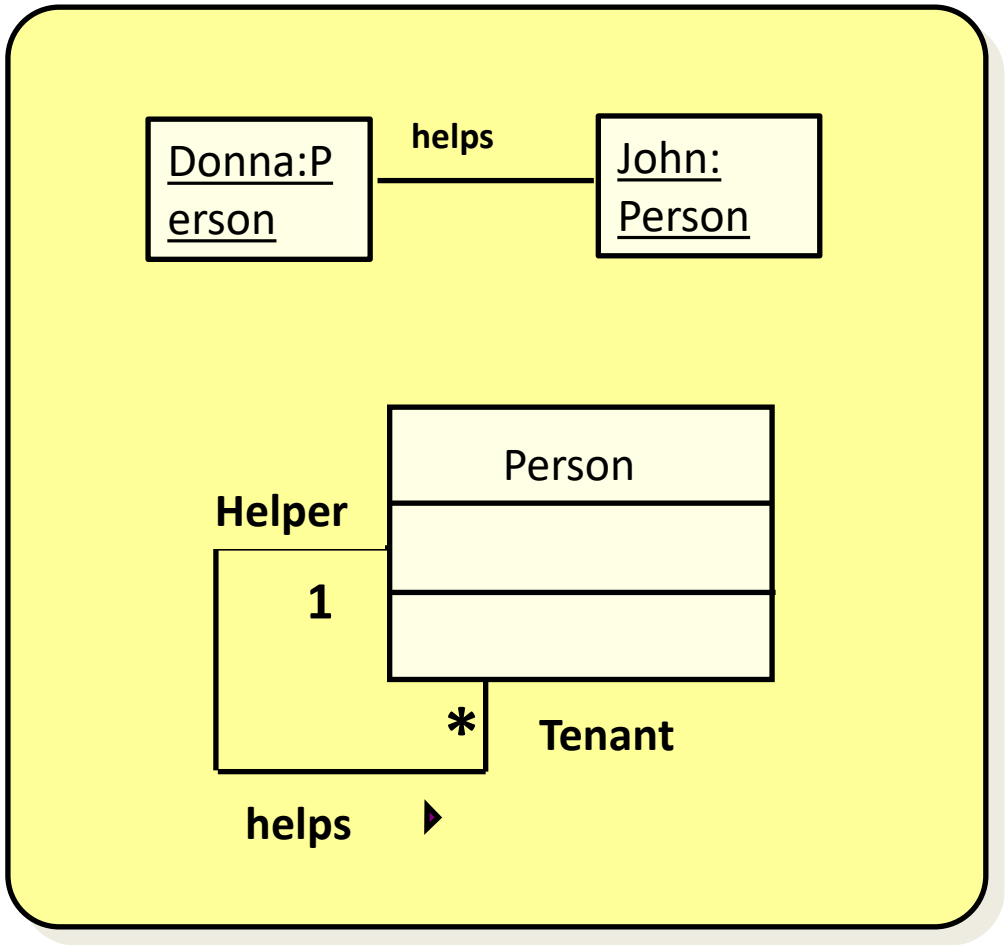


Not always needed – only use to aid understanding

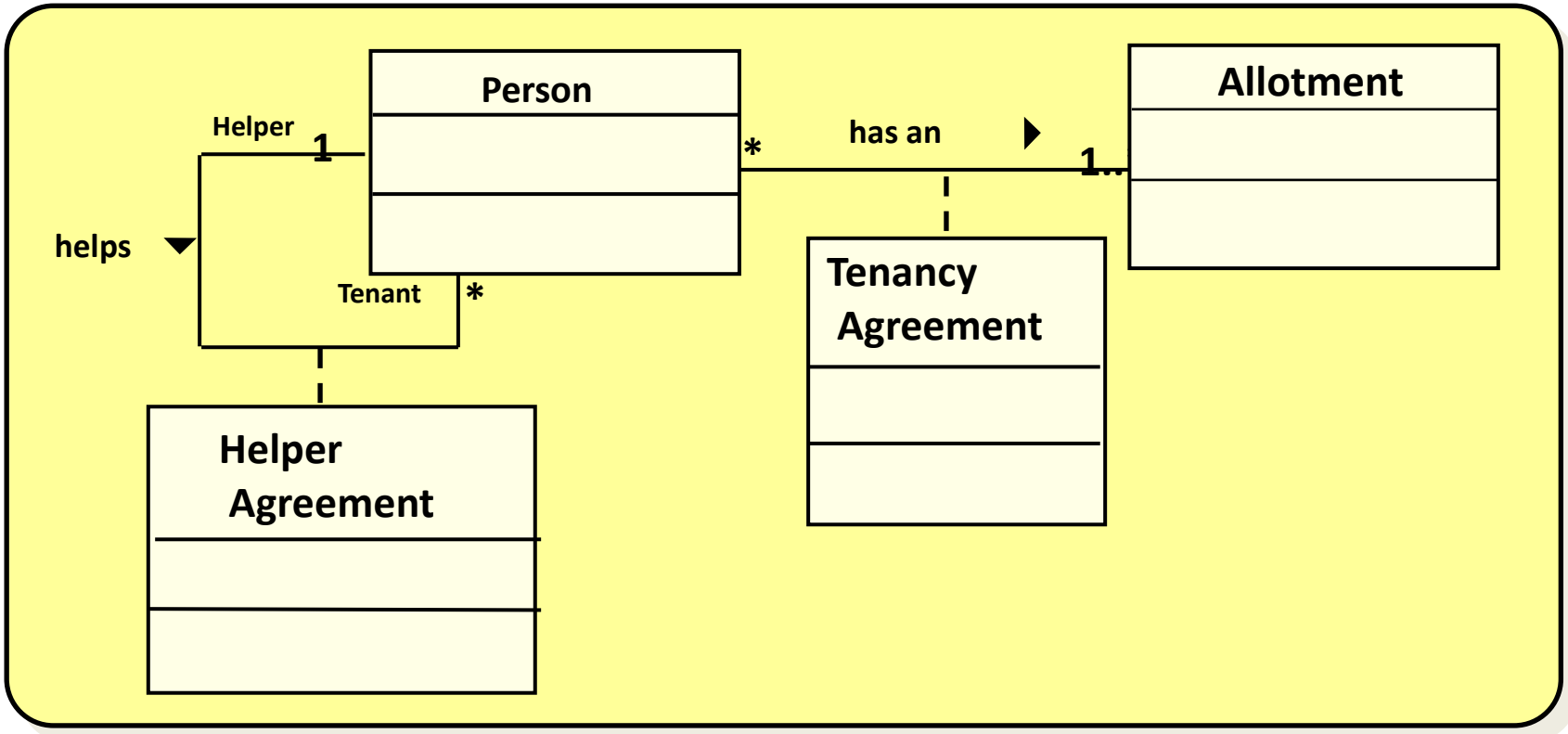
Multiplicity of Associations



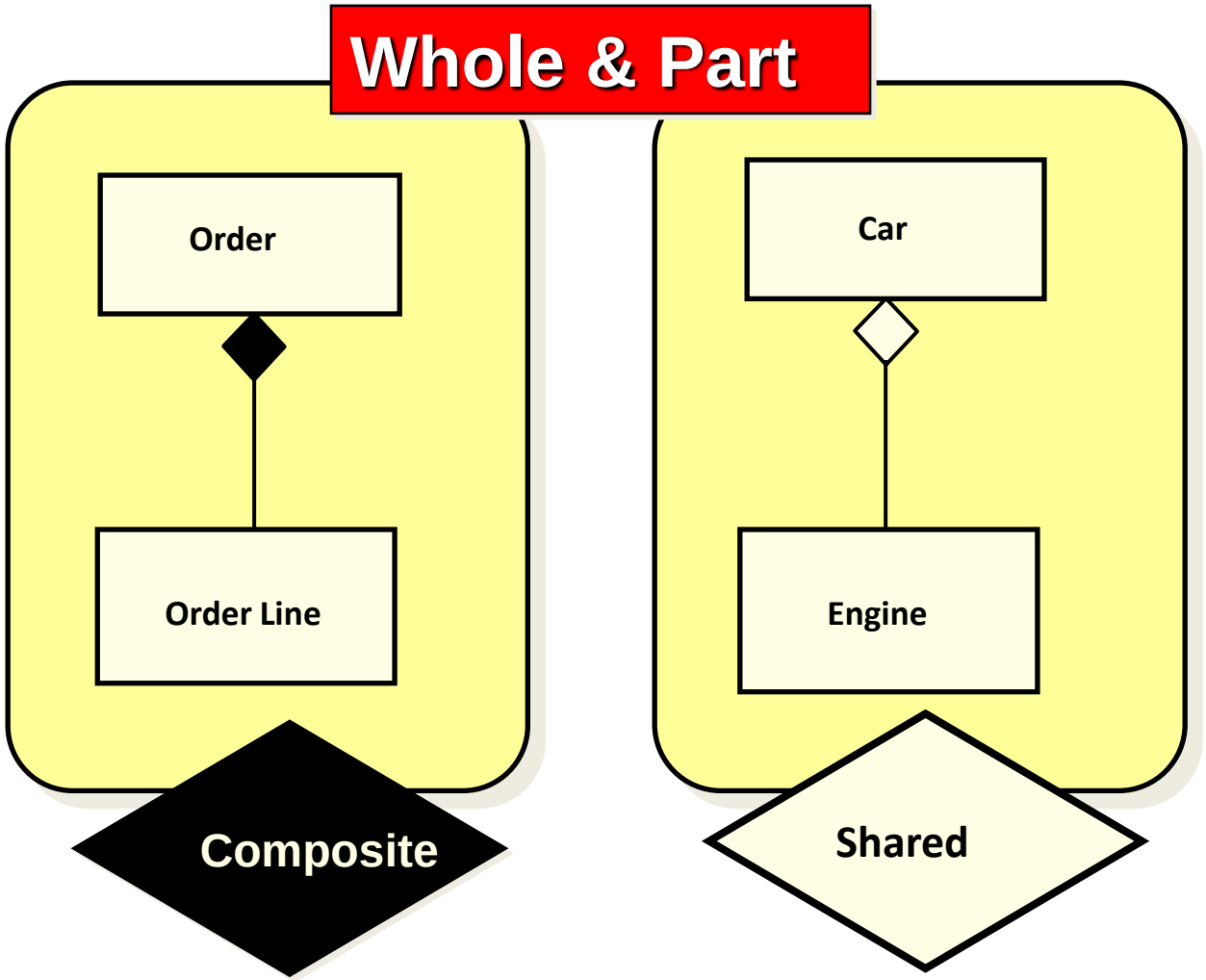
Relating Instances of the Same Class



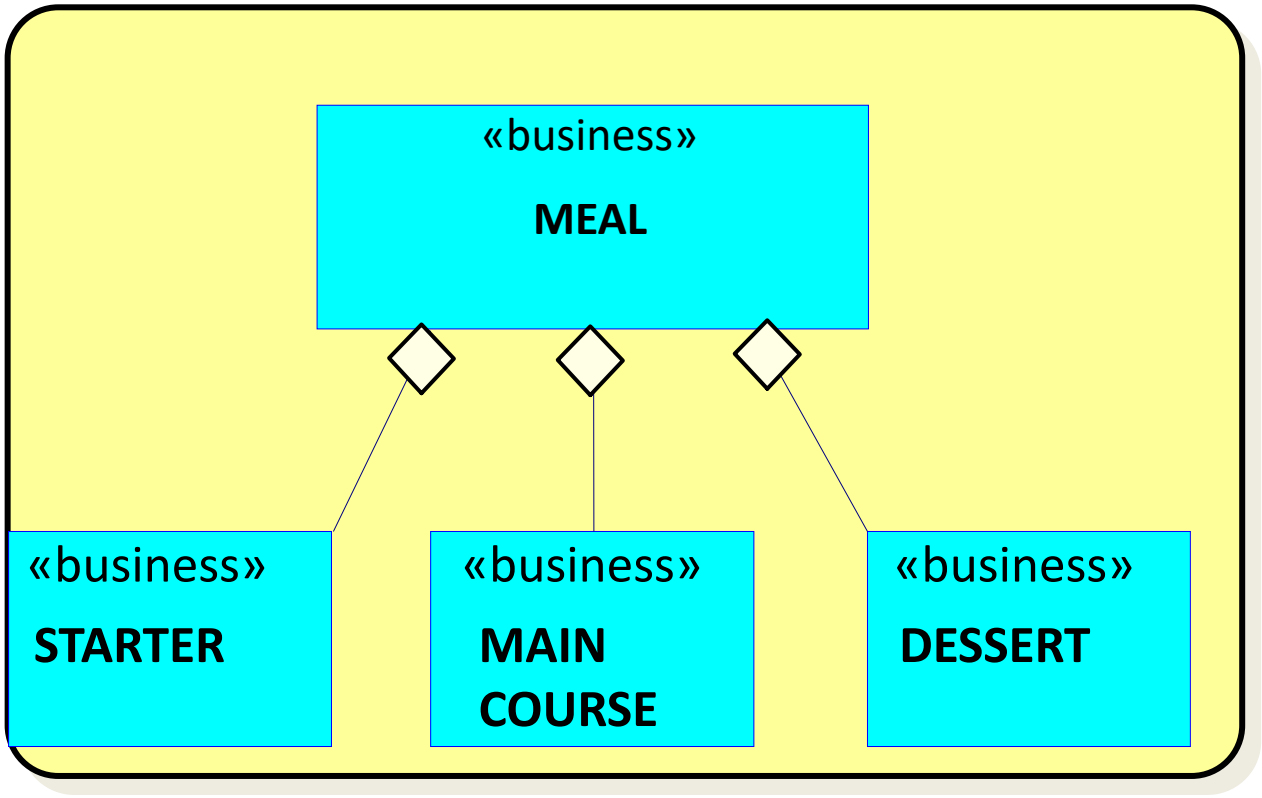
Association Classes



Aggregation
(whole or part relationships)



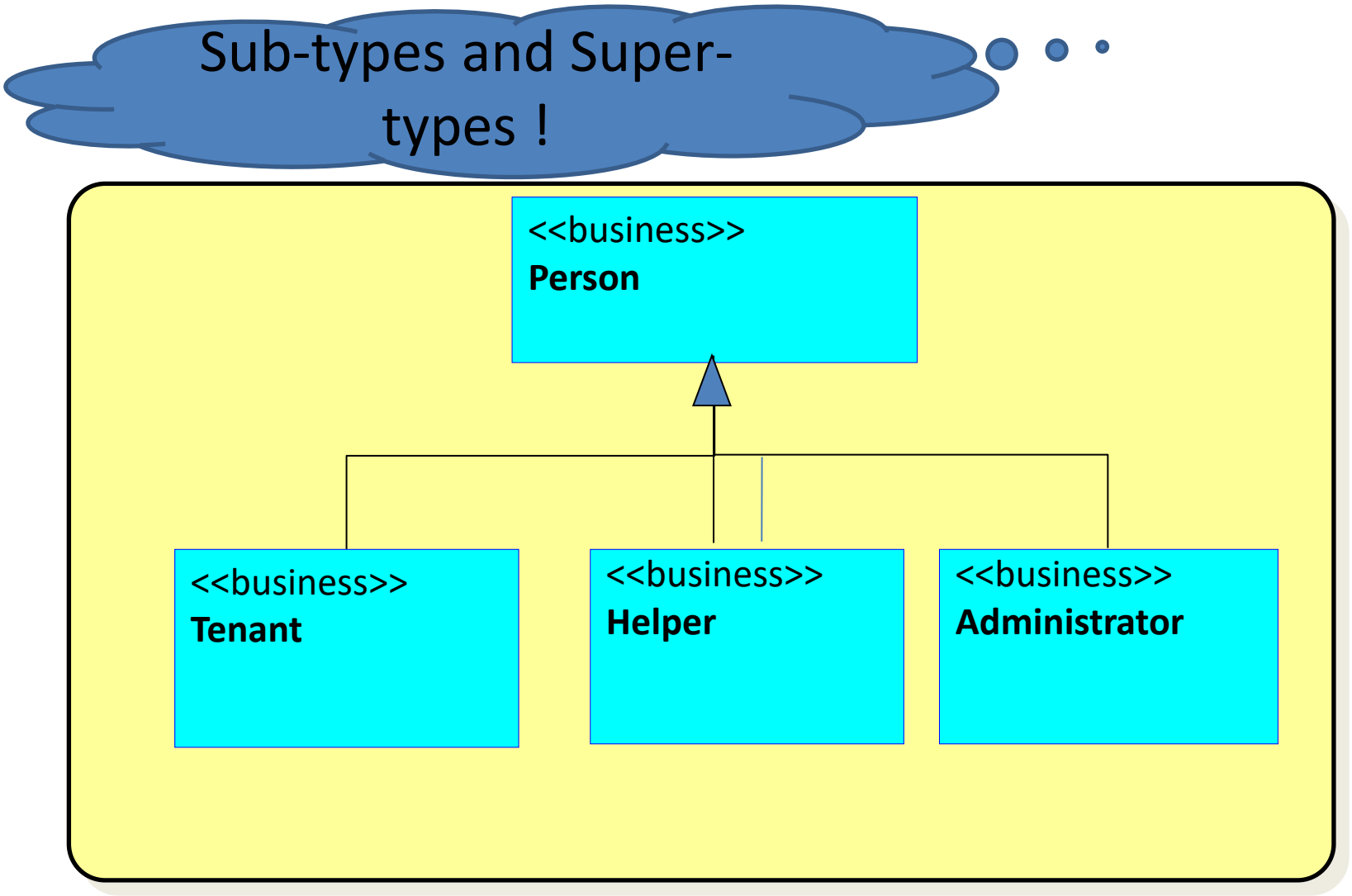
Aggregation



What is Inheritance?

Inheritance is the mechanism by which attributes and behaviours are passed by a ‘superclass’ to a ‘subclass’

Example of Inheritance



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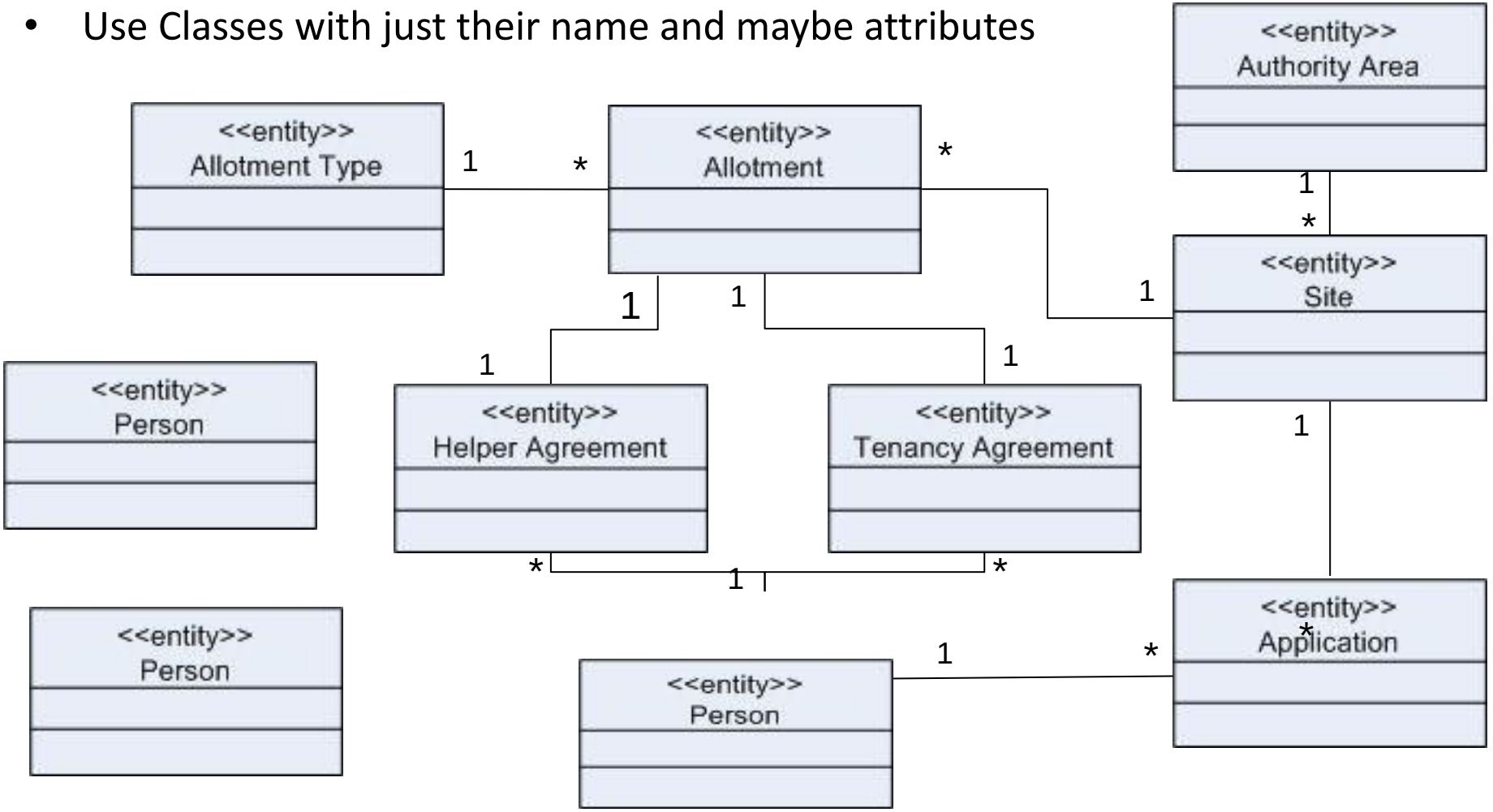

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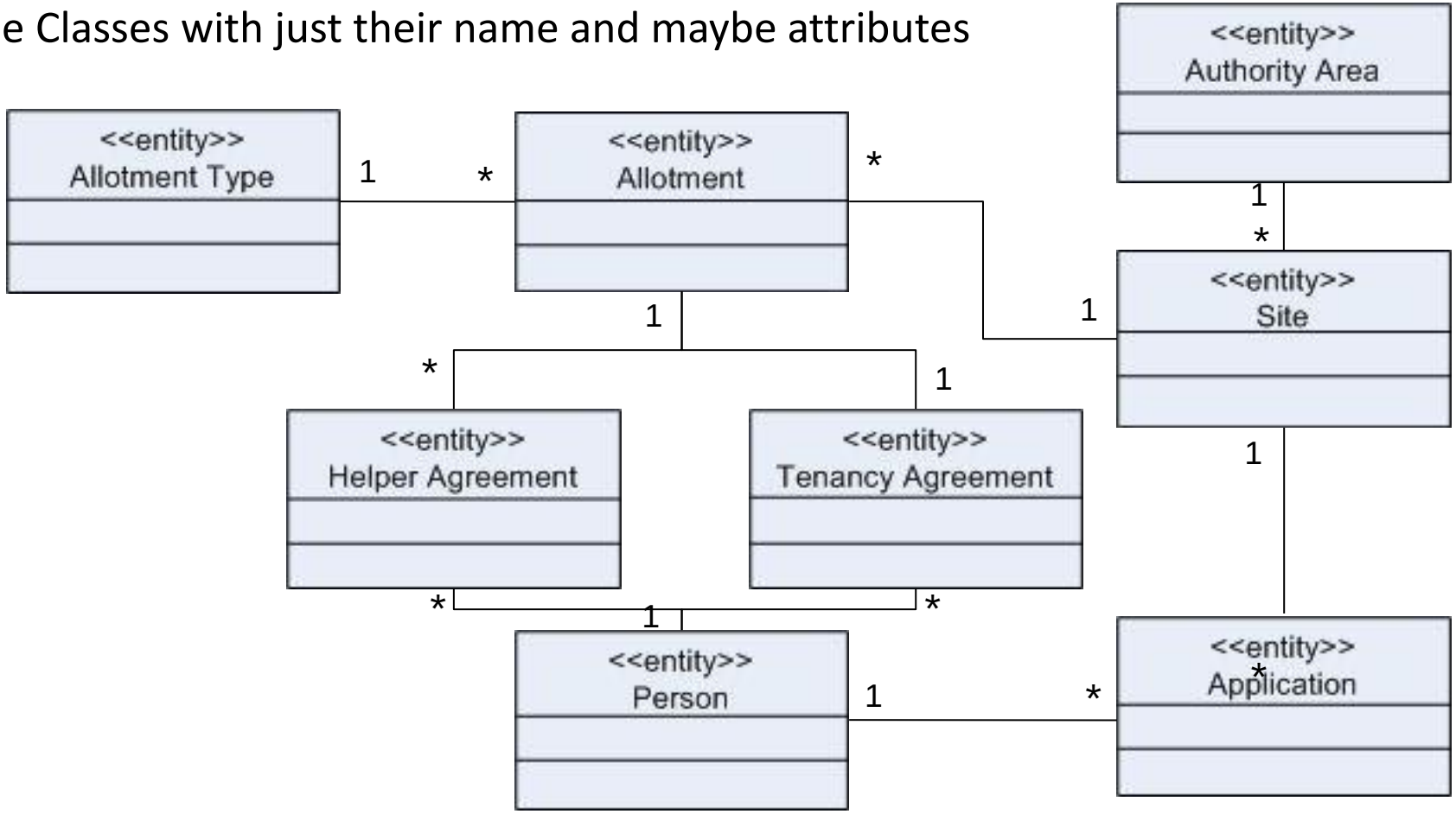
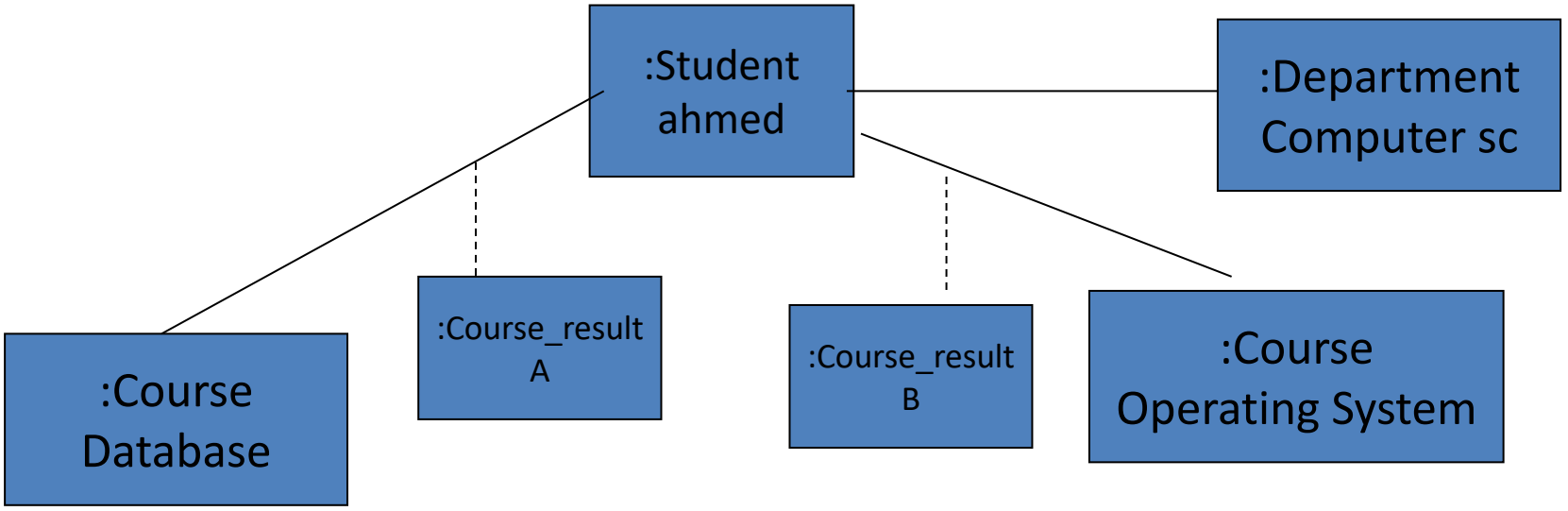


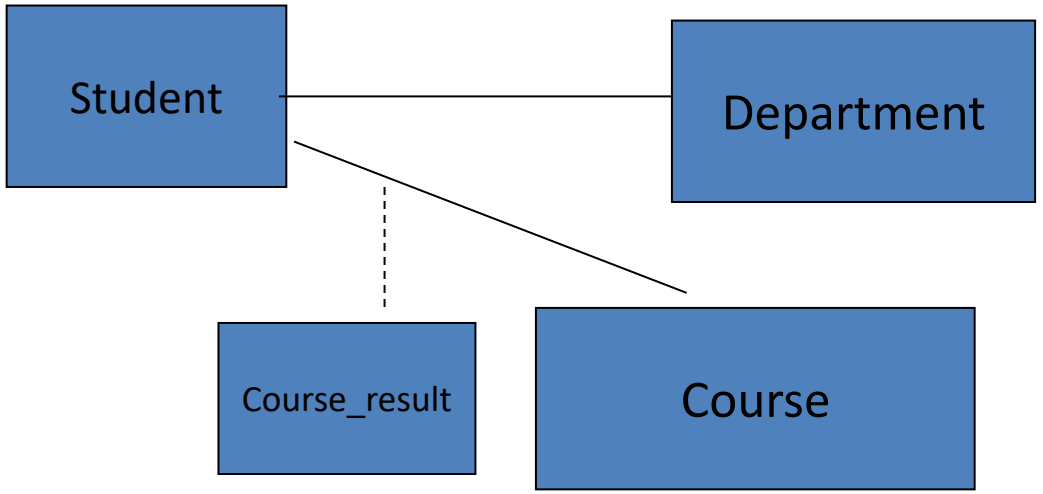
Related Diagrams

- Object model actual snapshot image of class model
- It is a diagram showing examples between some of the actual objects connecting to each other (but this model is usually used in Design Stages)



Related Diagrams

- The class model produced from generalizing the object model



Questions