

## **420-921-VA Database project: Car2Go**

### **Deliverable1**

#### **Team members:**

**Md Ibrahim Ullah, ID: 2295025**

**Mark Benedict Muyot, ID: 2295022**

### **Description**

Car2go is a car rental company that provides vehicle rental to customers for specific period of time. They have variety of cars to choose from depending on what type or class is suited for the customer. The customer can choose a subcompact, compact, sedan or a luxury car depending on the need and preference.

The company has several branch locations which allows customer to rent a vehicle from one location and can be dropped off to another Car2go branch. They operate also at rural areas which provides accessibility to customers.

The company's pricing is based on the type of the car and the duration of the rental. They also offer promotional rentals and gives discounts for certain weeks.

### **Business rules and assumptions:**

#### **Business rules:**

- The company has several locations with different addresses.

Addresses include:

street / rural route address which includes:

- street / rural route number
- street / rural route name

city

province

postal code

- The company classified the car options as subcompacts, compacts, sedans or luxury. Each car has a specific year, make, model, and color, and also has both unique identification number and unique license plate number.
- A car can be rented in a particular location but possible to be returned in a different location (drop-off location).
- The company keeps track of odometer readings and gas volume before and after the car renting, but always rent with full tank of gas and only indicate if the tank is empty, quarter full, half full, three quarters full, or full at the time of returning.
- The company tracks the rental and return dates.
- Each customer can choose a preferable class of car and can rent only one at a time. Customers may get a free upgrade if the requested class of car is not available, at the same price as the earlier requested class.
- Prices are different for each class of cars, but all cars in the same class are priced the same. prices are calculated based on a car class and each day of rental.
- Final invoice (drop-off charge) will be calculated on the class of the rental car and total number of rental days (rented date to returned date, minimum is 1), and any applicable promotion. Promotions are applicable on a single class only .

- The company keeps records of each customer's name, mailing address, phone number(s) (if there are any), email addresses (if there are any), and a unique driver's license number.

Name includes:

first name

last name

Mailing address:

street address which includes:

- street number
- street name
- apartment / unit number (if has any).

city

Province / state

Postal code

Country

Phone number(s) (if has any) which includes:

- country code
- area code
- local number

Email address(es)

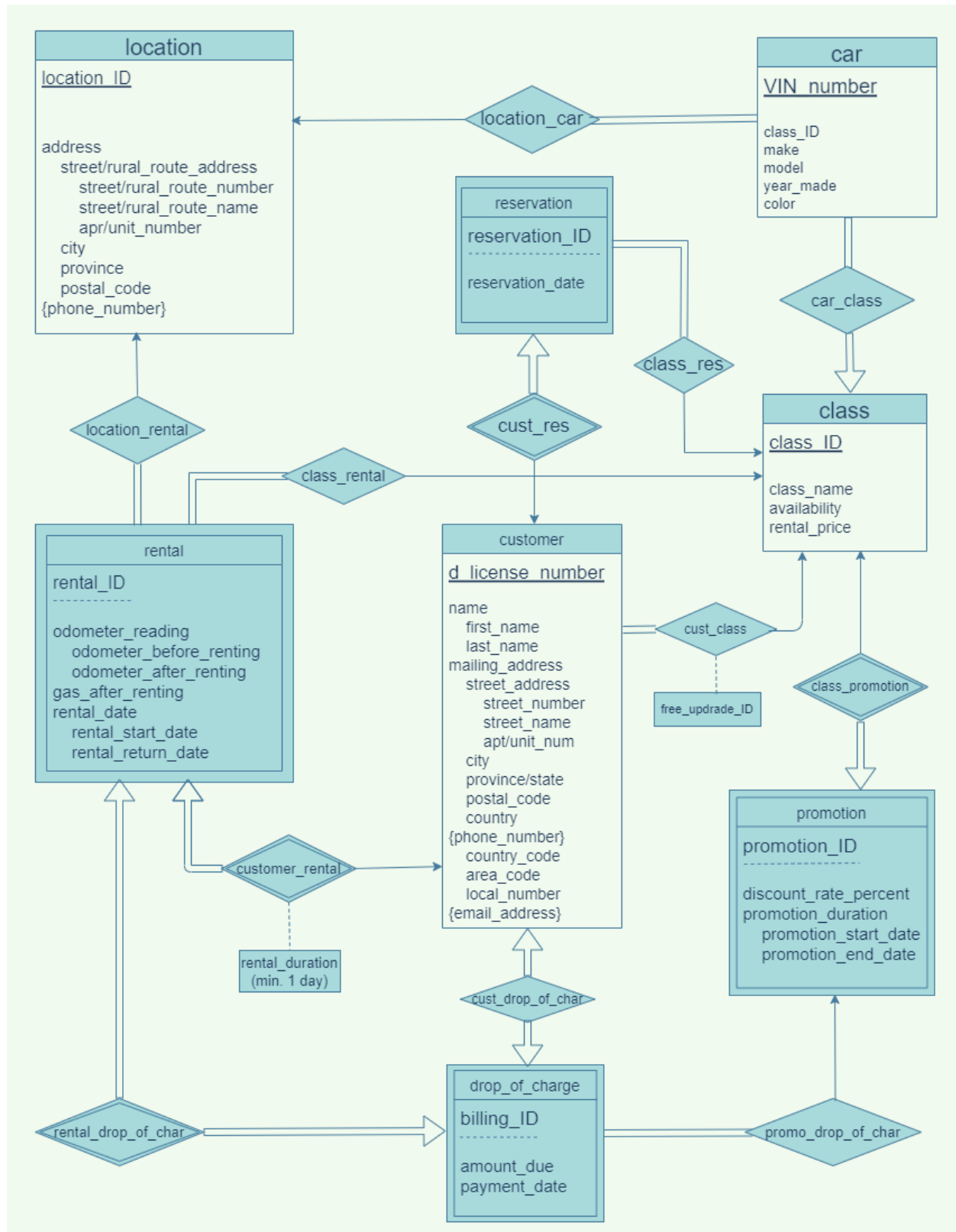
- Email has only one string and no structure is assumed.

- The company has 50% promotional rentals on certain weeks in the year, but maybe also of different percentage. The promotions always affect only a single class of car at a time.

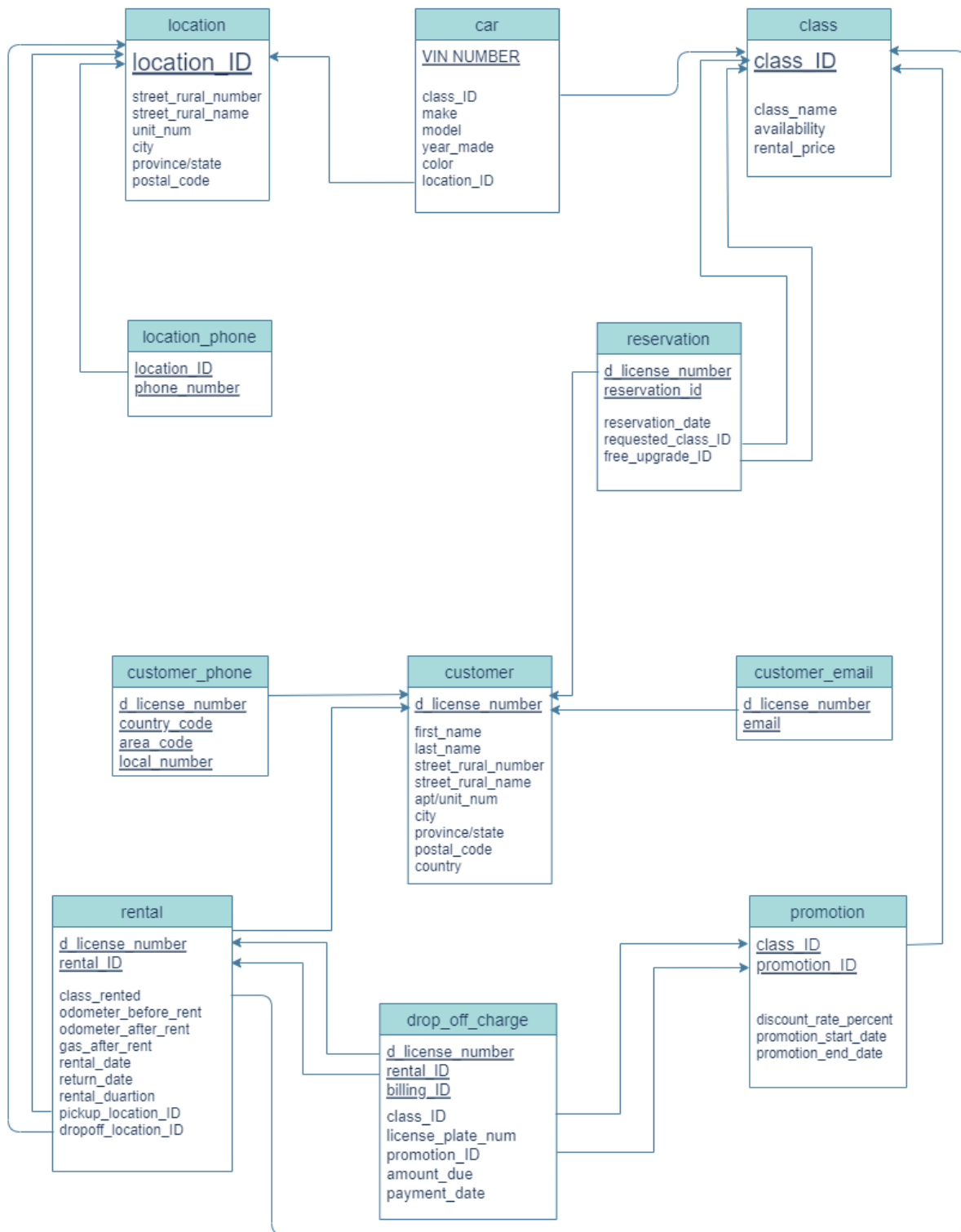
**Assumptions:**

- Customers can cancel reservations for a certain window of time and can incur some penalties when that window lapsed.
- Customers should be of legal age and have a valid driver's license to be able to rent a car.
- The company will set mileage limits and will charge the customer for extra miles traveled.
- Customers should return the car in full tank, or an option to pay the difference for gas usage.
- Once the car is returned it will be available again in the system.
- An additional fee will be charged if the car is returned after the set returned date, however earlier return will be available.

## Conceptual design: Entity Relationship Diagram (ERD)



## Logical design: Relational schema diagram



**Normalization:** All the tables are in 1NF/2NF/3NF.