Schema Mapping

Route = (routeID)

Cruise = (cruiseID, cost, RT [fk5])
fk5: RT -> Route(routeID)

Cruiseline = (cruiselineID)

Person = (personID, first, last)

Crew = (crewKey [fk2], taxID, experience, licenseCruiseKey [fk4])
fk2: crewKey -> Person(personID)
fk4: licenseCruiseKey -> Cruise(cruiseID)

Crew-license = (licenseKey1 [fk1], license)
fk1: licenseKey1 -> Crew(crewKey)

Passenger = (passengerKey [fk3], funds, miles)
fk3: passengerKey -> Person(personID)

Location = (locID)

Port = (portID, name, city, state, country, locKey [fk13])
fk13: locKey -> Location(locID)

Leg = (legID, distance, PTD [fk8], PTA [fk9])
fk8: PTD -> Port(portID)
fk9: PTA -> Port(portID)

Contains = (RT2 [fk6], LG [fk7], sequence)
fk6: RT2 -> Route(routeID)
fk7: LG -> Leg(legID)

Occupies = (LOC [fk10], PID [fk11])
fk10: LOC -> Location(locID)
fk11: PID -> Person(personID)

Ship = (name, cruiseLineKey [fk12], speed, max_cap, locKey1 [fk14])
fk12: cruiseLineKey -> Cruiseline(cruiselineID)
fk14: locKey1 -> Location(locID)

River = (shipKey1, shipKey2 [fk15], uses_paddles)
fk15: shipKey1, shipKey2 -> Ship(name, cruiseLineKey)

Booked = (passengerKey1 [fk19], CID [fk20])
fk19: passengerKey1 -> Passenger(passengerKey)
fk20: CID -> Cruise(cruiseID)

Ocean_Liner = (shipKey3, shipKey4 [fk16], lifeboats)
fk15: shipKey3, shipKey4 -> Ship(name, cruiseLineKey)

Supports = (cruiseSupports [fk17], name, cruiseLineID [fk18], progress, status, next_time)
fk17: cruiseSupports -> Cruise(cruiseID)
fk18: name, cruiseLineID -> Ship(name, cruiseLineKey)

Unhandled Constraints

1) Ensure that each cruise in state “sailing” must have at least 1 passenger.
2) Ensure that each cruise in state “sailing” must have at least 1 crew.
3) Ensure that each cruise line must own at least 1 ship.
4) Ensure that each ocean liner has at least 1 lifeboat attached to it.
5) Ensure that each crew member has at least 1 license.
6) Ensure that each crew member has at least 1 certification.
7) Ensure that each ship’s current capacity does not exceed its maximum capacity.
8) Ensure that each ship has the same amount of passengers when it leaves the port as it does in its sailing state.
9) Ensure that each cruise has 0 passengers once it docks at the last port in its sequence.
10) Ensure that each cruise has 0 crew members once it docks at the last port in its sequence.
11) Ensure that a cruise stops at minimum 1 port on its route.
12) Ensure that passenger funds are larger than cruise cost before passengers can book a cruise.
13) Ensure that each ship changes its state from “docked” to “sailing” when the current capacity is the same as the number of people that booked the ship.
14) Ensure that each port does not exceed 1000 passengers and change plans if necessary.