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Relational Model

airline = (airlineID, revenue)

route = (routeID)

location = (locationID)

flight = (flightID, cost, follows_real [fk1])
fk1 = follows_real → route (routeID)

airport = (airportID, airport_name, city, state, country_code, locationID [fk2])
fk2 = locationID → location (locationID)

leg = (legID, distance, departs [fk3], arrives [fk4])
fk3 = departs → airport (airportID)
fk4 = arrives → airport (airportID)

airplane = (tailnum, owner_real [fk5], seat_cap, speed, locationID [fk6], progress, flight_status, next_time, supports [fk7])
fk5 = owner_real → airline (airlineID)
fk6 = locationID → location (locationID)
fk7 = supports → flight (flightID)

prop = (tailnum, owner_real [fk8], props, skids)
fk8 = (tailnum, owner_real) → airplane (tailnum, owner_real)

jet = (tailnum, owner_real [fk9], numengines)
fk9 = (tailnum, owner_real) → airplane (tailnum, owner_real)

person = (personID, first_name, last_name, occupies [fk10])
fk10 = occupies → location (locationID)

pilot = (personID [fk11], taxID, experience, commands [fk12])
fk11 = personID → person (personID)
fk12 = commands → flight (flightID)

passenger = (personID [fk13], miles, funds)
fk13 = personID → person (personID)

license = (personID, taxID [fk14], license_types)

fk14 = (personID, taxID) → pilot (personID, taxID)

vacation = (personID [fk15], destination, sequence)

fk15 = personID → passenger (personID)

containing = (routeID [fk16], legID [fk17], sequence)

fk16 = routeID → route (routeID)

fk17 = legID → leg (legID)

Unhandled Constraints

1. Ensure that the license(s) a pilot holds match with the type of plane(s) they fly. For example, the pilot with personID p1 commands flight dl_10 which is supported by tailnum n106js, which is a jet plane. We must ensure that this pilot holds a license to operate jets.
2. Ensure that a passenger has enough funds to cover the cost of a flight.
3. Ensure that the airplane a passenger intends to board has the seating capacity to hold the passenger.
4. Ensure that an airline owns at least one airplane.
5. Ensure flights with prop planes have at least one assigned pilot before taking flight.
6. Ensure flights with jet planes have at least 2 pilots assigned before taking flight.
7. Ensure each route contains at least one leg.
8. Ensure that each airplane is owned by an airline and only one airline.