

Tutorial 2: Logical Database Design

Case Study: Mapping an Entity-Relationship Diagram to the Relational Model

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Here are the tables determined so far:

1. Customer (dlicense, phone, name, addr)
Primary key: dlicense
Alternate key: (phone, name)
Note: After discussions with the company, we realized that they also identify each customer by their phone number and name (taken together). So, we state that as an alternate key for this table. An alternate key is any candidate key other than the primary key.
2. ClubMember (dlicense, points, fees)
Primary key: dlicense
Foreign key: dlicense references Customer
3. Branch (location, city)
Primary key: location, city
4. VehicleType (vtname, features, wrate, drate, hrate, krate, wirate, dirate, hirate)
Primary key: vtname
5. Vehicle (vlicense, initprice, odometer, make, model, year, color, status, forRentFlag)
Primary key: vlicense
Comments: We decided to use a forRentFlag to tell if a vehicle is available for renting. Do we need any other table for the vehicles?
Foreign key(s):
Add the rest of the attributes. List the foreign key(s).
6. Reservation (confNo, fromDate, fromTime, toDate, toTime, dlicense, vtname, location, city)
Primary key: confNo
Foreign key(s): dlicense references Customer, vtname references Vehicle-Type, (location, city) references Branch

7. RentalAgreement (rentId, cardNo, expDate, odometer, rentedfromDate, rentedfromTime, rentedtoDate, rentedtoTime, vlicense, dlicense, confNo, returnCost, returnTime, returnDate, returnFulltank, returnOdometer)
Primary key: rentId
Foreign key(s): vlicense references Vehicle, dlicense references Customer, (rentedfromDate, rentedfromTime, rentedtoDate, rentedtoTime) references TimePeriod, confNo references Reservation
8. TimePeriod (fromDate, fromTime, toDate, toTime)
Primary key : (fromDate, fromTime, toDate, toTime)

Lastly, list any additional tables, their primary key(s), and their foreign key(s):

1. asdf