Sample Solution to Exercise

DISCLAIMER 1: This is only ONE solution, there are many. The solution provided was designed to show as many features of ER diagrams as possible and there may be other (including better) models.

Notes about sample solution:

- This model stores redundant information in the flights entity. A new instance is created for each flight on each day, however generally flight information generally does not change. Some solutions include:
  - using a separate entity for flights and flight plans
  - expand the uses relationship to include date (this introduces some other issues)
  - create a date entity and a relationship between flights and dates. These two entities and their relationship can then be aggregated
- Passengers could reserve more than 1 seat per flight, and there can be passengers (including frequent flyers) who have never flown before! It is also assumed no passenger has the same first and last name.
- Terminals have to have at least one gates, and each must gate belong to exactly one terminal.
- Unlike real airlines, there is no way to overbook planes since each combination of flight/plane/seat can only have up to one passenger (due to the aggregation and arrow to travels_on).
- Notice that flights is involved in both an aggregation (with flights, uses, planes, has_seates, and seats) and has a direct relationship with gates (which does not involve the aggregation).

DISCLAIMER 2: There are other restrictions and anomalies because of the modeling decisions in the solution… feel free to find them and point them out.