CMPUT 291 - File and Database Management (Fall 2019)
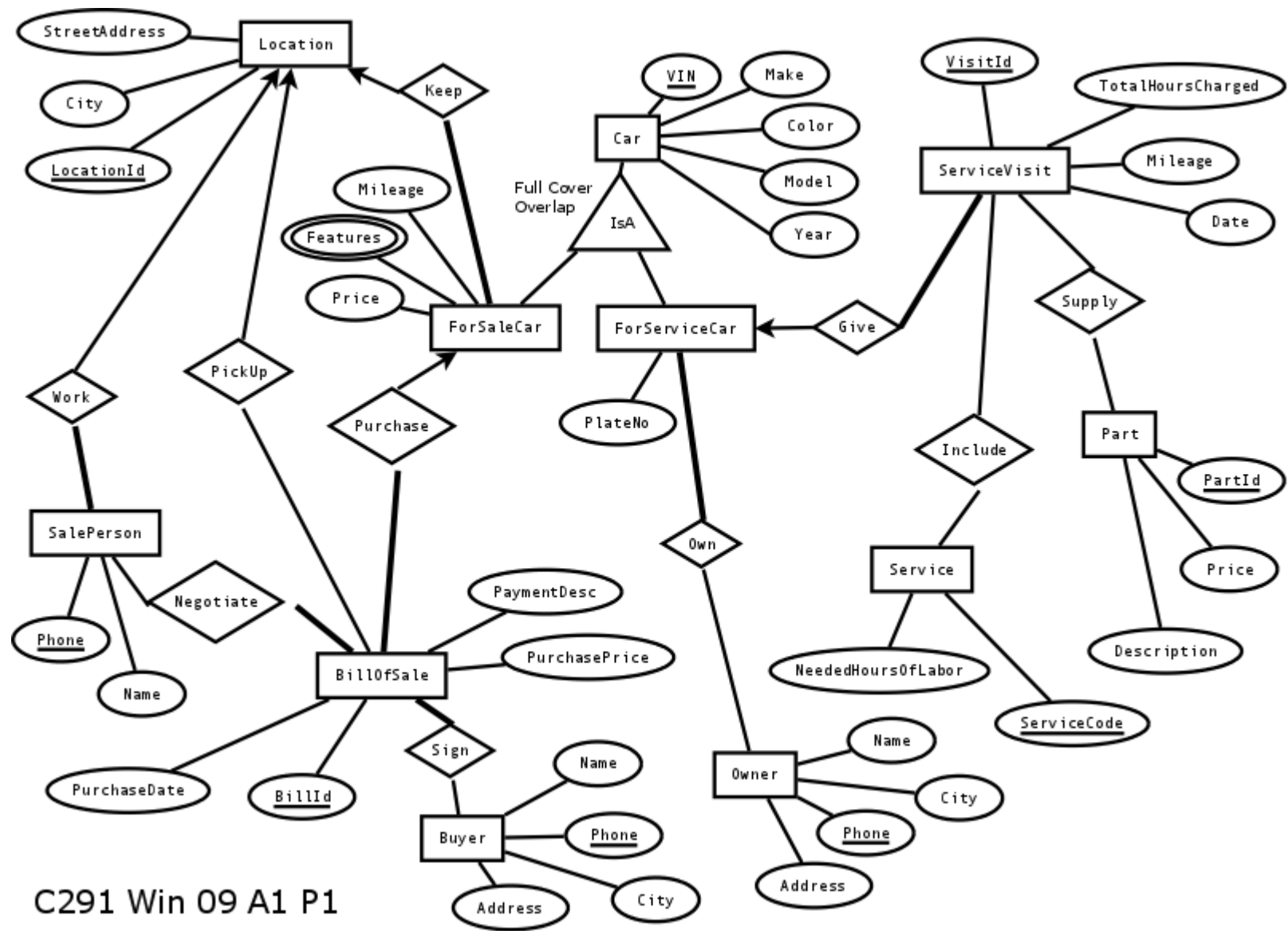
The following specification was given as an assignment in Winter 2009. It is provided here with a solution as a learning exercise.
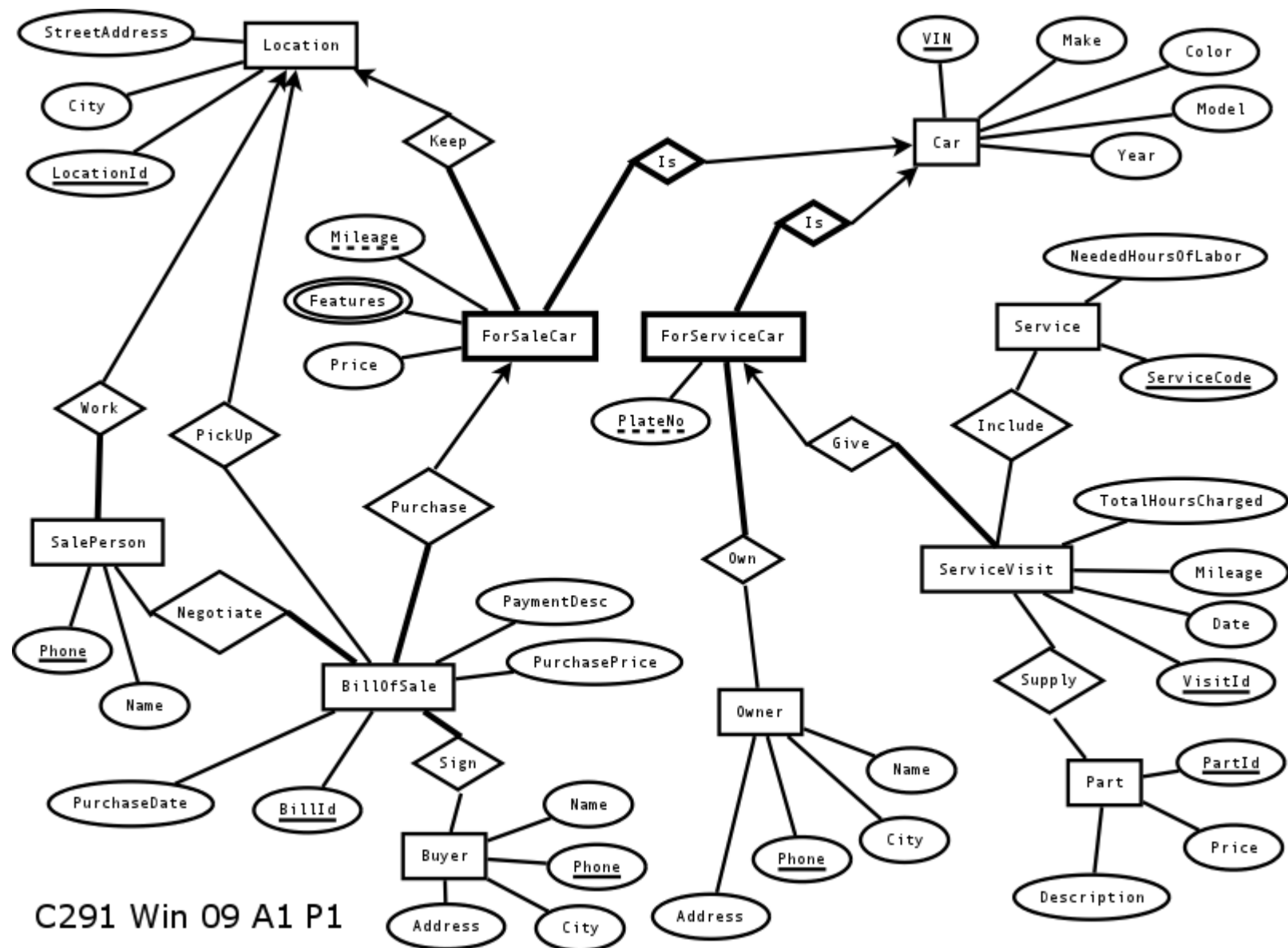
C2Go has branches in different locations and each location has a location id, a street address and a city. Each car is uniquely identified by a VIN (vehicle identification number) and has a make, model, year and color. There are two kinds of cars: those listed for sale and those that are serviced. Every car listed for sale is owned by a location; for each such car a mileage, a list of features, and a price is kept. C2Go keeps information about buyers; for each buyer, a name, a phone, an address and a city is kept. Buyers sign a purchase agreement (referred to as bill of sale) when they purchase a car listed for sale. For each purchase, C2Go keeps a purchase price, a date of purchase, and a description of payment terms. For each purchase, a pickup location may also be listed if the purchased vehicle is going to be picked up from a location that is different than the listing location. A buyer can make multiple purchases and a car can also be sold multiple times (even to the same buyer); C2Go keeps information about all past sales. Each purchase is negotiated by one or more sales person, and for each sales person, a name, a phone and a location where the person works is kept.

Every car that is serviced has a plate number and a private owner for whom a name, a phone, an address and a city is kept. Each service has a unique service code and a suggested hours of labour. Each part has a unique partid, a description and a price. C2Go keeps information about all their past services; for each service visit of a vehicle, C2Go keeps a date, a mileage (at the time of service), total labour hours charged, service codes for all services done at that visit, and all parts supplied.

Here is a solution:

Here is another solution. Note that replacing the isa hierarchy with the weak entities changes the semantics of the tables. For example, the second solution would allow us to describe information about all past plates of a vehicle whereas in the first solution each car can only have one plate number in the database.

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