Assignment-3 CS303

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October 17, 2022

1 Problem 1

Design a database for an automobile company to provide to its dealers to assist them in maintaining customer records and dealer inventory and to assist sales staff in ordering cars. Each vehicle is identified by a vehicle identification number (VIN). Each individual vehicle is a particular model of a particular brand offered by the company (e.g., the XF is a model of the car brand Jaguar of Tata Motors). Each model can be offered with a variety of options, but an individual car may have only some (or none) of the available options. The database needs to store information about models, brands, and options, as well as information about individual dealers, customers, and cars. Your design should include an E-R diagram, a set of relational schemas, and a list of constraints, including primary-key and foreign-key constraints.

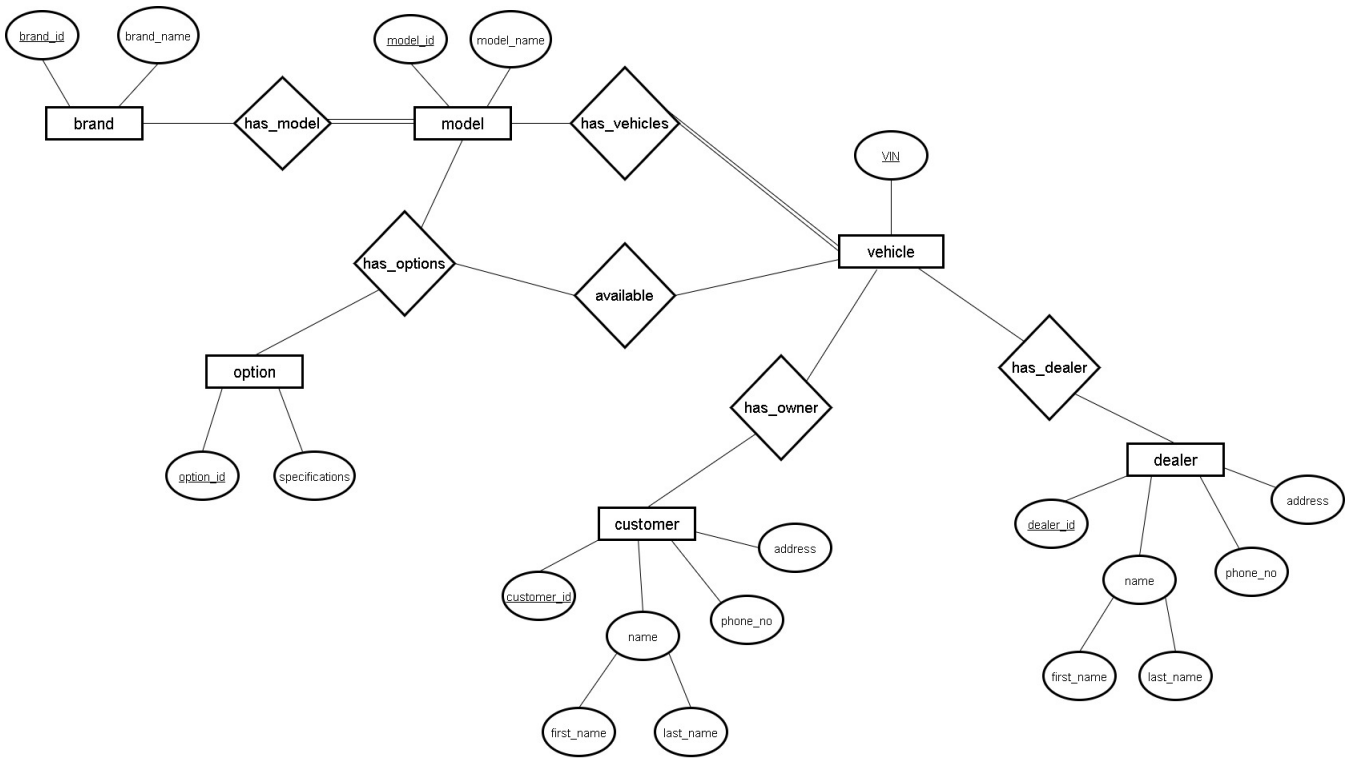

Figure 1: ER Model

1.1 Schema

brand (brand_id, brand_name),
model (model_id, mdoel_name),
option (option_id, specifications),
vehicle (VIN),
customer (customer_id, name, phone_no, address),
dealer (dealer_id, name, phone_no, address),
has_model (brand_id ref. **brand**, model_id ref. **model**),
has_options (model_id ref. **model**, option_id ref. **option**),
has_vehicles (model_id ref. **model**, VIN ref. **vehicle**),
available ((model_id, option_id) ref. **has_options**, VIN ref. **vehicle**),
has_owner (VIN ref. **vehicle**, customer_id ref. **customer**),
has_dealer (VIN ref. **vehicle**, dealer_id ref. **dealer**)

2 Problem

Design a database for a world-wide package delivery company (e.g., DHL or Fed EX). The database must be able to keep track of customers (who ship items) and customers (who receive items); some customers may do both. Each package must be identifiable and trackable, so the database must be able to store the location of the package and its history of locations. Locations include trucks, planes, airports, and warehouses. Your design should include an E-R diagram, a set of relational schemas, and a list of constraints, including primary-key and foreign-key constraints.

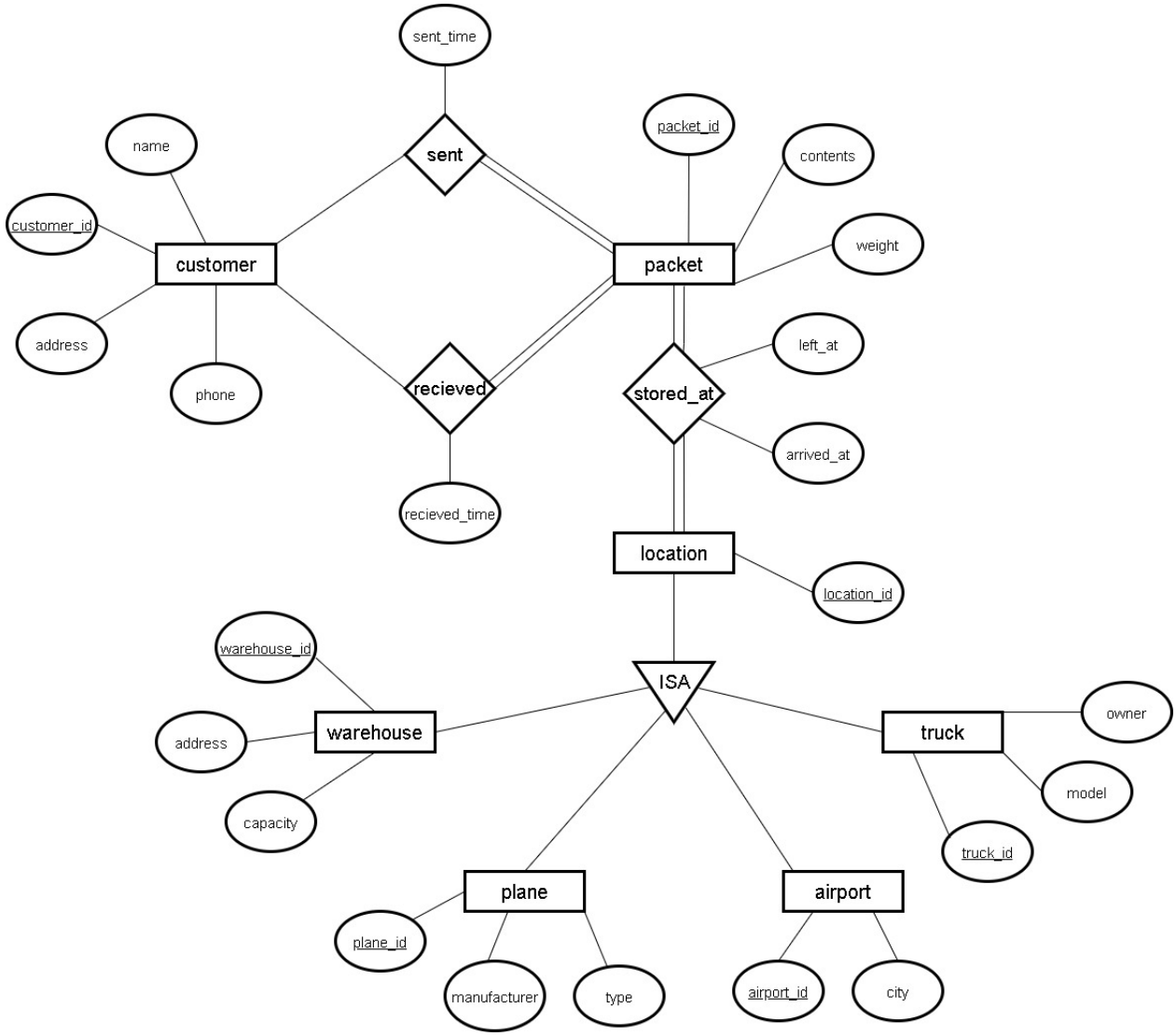

Figure 2: ER Model

2.1 Schema

customer (customer_id, name, phone, address),
packet (packet_id, contacts, weight),
location (location_id),
warehouse (warehouse_id ref. **location(location_id)**, address, capacity),
plane (plane_id ref. **location(location_id)**, manufacturer, type),
airport (airport_id ref. **location(location_id)**, city),
truck (truck_id ref. **location(location_id)**, model, owner),
sent (customer_id ref. **customer**, packet_id ref. **packet**, sent_time),
recived (customer_id ref. **customer**, packet_id ref. **packet**, recieved_time),
stored_at (packet_id ref. **packet**, location_id ref. **location**, arrived_at, left_at),