TU München, Fakultät für Informatik
Lehrstuhl III: Datenbanksysteme
Prof. Alfons Kemper, Ph.D.

Exercise for *Database System Concepts for Non-Computer Scientist* im WiSe 18/19

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http://db.in.tum.de/teaching/ws1819/DBSandere/?lang=en

Sheet 04

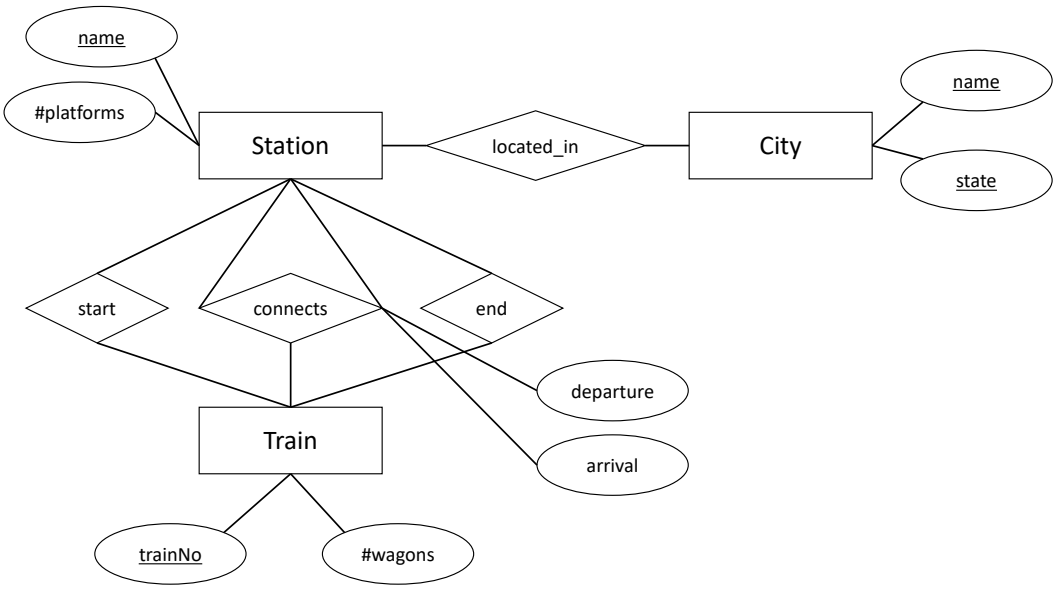
Exercise 1

Consider the entity relationship model of a train connection system (below). Note: `connects` models a the direct connection between two stations. For example, the train starting in Munich and ending in Hamburg passes through several stations. Each of these route-sections (e.g., Munich → Nürnberg or Nürnber → Würzburg) has an entry in the `connects` relation.

a) Add functionalities to the ER diagram.

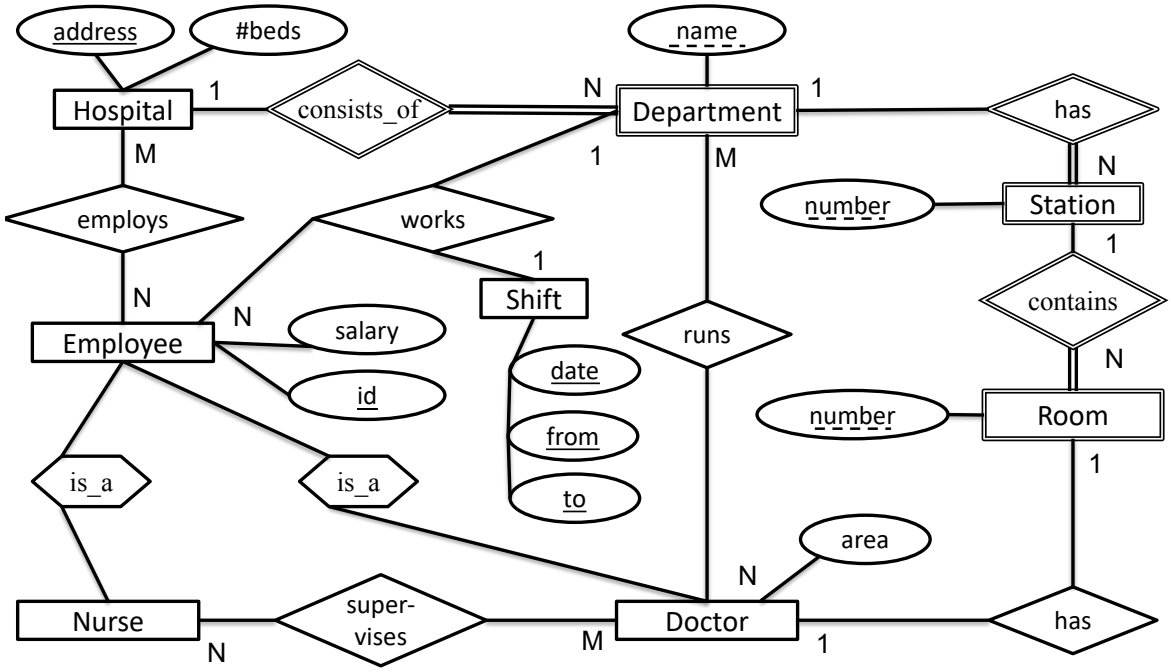
b) Transform the ER diagram into a relational schema.

c) Refine the relational schema as far as possible by eliminating relations.



Exercise 2

Now, if you want more practice, consider the hospital example, again. This time take the entity relationship diagram and transform it into a relational schema. Then, optimize it by eliminating relations.


address
#beds
Hospital
1
consists_of
N
name
Department
1
has
M
1
M
N
employs
works
number
Station
1
N
1
contains
Shift
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salary
Employee
runs
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Room
number
from
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1
area
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Nurse
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vises
Doctor
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1