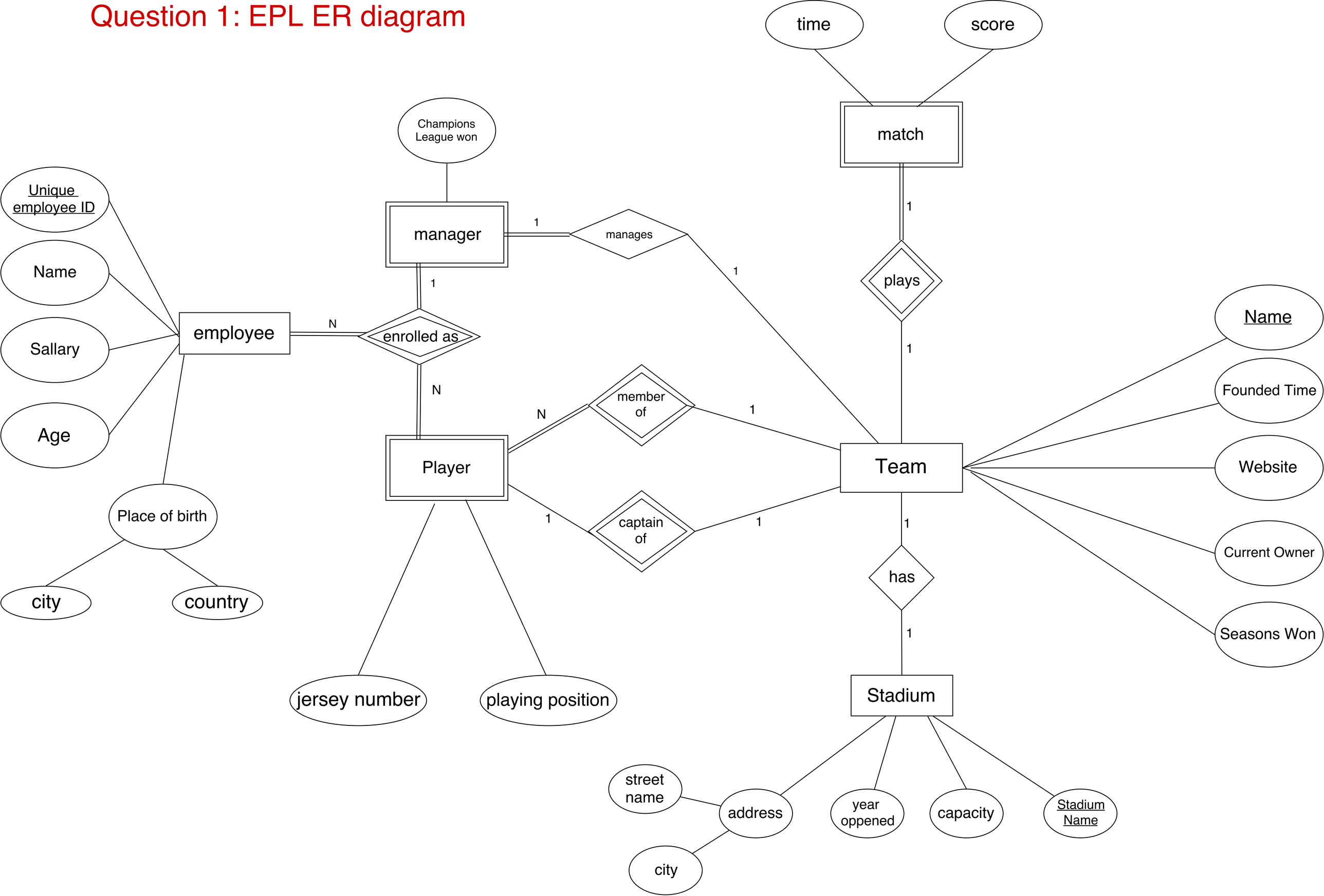
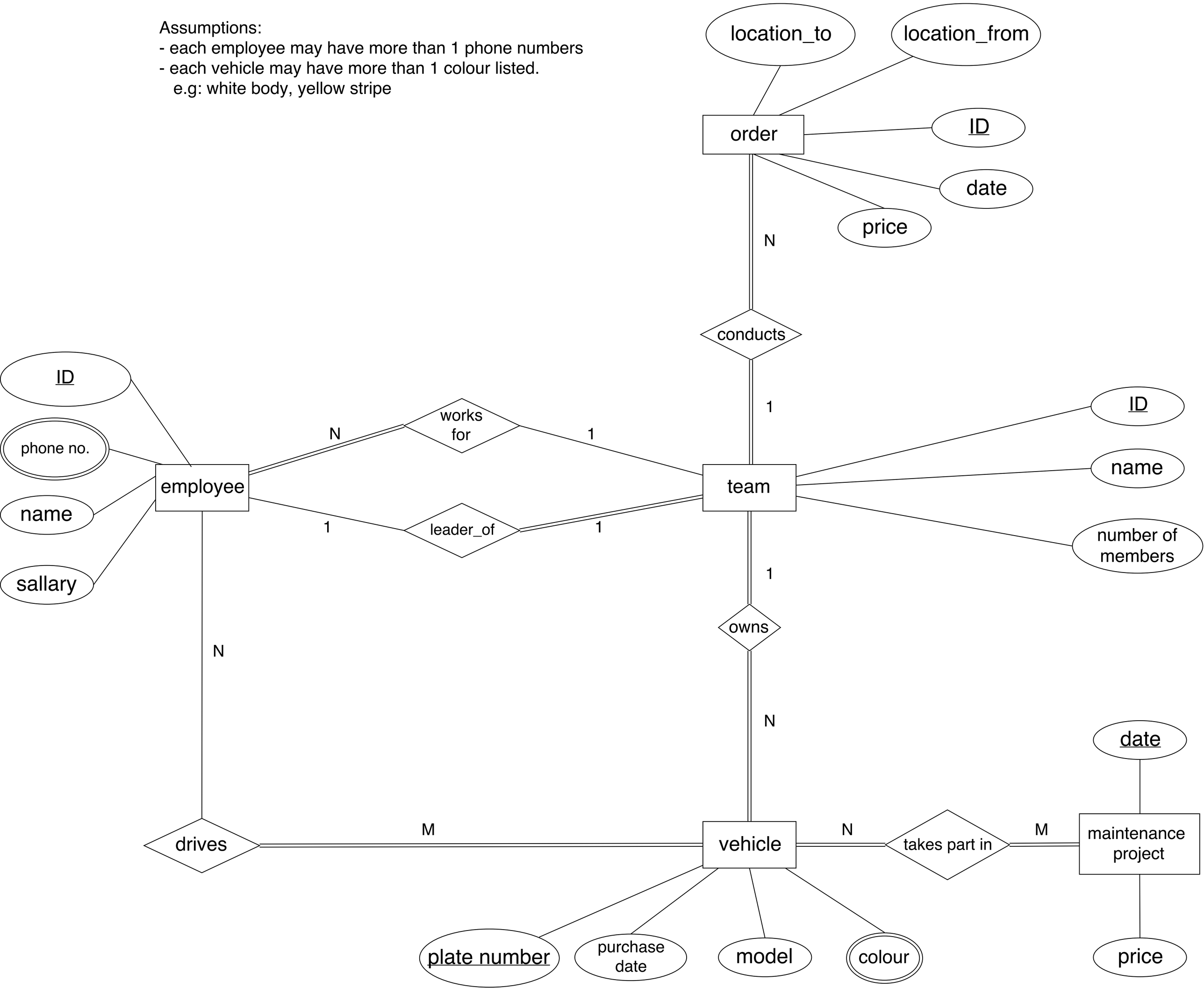
Question 1: EPL ER diagram

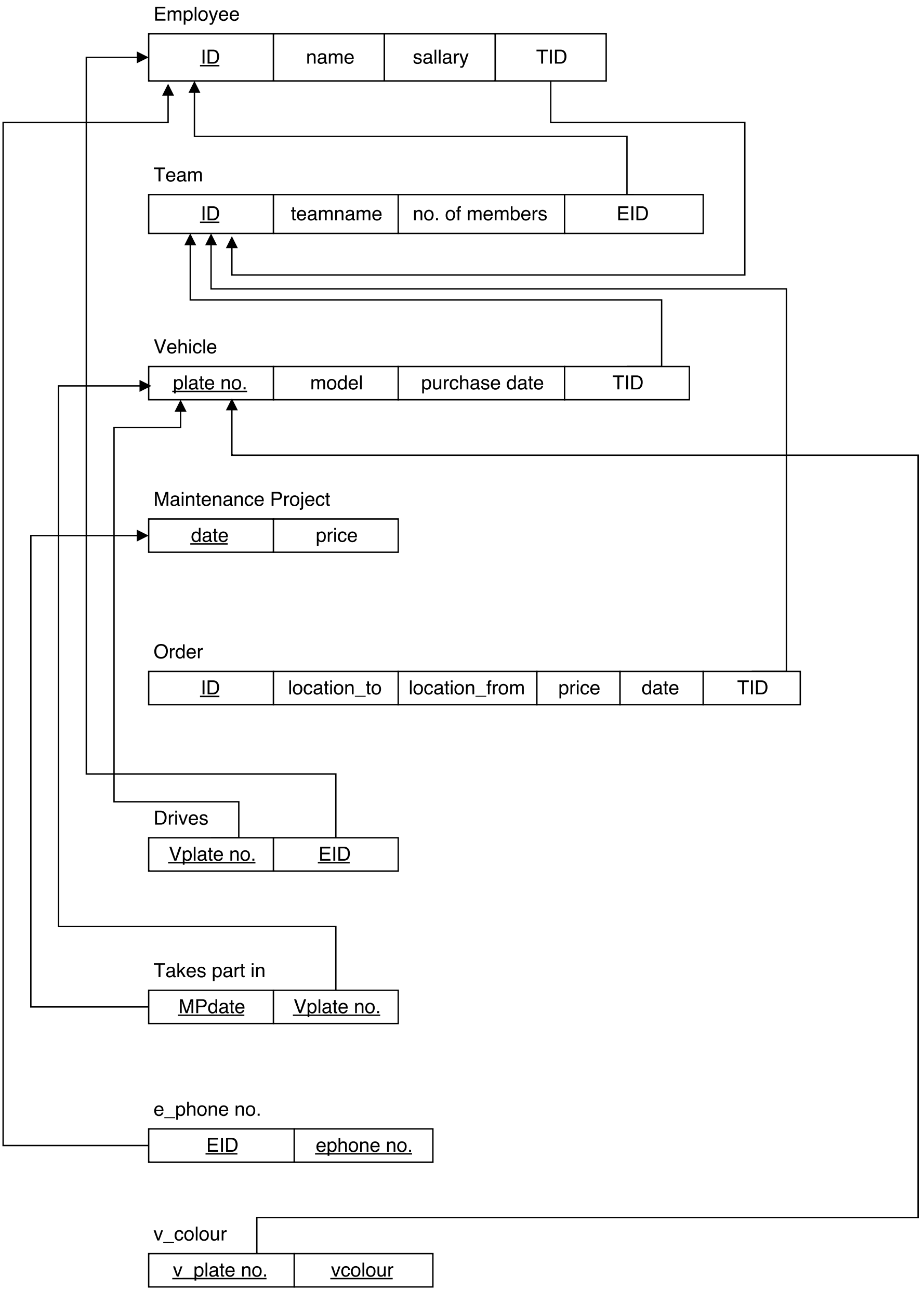


Question 2.1 - Moving company ER diagram

Assumptions:
- each employee may have more than 1 phone numbers
- each vehicle may have more than 1 colour listed.
  e.g: white body, yellow stripe



Question 2.2 : Moving company relational model



Question 3

3.1. The maximum number of superkey without duplication is $(2^n - 1)$. According to the lecture note on week 2, "A superkey is a set of attributes that uniquely determines a tuple". Therefore, each attribute in the schema R may possibly be nominated as a superkey.

Let's take an example of schema R(E, F, G).
The possible superkeys are:
E, EG, EF, EFG,
F, FG, ~~FE~~, ~~FEG~~,
G, ~~GE~~, ~~GF~~, ~~GFE~~

~~XX~~ == duplicates

Schema R above consists of 3 attributes, hence the maximum number of possible superkeys is $(2^3 - 1)$, which is 7.

3.2. The maximum number of candidate key is *n.*
Let's use an example of schema R(E, F, G, H).

Assuming that the functional dependencies are:
E -> F
F -> G
G -> H
H -> A

By using the closure of attributes for each of the attribute, it all contains EFGH, which is 4.