ONE SOLUTION: RentToGo.com Overview

The RentToGo.com portion of this software suite is a self-contained, independently functioning unit. This unit exists as an information management system to integrate vehicle rentals through multiple rental companies. The customer will select pickup and drop-off locations, start date and end date for the reservation. RentToGo.com will determine available vehicles and prices, displaying the options for the user to choose from. The user will make the reservation through RentToGo.com without interacting directly with the vehicle rental company. RentToGo.com will also serve as a financial intermediary between customer and rental company, so all customer interaction will be with RentToGo.com. The users who will interact with RentToGo.com are of three primary types: customer, service clerk, and system administrator. The customer may be a personal user, business user, or a travel agent. Each will have a user-interface tailored to their needs. The clerk will be a representative of the company responsible for pickup and drop-off of rental vehicles. The system administrator type encapsulates both human users and automated computer services that will interact with the database.

Figure 1
RentToGo.com Use Case (Figure 2) Assumptions and Explanation

The various interactions of measurable value each of these types will have with RentToGo.com are described in the Use Case UML diagram that follows. Three primary user types will access the RentToGo.com services.

System administrators (including automated computer systems and human users) will manage employee information, manage vehicle and rental location information, and generate various reports. Each of these actions will require user login and validation.

Customers, including home users, business users, and travel agents, will have the ability to get rates and make reservations, check current vehicle availability, and manage their user profiles.

Clerks, who are employees of RentToGo.com or our auto rental partners, will have the ability to enter rental pickups and rental drop-offs into the system. Both of these actions will require login and user validation.

![Statechart Diagram for a RentToGo Auto Reservation](image)

Figure 2
RentToGo.com State Chart (Figure 3) Assumptions and Explanation

The State Chart Diagram describes the various lifecycle states of a rental at RentToGo.com, from initial consideration to completion at drop-off. The first state is consideration of the rental (while the user views available options and prices). The user can either cancel the process at this point, or select a rate and car. Once the vehicle has been reserved, the reservation can either be cancelled or kept. The reservation will be considered kept at the time the customer picks up the vehicle. Once the vehicle has been picked up, the vehicle will either be returned or stolen. If the vehicle is involved in a debilitating accident, RentToGo.com or its affiliates will take possession of the vehicle. If the car is stolen, the matter will be referred to authorities with proper jurisdiction. If the vehicle is returned and all payments finalized, the transaction will be completed.
The Activity Chart Diagram describes the way various human users will interact with the system through a graphical user interface (GUI).

Customers will interact with RentToGo.com through the company website. Once a user has been identified as a customer, the user will be provided with available activities. The user will have the opportunity to view current availability, view rates and reservations, manage their user profile, or exit the system. Viewing current availability will provide the user with the information and the option to print or return to the previous menu. Viewing rates and reservations will step the user through the reservation process. At each step, the user will have the option of canceling the process and returning to the main menu. First, the various steps will be displayed for the user. The first step will be selection of pickup and drop-off locations. The second step will be to select a vehicle from those available. The third step will be to review the reservation details. If the customer is happy with the details, he must identify himself. If the customer is already registered with RentToGo.com, he or she can login and the reservation will be complete, at which point the user can print a summary or return to the main menu. If the customer is not already registered with RentToGo.com, he or she must enter customer information and credit card information, at which point the reservation will be complete, and the customer will be able to print a rental summary or return to the main menu.

The second user type available is the clerk. The clerk first has to login to the system. Following login, the clerk must select pickup or drop-off entry. For pickup, the clerk must enter the email address and rental number of the customer as well as the customer’s credit card information. The clerk will then view and print a copy of the rental agreement for the customer. If the clerk selects drop-off, he or she must get the email address and rental number of the customer. The clerk will then view and print the final receipt of service for the customer. After a pickup or drop-off has been entered, the clerk will be returned to the pickup/drop-off main menu.

The third user type available is the system administrator. The sys admin will login and then view a menu of options, including car and location management, employee management, and report generation. For car and information management, the sys admin will have the option to add cars and locations to the system or return to the main menu. For employee management, the sys admin will have the option to add a new employee to the system or search for an existing employee. In both cases, the sys admin will have the ability to edit employee information. If the sys admin chooses to generate reports, the various reports available will be displayed. Once a report is selected, the report will be displayed for view and the sys admin will have the options of printing the report or returning to the main sys admin menu.
RentToGo.com Entity Relationship (Figure 5) Assumptions and Explanation

The entity relationship diagram describes the databases involved in the RentToGo.com application, including data types and data (the entities) as well as their interdependencies and interactions (the
The software package used to create the ER diagram was Borland Together. This package implements an ER-style that emphasizes the manner in which the ER model will actually be implemented instead of the more abstract format studied in class. The singular relationships are represented via lines (solid for identifying, dashed for non-identifying) with a single weighted end. These connections will be represented in the database as foreign key attributes referencing a tuple in another table. The many-to-many relationships are represented via solid lines with both ends weighted. These relationships will be represented in the database with a unique table for each.

The RentToGo.com databases are connected to the other services available at GetAwayCheap.com through the Customer entity. The primary key of the customer entity will be the SSN of the customer or a system generated UID if the SSN is not available. Other attributes of a Customer will include driver’s license number and state, name, address, home phone, work phone, cell phone, email address, and system password.

Each customer will have zero or more credit cards on file. At least one credit card is required to complete a reservation. The credit card entity type will have the CC number as its primary key, as well as the credit card company, expiration date, and cardholder name as additional attributes.

The RentToGo.com database will also include information on our various rental company partners. The primary key of the Rental Company entity will be a system generated UID. Attributes for the entity will be name, address, customer service phone, and web site URL.

Each rental company will have zero or more business-to-business contact persons stored in the system. The B2B Contact entity will have the SSN or a system generated UID as the primary key. Attributes will include name, address, phone, fax, email, and job title.

Another primary entity in the database will be the Vehicle. The primary key of the vehicle entity will be the VIN number. Other attributes will include color, status and condition, registration number, registration state, and transmission type (manual / auto). Also, each vehicle will be identified as one vehicle make.

The Vehicle Model entity will have a system generated UID as its primary key. Attributes will include name, vehicle type (e.g. sports car, SUV, etc.), body style, number of doors, and number of seats. Each vehicle model will be identified as one vehicle make.

The Vehicle Manufacturer entity will have a system generated UID as its primary key. Attributes will include name, address, customer service phone, and web site URL. Also, each manufacturer will have zero or more B2B Contacts associated with it.

The Availability entity will store information for the vehicle available for rental. Its primary key will be a system generated UID. Attributes will include start date and end date of the availability. Each availability will be associated with exactly one Vehicle, one Rate, and one Location.

The Rate entity will have a rate code as its primary key. Attributes will include cost per day, mileage limit, and the rate for additional mileage over the limit.
Each Location entity will be identified by a system generated Location UID. The attributes will include the name and address of the location.

Another primary entity in the RentToGo.com database will be the Reservation entity. The primary key will be a system generated UID. Attributes will include start date and end date. Each reservation will be associated with exactly one pickup location and exactly one drop-off location, exactly one customer, exactly one vehicle, exactly one credit card, and zero or one insurance rates.

The Insurance Rate entity will have a system generated UID as the primary key. The attributes will include the rate (price per day), deductible, liability limit, and collision limit. Each will be associated with exactly one insurance company. Also, each Insurance Rate will be associated with zero or more Vehicle Models for which the rate is applicable.

The Insurance Company entity will have as its primary key a system generated UID. The attributes will include name, address, customer service phone, and web site URL. Each will be associated with zero or more B2B Contacts.

Once a reservation has been picked up and paid for, it becomes a rental. The primary key for the Rental entity will be a computer generated Rental UID. The attributes will include start date, end date, rental status, and balance due. The end date will remain null until the rental vehicle is returned. Each Rental will be associated with exactly one pickup location, exactly one drop-off location, exactly one vehicle, exactly one credit card, exactly one customer, and zero or one insurance rates.

The rental company partner that provides the rental vehicle will have relationships to the reservations, rentals, and available vehicles provided.
ANOTHER SOLUTION:
Any person who registers at GetAwayCheap.com is considered to be a traveler. Every traveler has a profile that contains the following information:

- **Email**: A traveler’s email is unique and can therefore define a specific traveler
- **Name**: First and last name
- **Address**
- **Phone Number**: Home number, work number, and cell number (where applicable)
- **Special Needs**: These consist of any medical conditions the traveler may have and/or any dietary restrictions

Additional information on the traveler, namely credit card information (card number, card type, and expiration date) and their user password, is not stored in their profile. In addition, a traveler is defined as either a home traveler or a business traveler. The business traveler must provide the name, address, and phone number of their business for billing purposes. Each traveler may access his/her own profile at any time to view and/or update information. Furthermore, there exists a group of outside personnel that may access user profiles, each for their own separate purposes. Outside personnel consists of marketing personnel, transportation personnel, government personnel, and security personnel.

Every reservation has a unique reservation id, a start date (the date the reservation begins), and end date (the date the reservation ends), and a group specification. A group specification indicates those reservations that are multi-faceted (i.e., some vacationers may choose to make reservations for a hotel, a flight, and a rental car under one “super” reservation). The different types of reservations, and their attributes are listed below:

- **Vehicle Reservation**
  - Each vehicle has the following attributes:
    - **VIN**: Vehicle Identification Number
    - **License Plate Number**
    - **Model**
    - **Make**
    - **Rate**: How much does the car cost per day? Per mileage?
    - **Availability**: What cars are available?
    - **Limits**: Are there any specific boundaries to adhere to?
    - **Insurance Minimums**
    - **Liabilities**
    - **Restrictions**

  - Rental car companies own each vehicle, and a unique URL denotes the company.
  - Car manufacturing companies manufacture each vehicle, and a unique URL denotes the company.
  - A vehicle can be any of the following types: **SUV, Truck, Van, Minivan, Sedan**