# Database Systems — CSci 4380
# Midterm Exam #2 Data Model
# November 4, 2021

## Data Model to be used in Exam# 2

Suppose you are given the following database for a company that rents out trucks (like UHaul) from different stores. Information about the rentals (current, past and future) and the customers are stored in the db. Trucks don't stay in a specific location, but move from store to store based on rentals. A truck may be sitting in the parking lot of a store until it is rented out. Which trucks are currently available in a given store is also stored.

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```
create table trucks(
    licenseplate varchar(12) primary key
    , state     char(2) not null -- state the truck is registered in
    , year      int              -- year the truck was made
    , mileage   int              -- current mileage of the truck
    , mileage_recorded date      -- when the current mileage was recorded
    , truck_size varchar(10)     -- large, medium, small, etc.
    , condition varchar(10)      -- perfect, good, dented, etc.
    , notes     text             -- text description of any dents on the truck
) ;

create table truck_features(
     licenseplate varchar(12)
     , feature    varchar(255)    -- example features: 'loading dock', 'low back', etc.
     , primary key (licenseplate, feature)
     , foreign key (licenseplate) references trucks(licenseplate)
) ;

create table stores(
    id         int  primary key
    , street   varchar(40)
    , state    char(2)
    , city     varchar(40)
    , zip      varchar(12)
) ;

-- Which trucks are located in which store currently (i.e. waiting to be rented right now)
create table store_inventory (
      storeid   int
      , licenseplate varchar(12)
      , primary key (storeid, license)
      , foreign key (storeid) references stores(id)
      , foreign key (licenseplate) references trucks(licenseplate)
) ;

-- People who rent trucks and their personal info
create table customers(
      username   varchar(20) primary key
      , password varchar(20) not null
      , licenseno varchar(50) not null -- driver license number
      , fname    varchar(255) not null
      , lname    varchar(255) not null
      , street   varchar(40)
      , state    char(2)
      , city     varchar(40)
      , zip      varchar(12)
) ;
```

```
-- Price rates for truck rentals, often based on number of days of rental
-- and applicable truck size.
create table rental_rates(
     id           int primary key
     , priceperday numeric(5,2)
     , mindays     int
     , maxdays     int
     , truck_size  varchar(10)
) ;

-- All rentals: past, ongoing and future.
-- isstarted is true for current and past rentals, iscompleted is true for past rentals.

-- When a future rental is arranged, customer specific when and where the rental will start
-- (pickup storeid and datetime) and end (dropoff storid and datetime). When they actually
-- pick up and drop off the truck, these attributes are changed with the actual
-- pickup/dropoff place and timestamp.

-- licenseplate of the truck is null for a future rentals (a rental that has not started), only
-- truck_size is known. A specific truck is assigned to a rental when the rental starts
-- and the customer picks up the truck.

create table rentals(
     id               int primary key
     , truck_size     varchar(10) not null
     , rental_rateid  int
     , pickup_storeid int  not null
     , dropoff_storeid int not null
     , pickup_datetime timestamp not null
     , dropoff_datetime timestamp not null
     , licenseplate   varchar(12)
     , username       varchar(20)  not null
     , totalprice     numeric(10,2)
     , isstarted      boolean
     , iscompleted    boolean
     , foreign key (rental_rateid) references rental_rates(id)
     , foreign key (pickup_storeid) references stores(id)
     , foreign key (dropoff_storeid) references stores(id)
     , foreign key (username) references customers(username)
     , foreign key (licenseplace) references trucks(licenseplate)
) ;
```