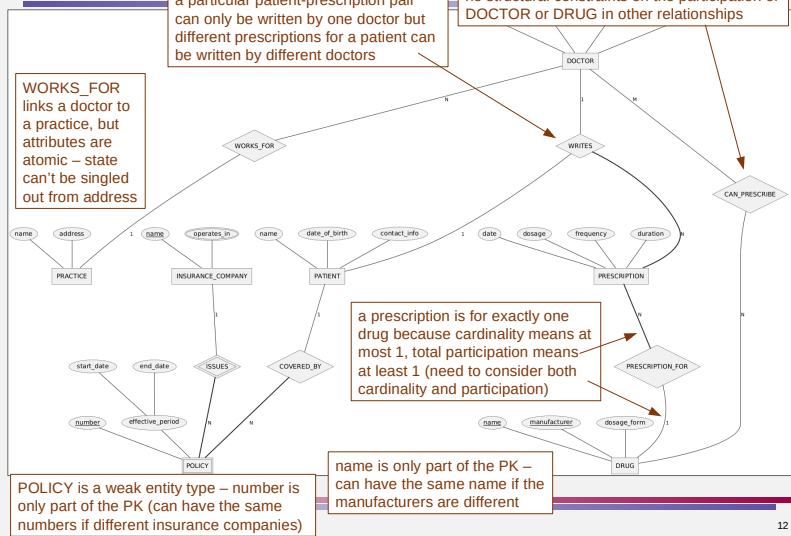


Exam 2



Exam 2

- reflect the information provided
 - don't add attributes or primary keys that aren't indicated

Exam 2

- composite attributes
 - hours consists of entries with a day of the week and the opening hours on that day
 - license plate (state and number)
 - driver's license (state and number)
 - name (first and last)
- multivalued attributes – double circle
 - hours consists of one or more entries
 - phone number(s)
- derived attributes – dashed circle
 - duration – number of days covered by the rental period, based on pickup, return dates
 - one-way reservations (where pickup and return locations are different) need to be marked as such
- address constraints not captured in notation – required, unique

Exam 2

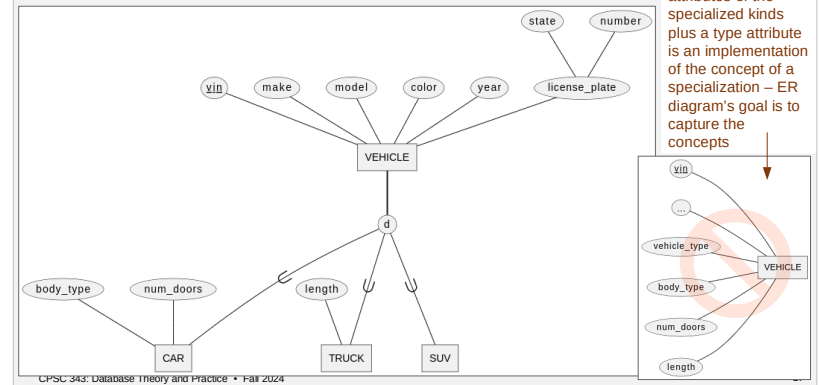
- ternary relationships mean that each instance of the relationship involves three entities
 - not suitable when two different kinds of things can participate in a relationship with something else
- Reservations can be made by (individual) customers or corporate clients. For corporate clients, the company name, contact information (name, phone), and discount rate is recorded. Only the contact information is required.
 - this is a binary relationship between those who can make reservations and RESERVATION
- not suitable when things join the relationship at different times
- The specific vehicle rented is assigned when the customer arrives to pick it up.
 - Each reservation is for a single vehicle and is made by a single customer. There must be a customer associated with each reservation.
 - this is two binary relationships – a RESERVATION assigned a VEHICLE, a RESERVATION made by a CUSTOMER
 - but it also can't be ternary because vehicles aren't assigned until well after the reservation is made

Exam 2

- Each vehicle has its own maintenance record. Each entry in the record is identified by its date and also contains a description of the maintenance performed.
- distinguish “maintenance record” (a collection of entries) from the entries themselves
- maintenance record is just a collection of entries – does not need to be represented
- entry has date and description → entity type with attributes
- each entry in *that vehicle’s record* is identified by its date → ENTRY is a weak entity type, with date as a weak key and the relationship with VEHICLE as the identifying relationship

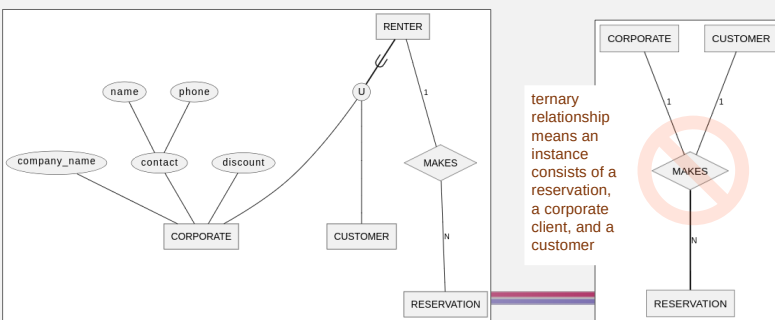
Exam 2

- The available kinds of vehicles are cars, SUVs, or trucks. For cars, the number of doors and body type (sedan, hatchback, etc) are recorded. For trucks, the length of the truck (in feet) is recorded.
- “kinds of” → specialization



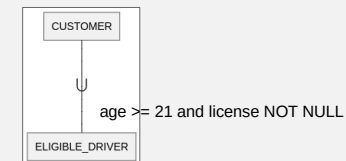
Exam 2

- Reservations can be made by (individual) customers or corporate clients. For corporate clients, the company name, contact information (name, phone), and discount rate is recorded. Only the contact information is required.
- individual customers and corporate clients are two kinds of those who can make reservations, but they otherwise have nothing in common → category type



Exam 2

- Eligible drivers are those (individual) customers who are over 21 and have a driver’s license on record.
- “are those customers” → a kind of customer → specialization



- that membership in this specialization is predicate-defined should be noted, either on the diagram as shown or listed separately as a constraint not represented in the diagram

- A reservation becomes a rental when a customer arrives to pick up the vehicle. At that time, a specific vehicle and one or more drivers are assigned. Only eligible drivers can be assigned as drivers for a rental.

- “reservation becomes a rental”
 - “rental” is a role that a reservation can take on → specialization
 - “rental” is a separate thing, but needs to be linked to the reservation → relationship

- vehicle, driver(s) assigned to rental → relationship with rental, not reservation

- cardinality and participation reflect exactly one vehicle, one or more drivers

