CaRMS Management System

Table of Contents

* Project Session Beans
* Project Entity Classes
* Management Client
* Reservation Client
* External Partner Client

Project Session Beans

* Singleton

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| **Session Bean Name** | **Description** |
| DataInitializationSessionBean | Initializes the test data to run test cases for the management system as a whole |

* Stateless

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| **Session Bean Name** | **Description** |
| CarPickupReturnSessionBean | Handles creation and persistence of CarPickupEntity and CarReturnEntity |
| CarSessionBean | Handles creation and persistence of CarCategoryEntity, CarEntity, CarModelEntity.  Also supports queries of various natures such as retrieving CarEntities by their CarCategory or CarModel, or retrieving CarEntities via their status or current outlet. |
| CustomerSessionBean | Handles creation and persistence of CustomerEntity. Also handles customer login for reservation client. |
| DispatchSessionBean | Handles creation and persistence of DispatchEntity. |
| EJBTimerSessionBean | A timer session bean that executes a method to allocate cars to reservations for the current day on a daily basis at 12 midnight.  The method allocates a CarEntity to a ReservationEntity, and generates a DispatchEntity for this operation if the CarEntity is in another outlet. |
| EmployeeSessionBean | Handles creation and persistence of EmployeeEntity. Also handles employee login for management client. |
| OutletSessionBean | Handles creation and persistence of OutletEntity. |
| PartnerSessionBean | Handles creation and persistence of PartnerEntity. Also handles partner login for partner client. |
| RentalRateSessionBean | Handles creation and persistence of RentalRateEntity. |
| ReservationSessionBean | Handles creation and persistence of ReservationEntity.  Also contains methods to cancel existing reservations, get available cars for a theoretical reservation given date and location.  Supporting session bean for EJBTimerSessionBean, contains functionality for ReservationEntity CarEntity allocation. |

* Webservice

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| **Class Name** | **Description** |
| CarRentalManagementWebService | Exposes web service methods to be used by partner clients via SOAP Web Services |

Project Entity Classes

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| **Entity Class Name** | **Description** |
| CarCategoryEntity | Entity class used to represent a category of cars with a related list of car models, rental rates and reservations. |
| CarEntity | Entity class used to represent a physical car with attributes for current location, expected return time, car model, current reservation, current outlet if it is within one, its expected return outlet if it is not in a current outlet and a related list of past reservations. |
| CarModelEntity | Entity class used to represent a line of cars (i.e Toyota Corolla Altis) with a related CarCategoryEntity, list of CarEntities, and a list of reservations for this line of cars. |
| CarPickupEntity | Entity class used to represent a successful pickup operation of a car at an outlet at a specified date and time for a reservation. |
| CarReturnEntity | Entity class used to represent a successful return operation of a car at an outlet at a specified date and time for a reservation. |
| CustomerEntity | Entity class used to represent a customer with their login details, their past and future reservations, and a related partner if required. |
| DispatchEntity | Entity class used to represent a dispatch event with a completion Boolean, the related ReservationEntity, CarEntity, transit driver, starting and ending outlet. |
| EmployeeEntity | Entity class used to represent an employee with their login details, access rights, related outlet, past and future dispatches. |
| OutletEntity | Entity class used to represent an outlet, with opening hours, current cars in outlet, related employees, and dispatches originating from this outlet. |
| PartnerEntity | Entity class used to represent a partner with their login details, related customers and reservations. |
| RentalRateEntity | Entity class used to represent a rental rate with its daily rate, start and end period, and the related car category. |
| ReservationEntity | Entity class used to represent a reservation, its payment status, cancellation status, associated credit card, customer, rental rates, car category, car model, physical car, pickup and return outlets.  The entity also allows for related partner and dispatch to be stored if need be.  Related CarPickupEntity and CarReturnEntity classes will be created when their pickup and return events occur. |

Management Client

The management client is designed for Merlion Car Rental company use on a daily basis. Employees are able to access both the Sales Management and Customer Service modules to perform their specific use cases as per user specifications and employee roles in the company.

Reservation Client

The reservation client is designed for customer use to conduct usecases pertaining mostly reservations. Customers that are not currently logged in to the system are still able to search for cars, but are unable to make a reservation unless they log in.

External Partner Client

The reservation client is designed for the holiday reservation system and allows the partner to perform most of the usecases that can be done by the reservation client, allowing the partner to make reservations for their customers.

Entity Diagram

