Database Design
CS 6360.003: Homework #3

Due on Sunday October 16, 2016 at 11:59pm

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Problem 1

Entity-Relation diagram for NBA is shown in fig. 1.

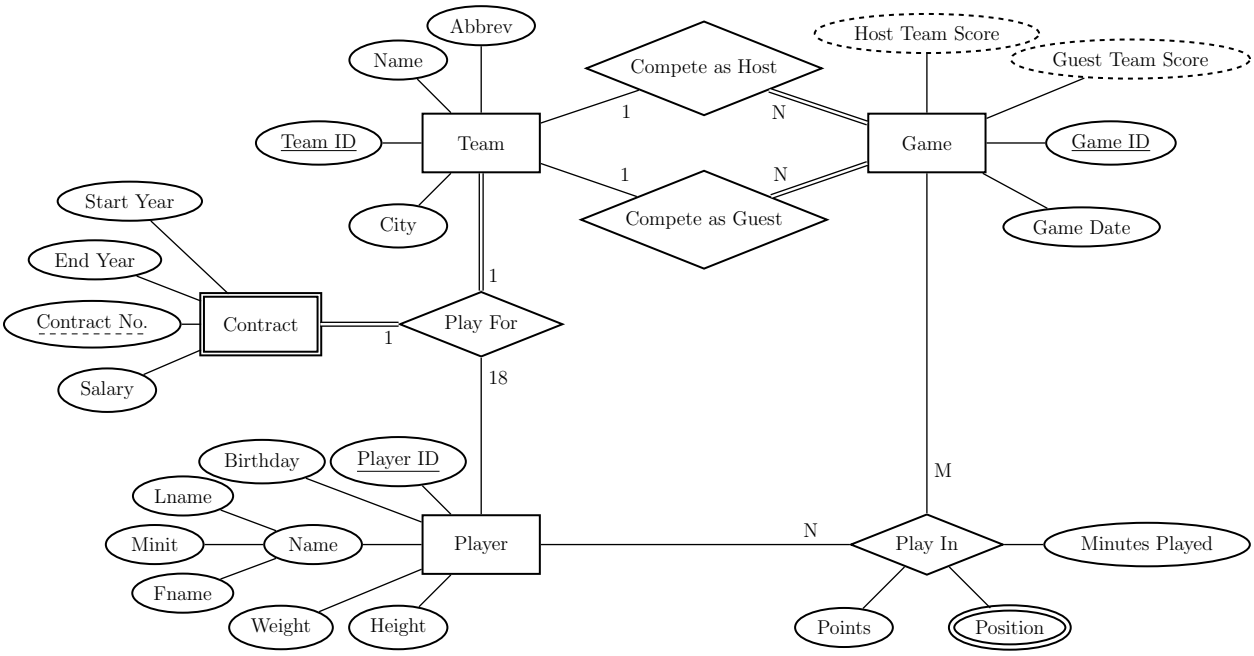

Figure 1: ER Diagram for NBA League

Assumption:

- A team can have contract with at most 18 players and must have at least 5 players in the team.
- For each game, there is a host team and a guest team.
- A player can play multiple positions in one game.
- The result of the game can be calculated by summing up the players' score of that team in that game.

Problem 2

Part (a)

Entity-Relation diagram for museum is shown in fig. 2.

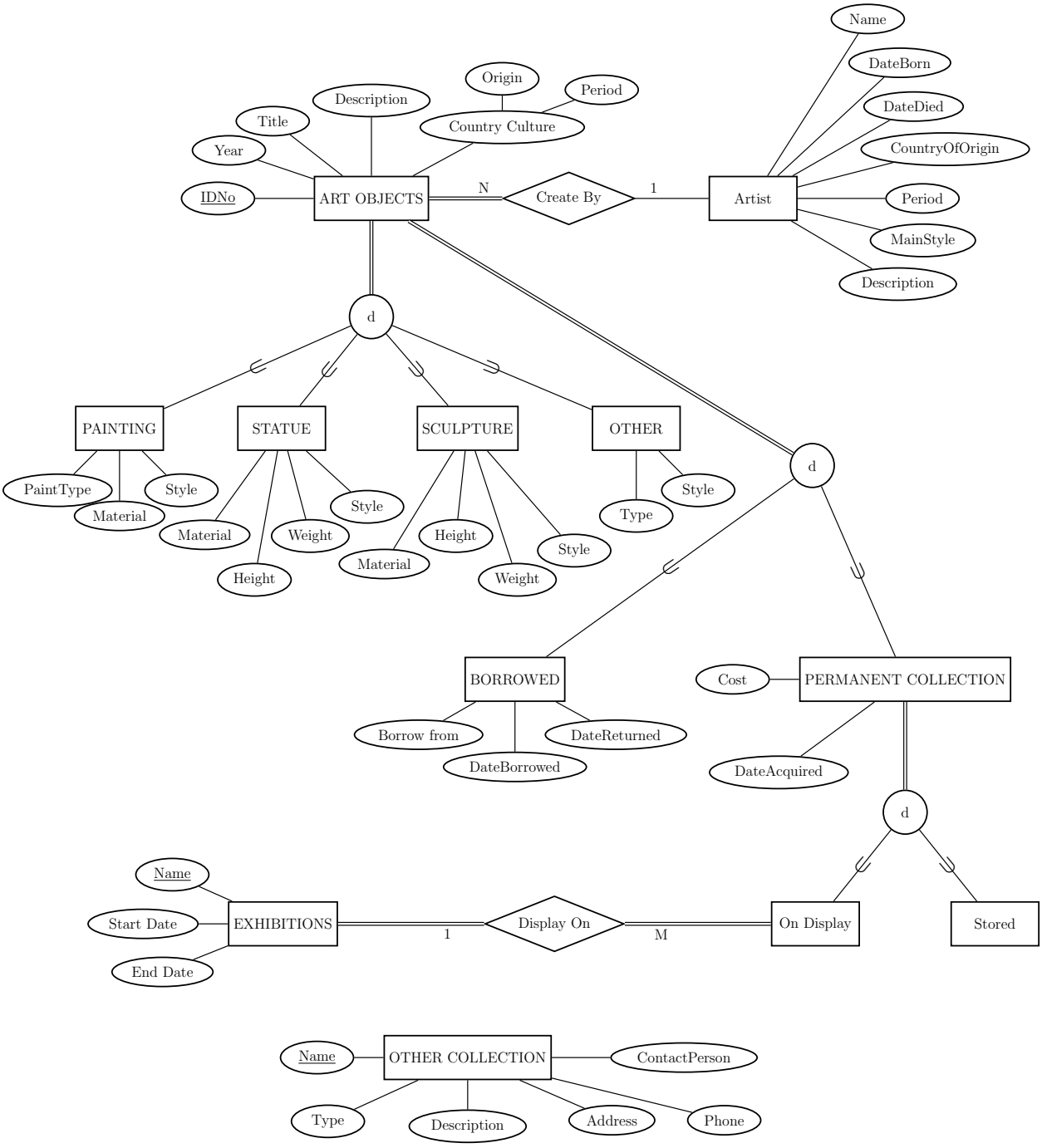

Figure 2: ER Diagram for Museum

Assumption:

- A art object is created by one artist, so the cardinality ratio for ARTIST in Create By relation is 1.
- All art objects in the museum will be created by an artist in the database, so for ART OBJECT has total participation in Create By relation.
- Other collection is the object museum interact with, so there is no relation between OTHER COLLECTION and other entity.

Part (b)

The database schema for ER-diagram infig. 2 is shown in fig. 3.

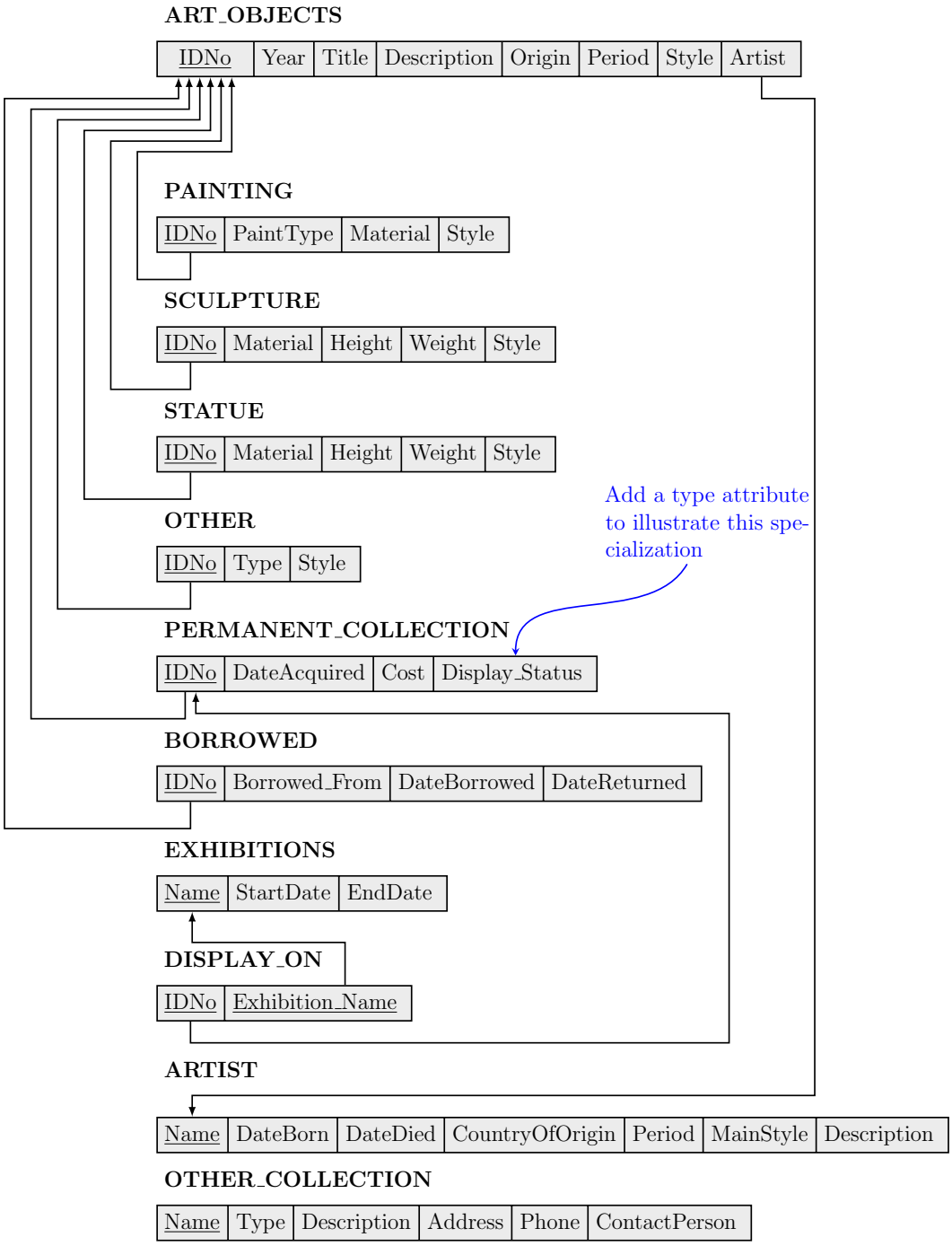

Figure 3: Database Schema for Museum

Problem 3

The database schema for bank is shown in fig. 4.

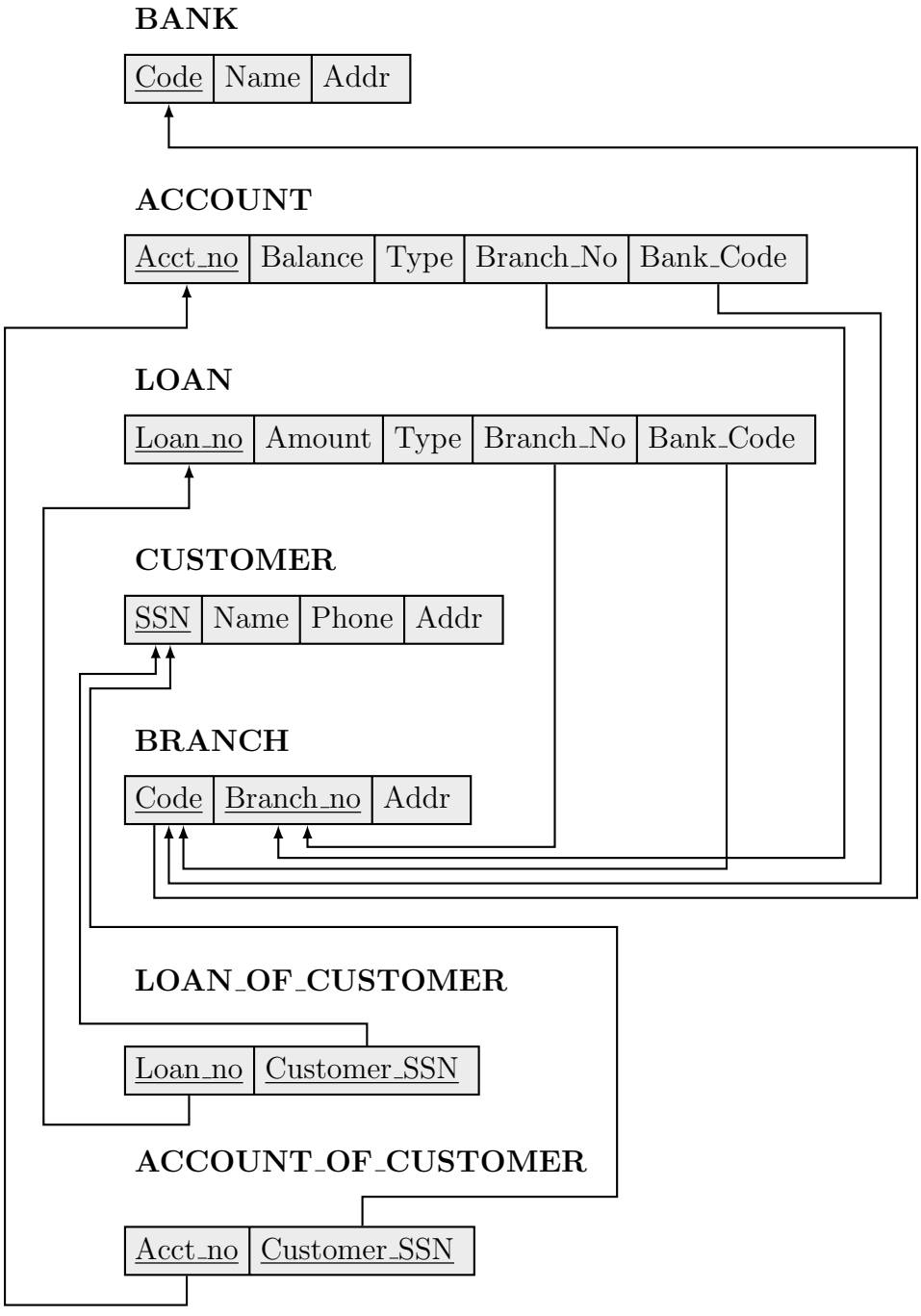

Figure 4: Database Schema for Bank

Problem 4

Part (a) Use 8A

The database schema using 8A is shown in fig. 5.

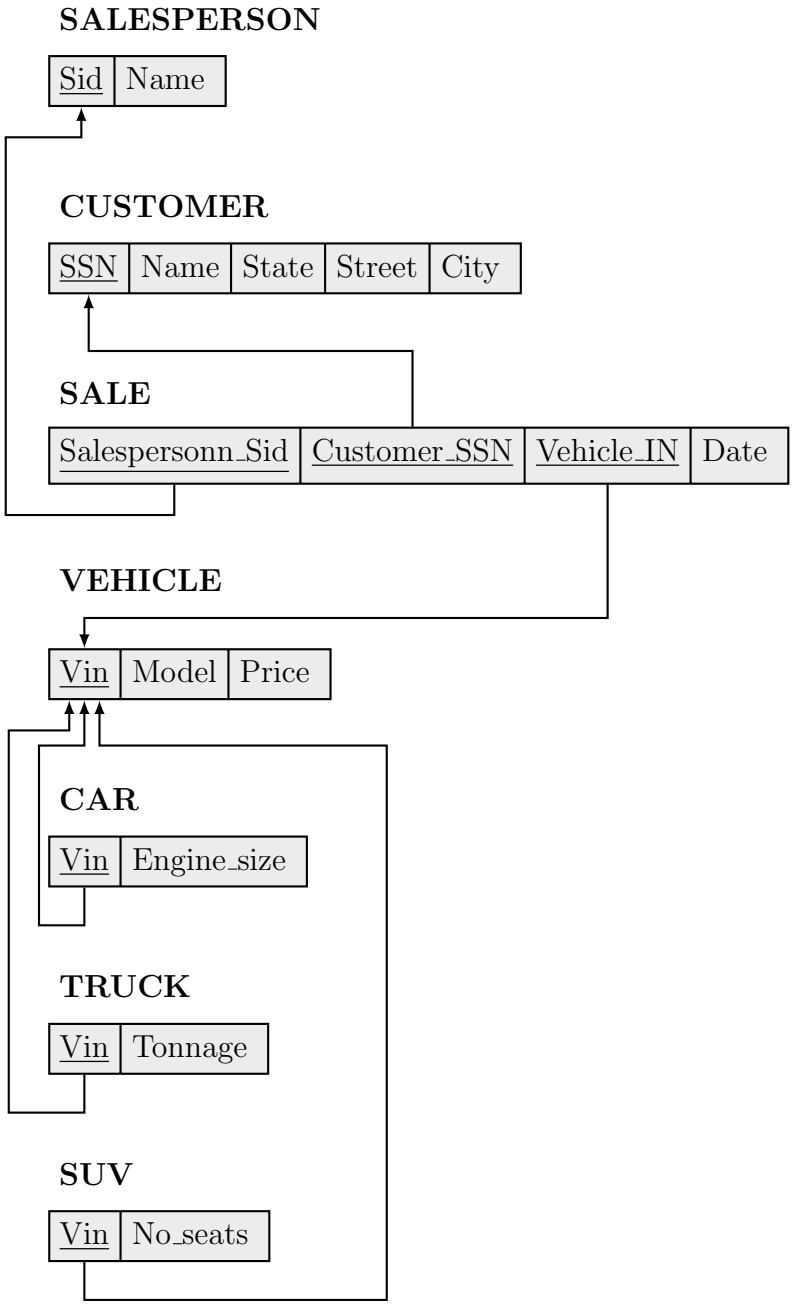

Figure 5: Database Schema using 8A

Part (b) Use 8B

The database schema using 8B is shown in fig. 6.

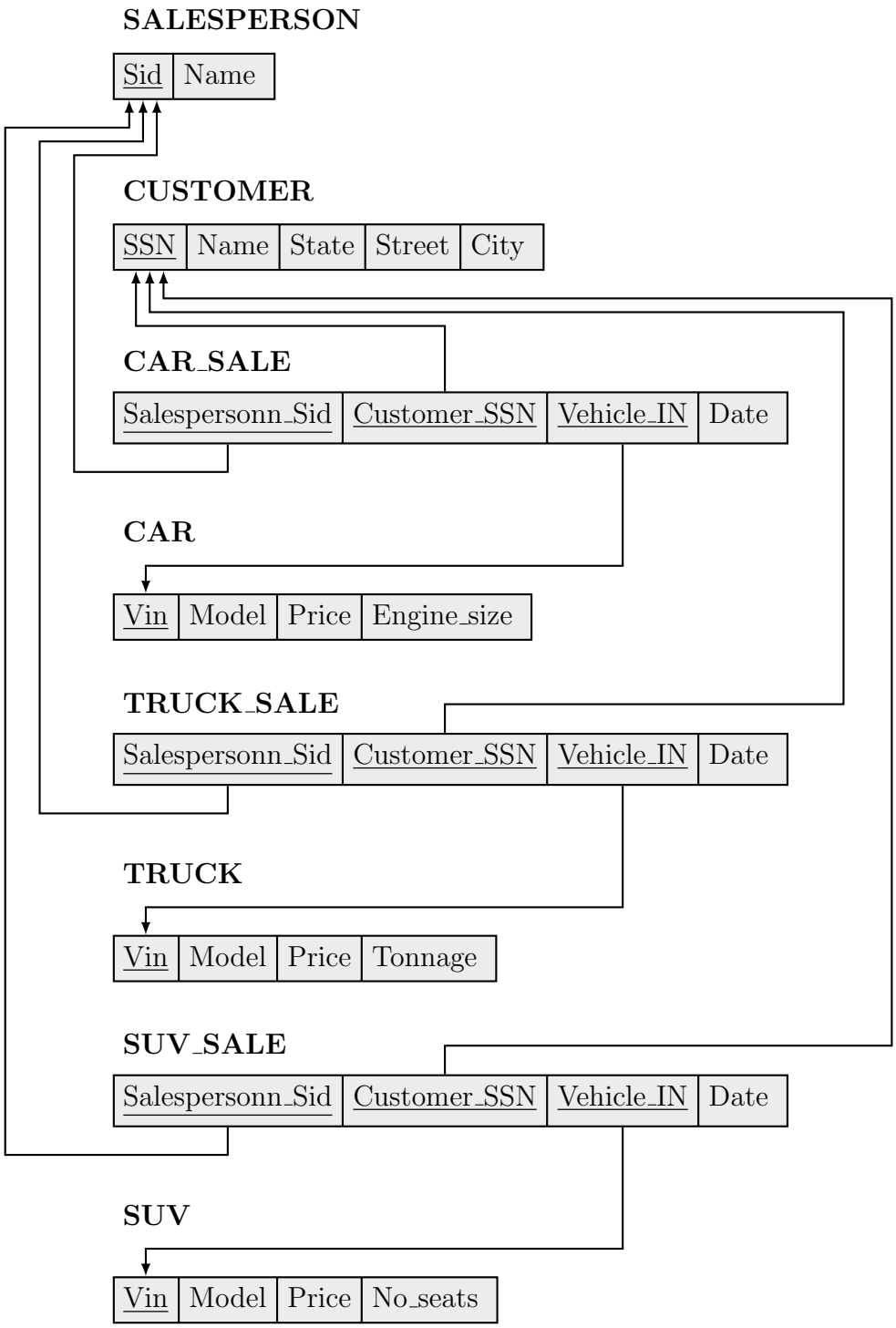

Figure 6: Database Schema using 8B

Problem 4 continued on next page...

Part (c) Use 8C

The database schema using 8C is shown in fig. 7.

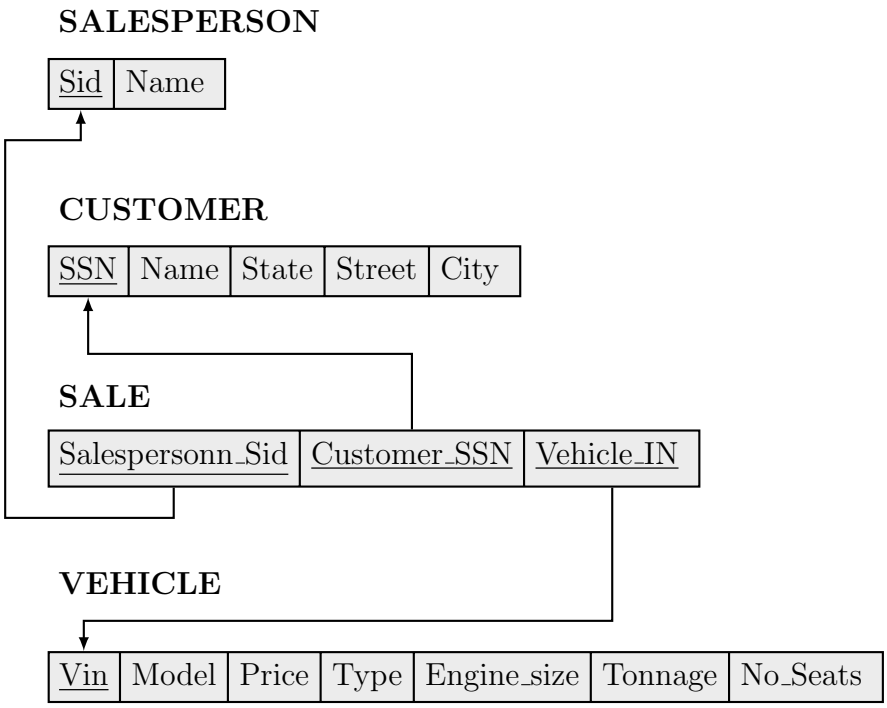

Figure 7: Database Schema using 8C

Part (d) Use 8D

The database schema using 8D is shown in fig. 8.

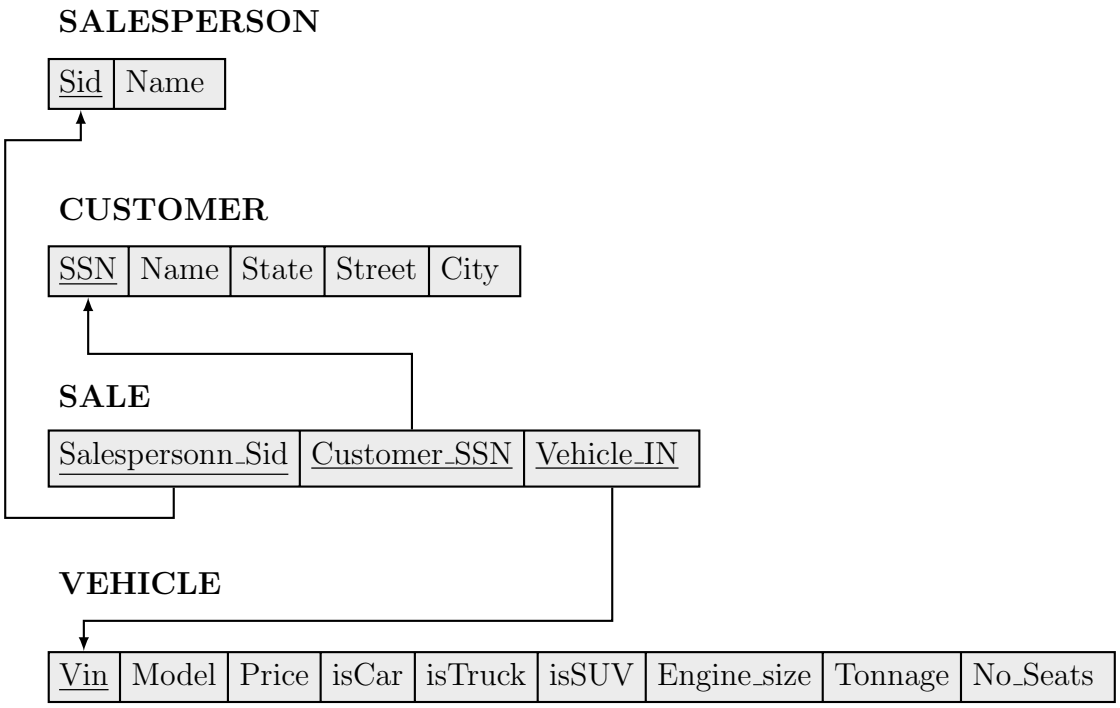

Figure 8: Database Schema using 8D