Exercise 1

Consider the entity relationship diagram from exercise sheet 3:

Refine the relational schema that you created in sheet 4 from the ER-Diagram. Underline keys and find appropriate data types. As a reminder, here is the un-refined schema:

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

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

located_in : \[
\{\text{stationName} : \text{string}, \text{cityName} : \text{string}, \text{cityState} : \text{string}\}\] (4)
start : \[
\{\text{trainNo} : \text{integer}, \text{stationName} : \text{string}\}\] (5)
end : \[
\{\text{trainNo} : \text{integer}, \text{stationName} : \text{string}\}\] (6)
connects : \[
\{\text{fromStationName} : \text{string}, \text{toStationName} : \text{string},
\text{trainNo} : \text{integer}, \text{departure} : \text{date}, \text{arrival} : \text{date}\}\] (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`