City Scooter Share

Official Practice Scenario

Project Overview

City Scooter Share (CSS) is a global company that provides scooter share programs where tourists and local residents in major metropolitan areas can rent motor scooters. CSS operates in 10 cities around the world including Madrid, Rome, Paris, London, Sydney, Tokyo, Miami, New York, LA, and San Francisco. Each city has 200 scooters available for rental at scooter depots spread across the city. Each scooter uses a 3G/LTE connection to communicate diagnostic and status data.

Registered riders can reserve scooters in advance using an online app or browser on their mobile device, or they can use a kiosk at each scooter depot. CSS has over 100,000 registered riders globally. CSS also works with a network of scooter dealerships and repair shops to perform repairs and maintenance on scooters.

CSS is organized into regional offices that are staffed by local support teams who are responsible for managing riders and the network of scooter dealerships and repair shops. Currently, each regional office has its own database for tracking rider and rental information. All offices use the same rental and rider management application, which was developed in-house.

CSS is planning to use the Force.com platform to centralize its rider and dealer management activities and repair and maintenance processes.

CSS has identified four types of employees who will be using the system:

- **CSS Rider support representatives** are responsible for supporting registered riders with questions about the rental program.

- **CSS Regional maintenance associates** are responsible for managing relationships with dealerships and repair shops. They also make sure that maintenance and repair on the scooters is completed according to schedule.

- **CSS Kiosk Technicians** ensure that the scooter depot kiosks are functioning correctly, manage settings for the kiosks, and investigate technical issues.

- **CSS Executive team members** analyze global rental data and make expansion decisions.

CSS would also like to support external users of the system including:

- **Registered riders** who rent scooters from scooter depots and share their rider experience through social channels.

- **Repair Service Managers** who work at dealerships and repair shops and manage the repair and maintenance of scooters in their city.

CSS currently uses the following applications and systems:

- **Rental and Rider Management application:** This application provides the current functionality for managing rider data and scooter rentals for the 100,000 registered riders in the CSS network. CSS would like to replace this system.

- **Finance application:** This application, which CSS purchased and hosts in-house, controls internal accounting and payments for scooter repairs and maintenance and is integrated to other accounting systems.
    - The data in this system can be used to determine the payments made to a repair shop/dealership and the number and of repairs.

- **Scooter Tracking systems:** The scooter tracking system consists of three separate databases that currently stores all of the GPS coordinates and location data. CSS would like to improve the efficiency of the systems and would like a recommendation for managing the GPS data going forward.

- **Pricing Calculation System:** CSS uses a Pricing Calculation System that calculates estimates for rentals based on complex dynamic pricing rules.

Business Process Requirements

Scooter Rider Registration

- Scooter riders must register for the city scooter share program in advance before reserving a scooter. They should be able to do this from a mobile app or using a browser.
    - Riders enter their name, address, phone number, drivers license number, and preferred language.
    - CSS would like to verify the validity of the drivers license in real time.

- Riders can upload a photo of themselves to their profile by taking a photo of themselves from their mobile device.

Reservation Process

- Registered riders should be able to reserve scooters up to 1 week in advance by using a mobile app or using a browser.
    - Riders search for and select a scooter depot location, date, and enter a check-out time
    - The system should then calculate a rental cost estimate in real time using the Pricing Calculation System.
    - Riders then review the rental cost estimate and details of their rental, and confirm their reservation.
    - The system should generate a QR code that riders can use to unlock the scooter at a depot.

Scooter Checkout and Check-in Process

- Each scooter depot is Wi-Fi enabled and has both REST and SOAP capabilities that support the transfer of data during the checkout and check-in process.

- Riders who have made a reservation in advance can unlock a scooter and begin their rental by scanning the QR code from their mobile device.
    - o Riders also swipe a credit card at the scooter depot that should verify availability of funds based on amount of the rental cost estimate.

- When a rider returns the scooter, they log into the kiosk and are shown a summary of their rental that includes checkout location, check-in location, total time, total mileage, and final charge for the rental. Riders can choose to receive the summary and receipt by email.

- The final charge for the rental should be sent to the Finance application.

Scooter Status Updates

- For tracking purposes, each of the 2,000 scooters in the CSS network sends location GPS coordinate data 100 times each day over a 3G/LTE connection to the Scooter Tracking System.

- Riders have the option to turn on route tracking during their rental that increases the frequency of sending GPS coordinate data to every 30 seconds.

- CSS would like to use the GPS coordinate data to track possible thefts. CSS Rider Support Representatives should be notified under the following circumstances:
    - o If a scooter is not running and is not stationary, then a possible theft has occurred. The CSS Rider Support Representative should be notified immediately.

Accessibility Requirements

- Only CSS Depot Technicians can change the Scooter Depot details.

- Only CSS Regional Maintenance Associates can manually update the availability of scooters that need repairs.

- For possible theft incidents, only CSS Rider Support Representatives that are trained to handle these incidents, their manager, and executives should be able to view the details of the theft.

- Riders can choose to make their contact details such as phone number and email address public or private.

- Repair service managers should not be able to see riders' drivers license details.

- Repair service managers should only see maintenance and repair details for their own repair shop.

  - Registered riders would like to use their Google or Facebook social account on their mobile device

  - Registered riders can create a username and password to log in to the application on their mobile device.

  - CSS employees who are logged into the corporate network should be automatically logged into the application.

  - Employees who are not on the network should be able to use their network credentials to log in to the new application. CSS uses LDAP.

  - Employees should be automatically provisioned or de-provisioned from LDAP

Reporting Requirements

- Riders should be able to see a complete history of their rentals and rides.

- Repair shops would like a monthly report that shows the work performed for CSS.

- CSS would like the new application to be able to generate reports that show the history of maintenance for each scooter and payments from the Finance system sent to repair shops/dealerships by region and time period.

CSS would like a monthly trending report that shows where scooters originate and where they are dropped off in order to better understand where to add new scooter depots and how to rebalance the distribution of scooter.

Development Lifecycle Requirements

- CSS has multiple development teams around the world to support their operations in the 10 cities. They frequently find themselves overwriting each other's code as they make region-specific enhancements. Management would like to understand how they can better manage their code base.

- Local support teams are not able to fix other regions' code as each of the different development teams seem to follow their own coding standards. CSS would like be able to leverage the various support teams around the world to provide global support and is requesting recommendations to achieve this.

- Historically, CSS finds that bugs that were fixed in UAT still show up in Production. Given the limited bandwidth for the testing team, they do their best to manually test

all their use cases after deployment in both the UAT and Prod environments. CSS would like recommendations on how to prevent these from occurring.

- CSS would like to pilot the application to the US-based offices by the end of the year, and release to the other regions after. Each region may have region-specific requirements that need to be defined. CSS would like guidance on which development methodology to use.