1. **Consider the ERD given in Figure 3.21 (The AIRLINE database schema):**
   1. **Based on what you see in the diagram, explain the difference between flights, flight legs, and leg instances. Please give a short explanatory paragraph.**

* A flight is an entity that can have many flight legs in it, i.e. the entire distance traveled is the flight. Flight legs are nonstop portions of a flight, and leg instances is a particular occurrence of a flight leg on a particular date, and the leg instances contain the number of seats. A leg instance is only associated with a flight leg, but a flight leg can potentially have many leg instances.
  1. **The names of some of the attributes in this diagram are underlined with dotted lines. You’ll note that this notation is not explained in the Figure 3.14 cheatsheet. What does it mean?**
* An attribute underlined with a dotted line is referring to the partial key for a weak entity, which is the attribute that uniquely identifies weak entities that are related to the same thing.
  1. **You’ll note that the “SEAT” entity has a total participation in the “RESERVATION” relationship (i.e., we would write the cardinality constraint {1,\*} on the “LEG\_INSTANCE” side of the relationship). Why do you think the database modelers did it this way?**
* This is written this way because each seat has to be reserved on a flight leg. To reserve seats on a flight leg that is non-existent would simply be unwise, and destroy the logic of the database.