Information Modelling

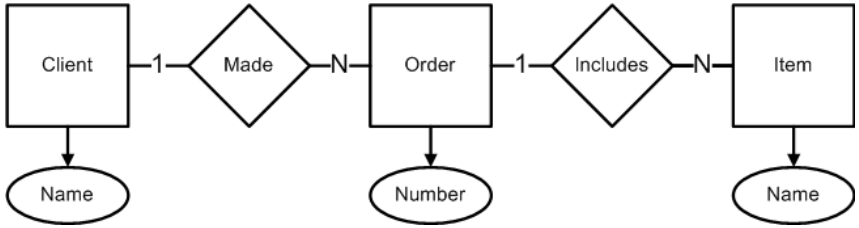
From design to implementation

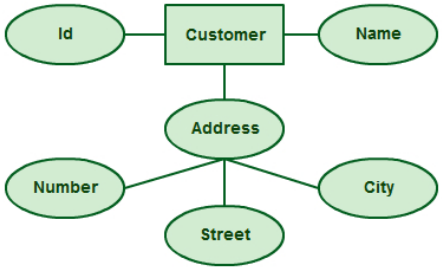
Course: Information modelling

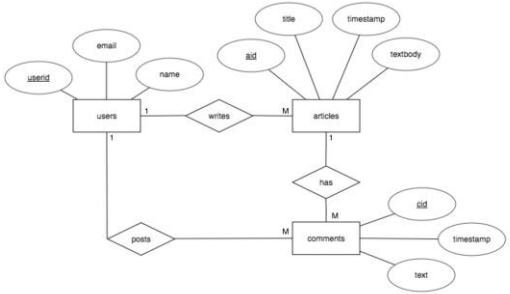
Phases in the design of Information Modelling

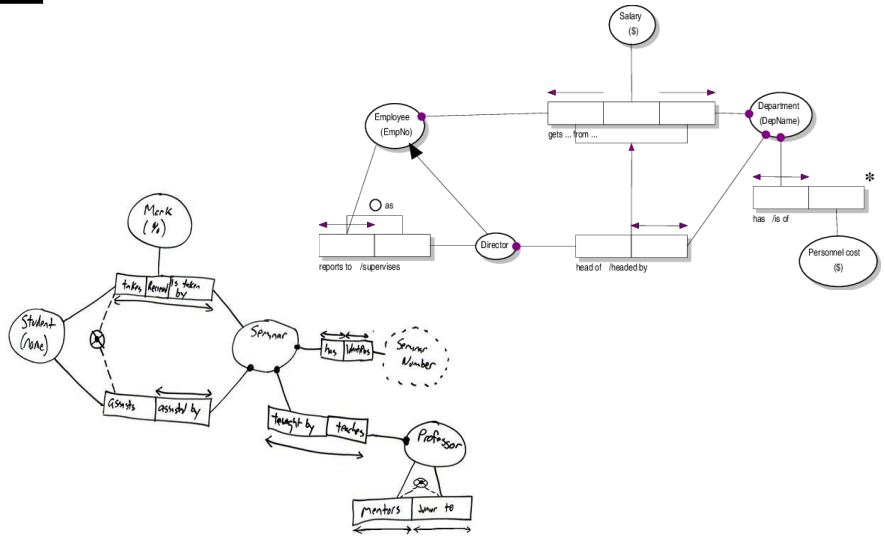
- Conceptual modelling
  high-level representation of the system to understand what the system is about. There is no link to an implementation or technical choice
  - No primary keys, foreign keys, etc -> database
  - No lists of linked entities -> object oriented programming
  - …
- Logical modelling
  detailed representation of the system used to implement a technical solution
  - Primary key / Foreign key
  - Lists
  - …

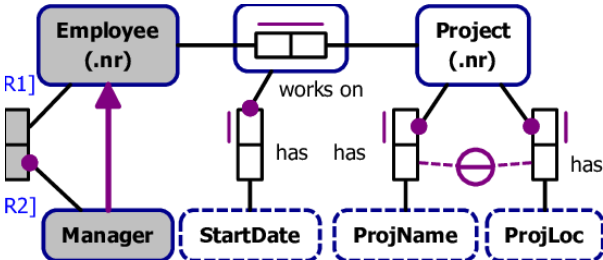
There are different modelling languages



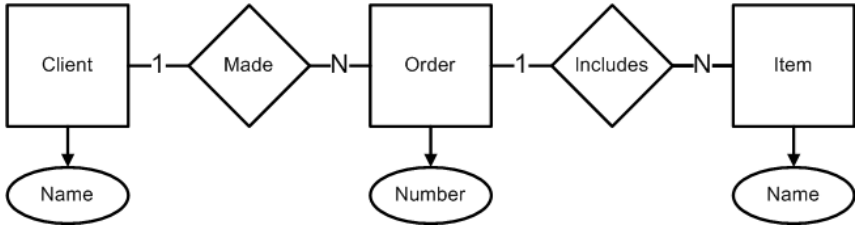


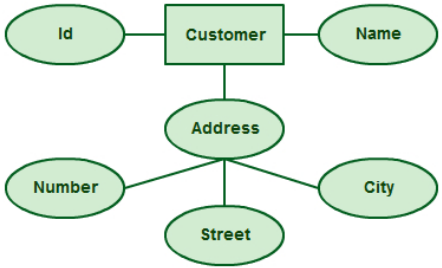


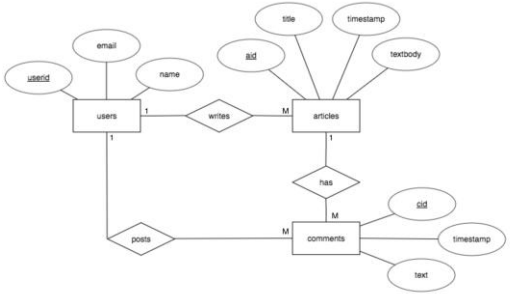




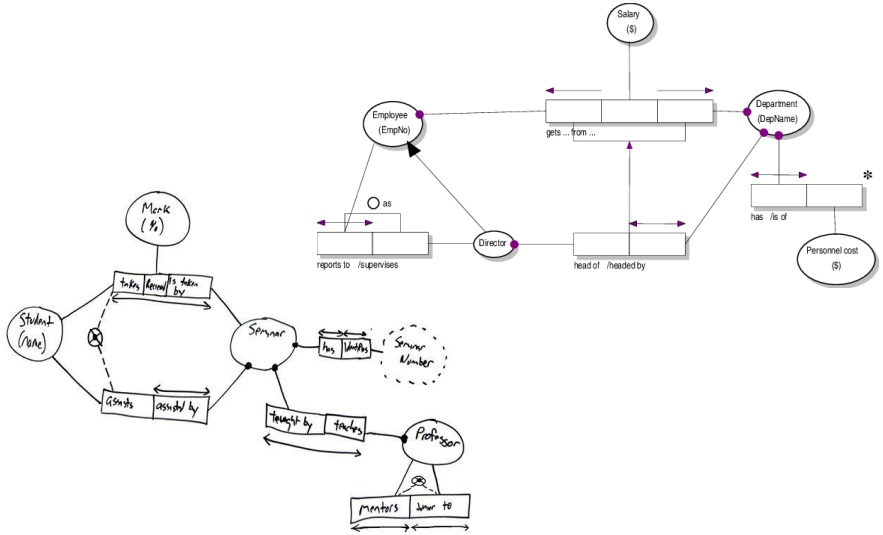
ERD: Entity Relationship Diagram

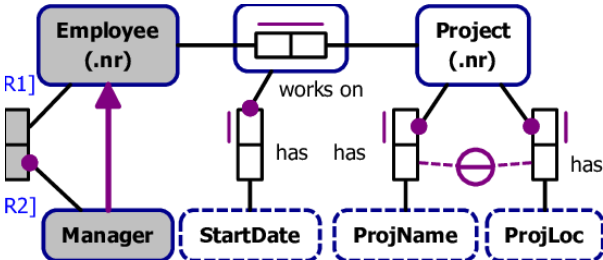






ORM: Object Role modelling / FCO-IM: fully communication oriented IM Fact Based modelling



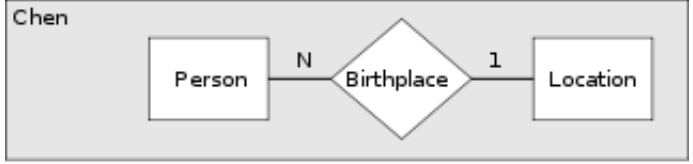


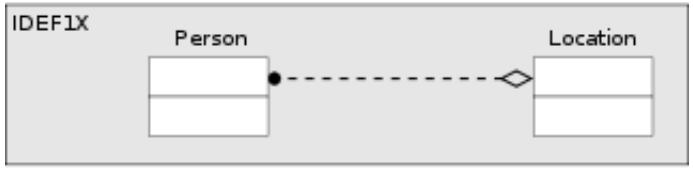
The choice of modelling Language

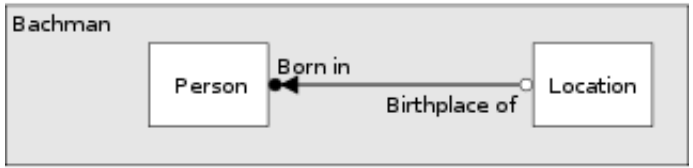
ERD

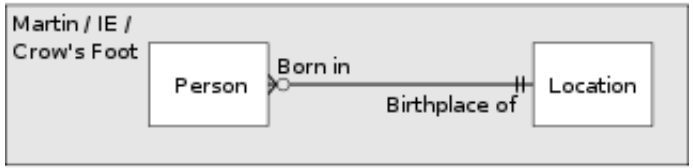
Good overview of relations between entities
Commonly known
Mostly used

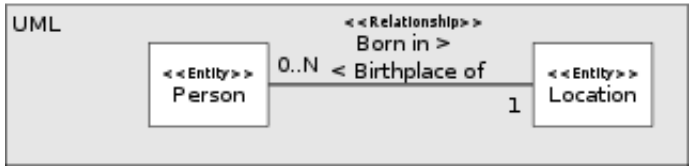
But...
Less expressive and less conceptual than fact based











entity relationship diagram

ERD dialects

There are different ERD dialects.

On the internet you'll find many different notations and many (wrong) diagrams. You need to stick to the rules of this course.

entity relationship diagram

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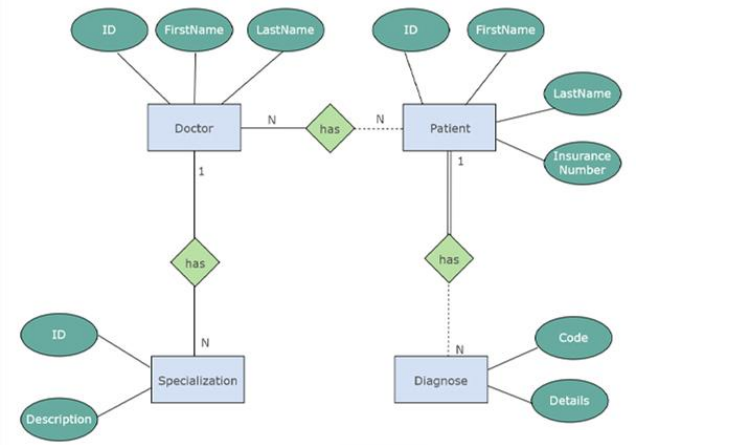

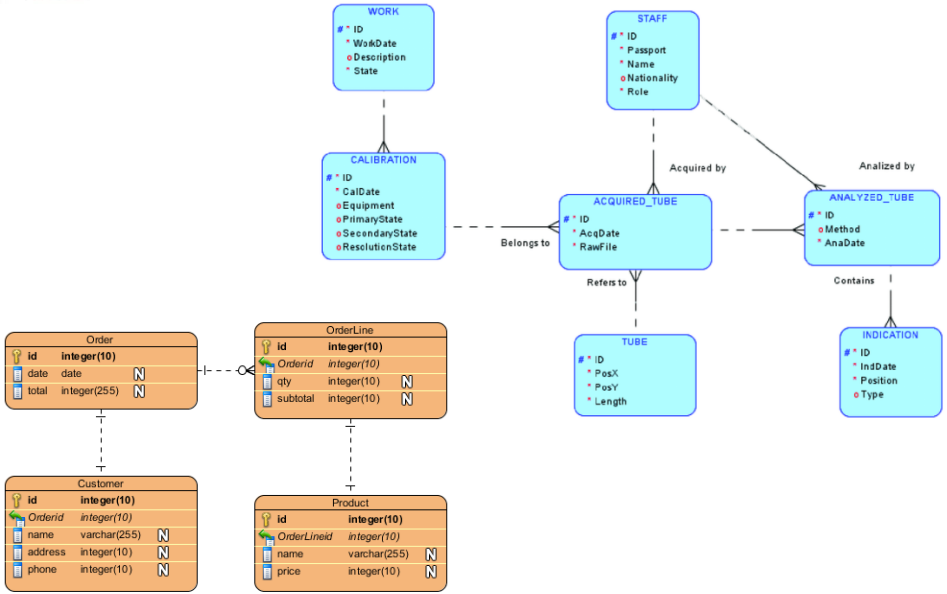

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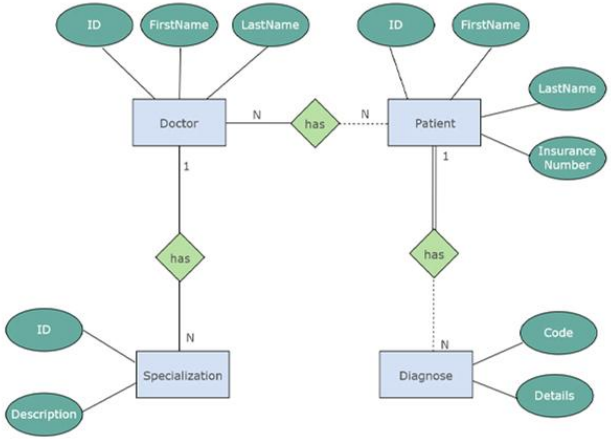

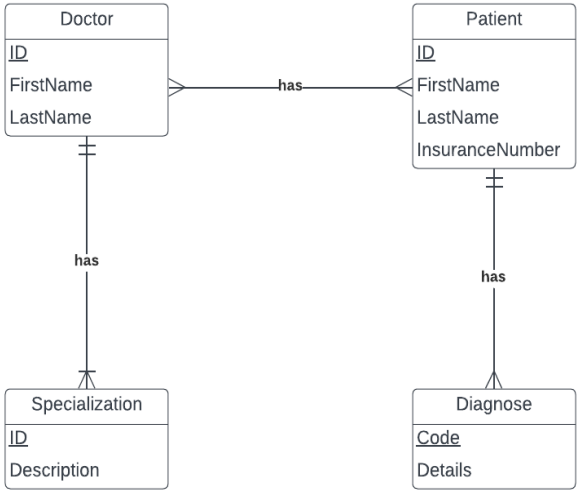

entity relationship diagram

ERD dialects

There are different ERD dialects. We start by ‘using the Chen notation because it’s more descriptive especially concerning attributes. When introducing relationships we will change the syntax to the popular crow’s feet which is more condense

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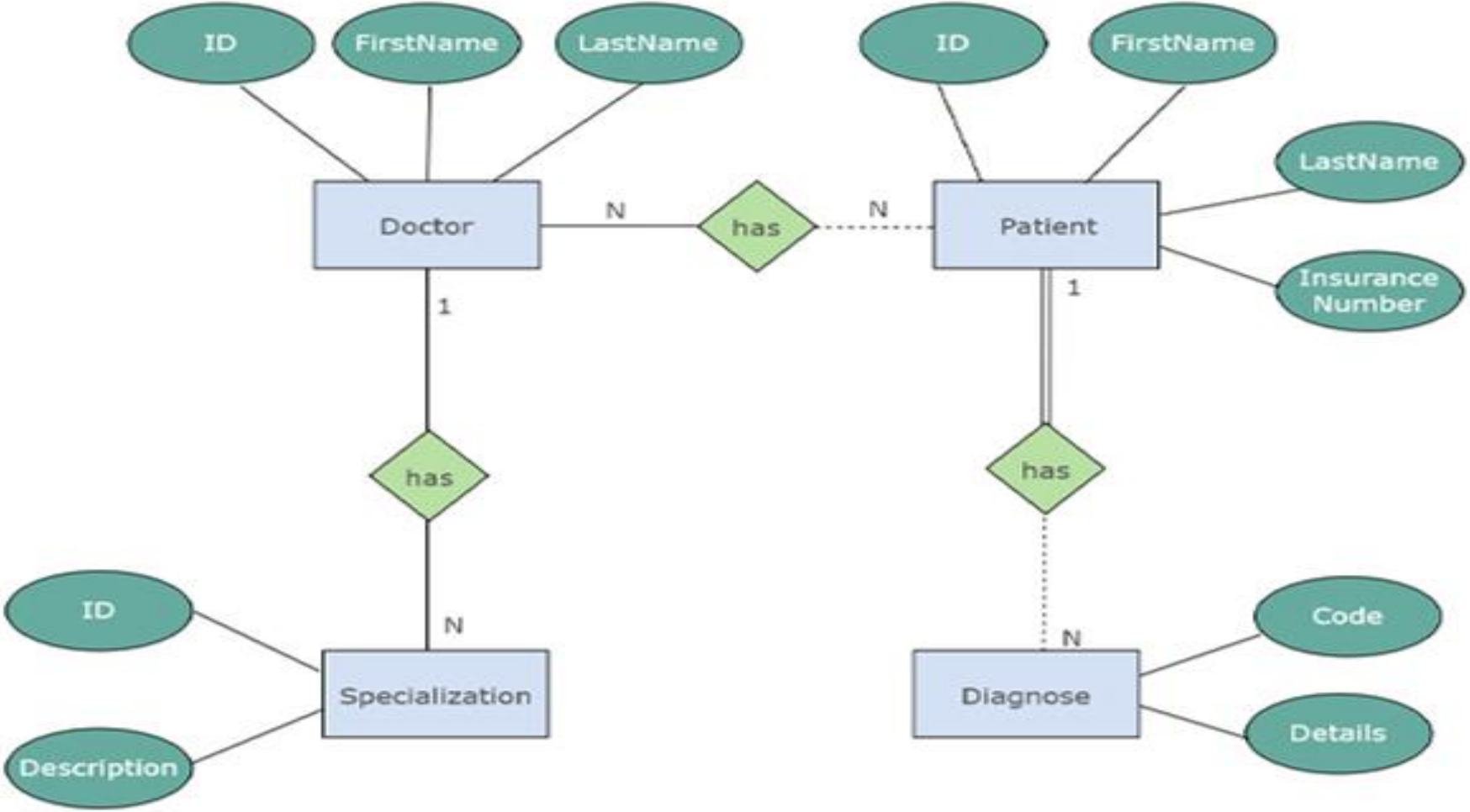
The Importance of modelling

in (Business) Applications

Having well-designed data makes business applications
- more useful
- more extendable
- more understandable


ID
FirstName
LastName
ID
FirstName
LastName
Doctor
N
has
N
Patient
Insurance Number
1
1
has
has
ID
N
N
Code
Specialization
Diagnose
Description
Details

getting started with

modelling the world around you

Information modelling is about modelling the universe of the system you're working on.

getting started with

modelling the world around you

Information modelling is about modelling the **universe of discourse (UoD)**

modelling the

Universe of Discourse

The **universe of discourse** are the boundaries of your system you're working on. The universe of discourse is **not** part of the information model itself, but it defines its boundaries.

Example of

Universe of Discourse

Think about the exercise in the course application prototyping.
What was part of the UoD in that exercise?
What were the boundaries of the system and was not part of it?

so, what is it?

ERD: entity relationship diagram

An **ER diagram** shows the relationship among entity types.
An entity type describes the concept of a group of similar entity instances and these instances have attributes.

Information Modelling

Time to look at an example