

## 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)
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, make, model, year, color, odometer, status, forRentFlag, **location**, **city**, **vtname**)  
Primary key: vlicense  
Foreign key(s): (location, city) references Branch, vtname references VehicleType
6. Reservation (confNo, **fromDate**, **fromTime**, **toDate**, **toTime**, **dlicense**, **vtname**, **location**, **city**)  
Primary key: confNo  
Foreign key(s): dlicense references Customer, vtname references VehicleType, (location, city) references Branch, (fromDate, fromTime, toDate, toTime) references TimePeriod
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. VehicleForSale (**vlicense**, saleDate, price, agent)  
Primary Key: vlicense  
Foreign key: vlicense references Vehicle