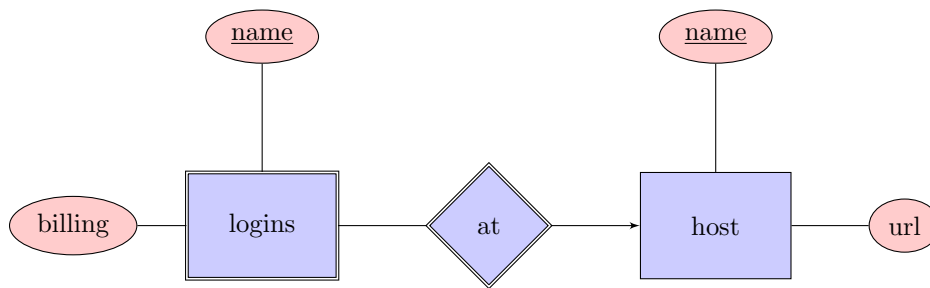# CIS4301 Notes

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1 Entity Relationship (ER) Models

1.1 Example ER Model

Host is a **strong entity** (can exist on its own)
Login is a **weak entity** (cannot exist without Host)

Host uniquely identified by name

name underlined - key for Host (must be unique)

URL

At Circular arrow - maps to a single Host, cannot exist without it

Logins A login requires a Host

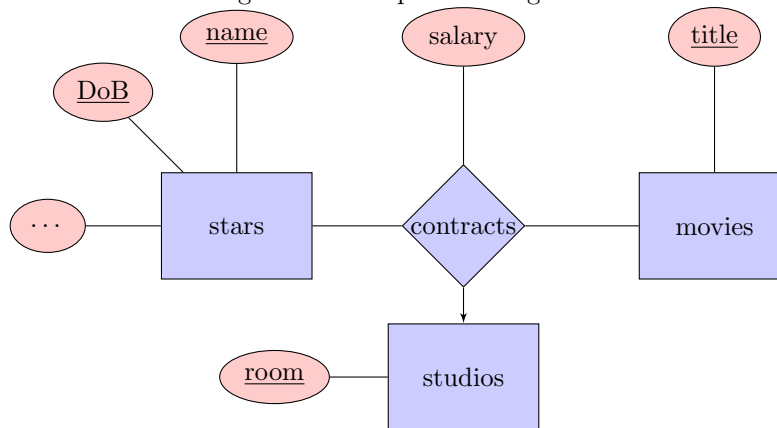**name** underlined - key for name (must be unique)

Host

1.2 Schema Format

- Host(<u>name</u>, URL)

- Logins(<u>name</u>, <u>host.name</u>), billing

2 ER Diagrams

Figure 1: Example ER Diagram

stars-movies many-many

stars-studios many-one

movies-studios many-one

An <u>underlined attribute</u> indicates a key for the entity. If there are no underlined attributes for an entity, the entire collection of attributes is the unique identifier for that entity.
A star can only be associated with one studio, but a studio can be associated with many stars.
A movie can only be associated with one studio, but a studio can be associated with many movies.

Schema:

- stars(<u>name</u>, <u>DoB</u>, ...)

- stars(<u>title</u>,)

- Contracts(<u>StudioName</u>, <u>starname</u>, <u>DoB</u>, <u>movie-title</u>, salary)
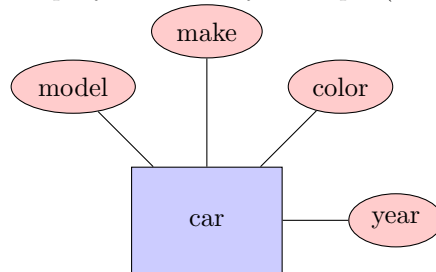
Example Contracts:

- (Ricky R, Jaws, MGM)

- (Ricky R, Batman, WB)

- (Michael Keaton, Batman, WB)

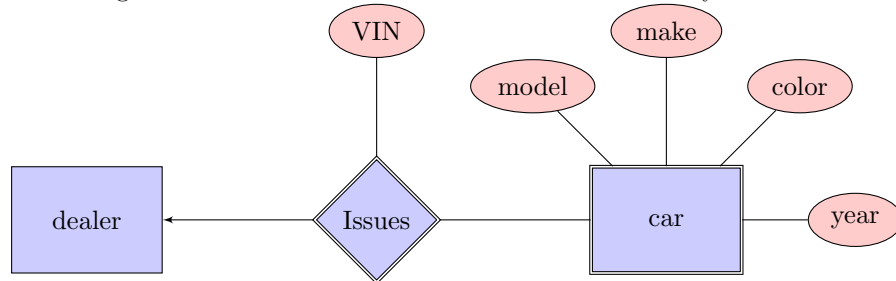StudioName, StarName, and MovieTitle are all required to uniquely identify a contract.

2.1 Multiple Key Example

Figure 2: A car is uniquely identified by the tuple (make,model,color,year)

2.2 Weak Entity Example

Figure 3: A car cannot exist without a VIN issued by a Dealer

Issues(VIN,Dealer)

2.3 Another Example

Figure 4: Example ER Diagram

Every studio has 0 or 1 studio.
Why is a president not a weak entity?
I don't know?