



*Database System Concepts for Non-Computer Scientist – WiSe 22/23*

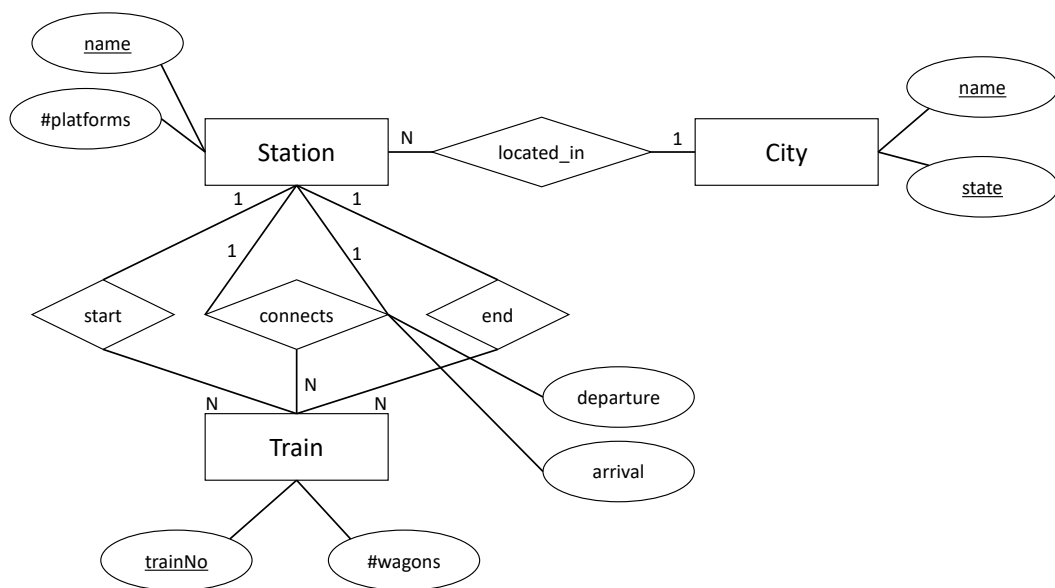
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<http://db.in.tum.de/teaching/ws2223/DBSandere/?lang=en>

**Sheet 05**

**Exercise 1**

Consider the entity relationship diagram from exercise sheet 3:



Refine the relational schema that you created in sheet 3 from the ER-Diagram. Underline keys and find appropriate data types. As a reminder, here is the un-refined schema:

- City : {[name : string, state : string]} (1)
- Station : {[name : string, #platforms : integer]} (2)
- Train : {[trainNo : integer, #wagons : integer]} (3)

For the relationships in the model, we create the following relations:

- located\_in : {[stationName : string, cityName : string, cityState : string]} (4)
- start : {[trainNo : integer, stationName : string]} (5)
- end : {[trainNo : integer, stationName : string]} (6)
- connects : {[fromStationName : string, toStationName : string, trainNo : integer, departure : date, arrival : date]} (7)

## Exercise 2

For additional 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.

This is obviously a large example but practice is very helpful. However, if you want to save time, you could focus on the difficult parts: *employs*, *works*, *consists\_of*, *Doctors + has*

