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

![Entity Relationship Diagram for Hospital Example]