Software Requirements Specification

For

Rider 2 Buyer

Submitted by

Team Hudson

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1 Introduction

Rider 2 Buyer is android app that will provide a platform to buyers and sellers to find, rent, purchase and review a car online. This section provides scope description and overview that is included in SRS document.

1.1 Purpose

This section gives a general description of the factors that affect the product and the user requirements. The Software Requirement Specification gives the overall blueprint of how an efficient software system is to be developed. SRS provides an overview of what has to be included and excluded from the product or software. The requirements such as functional and non-functional requirements need to be rigorously assessed before designing and this reduces later redesign and wastage of resources. The constraints and assumptions involved while designing the product is also included.

1.2 Scope

Rider 2 Buyers is an online car rental/Sell application. This app differentiates from other apps on market as it puts car on rental till some customer purchases the car. When seller posts advertisement for car sell on app, Seller need not wait for the customer to purchase. Instead same car is up for the rental. So that car can serve as source of income. Whereas for customer getting car on rental act as test drive. Customer is provided with an option to buy at end of their journey. Seller can view the customer feedback and can make necessary improvements. Seller enters the car details and request for the advertisement. Car details are first verified and then only advertisement for car rental/sell is published. Car details are being updated periodically, so that latest car details are being displayed to customers. After customer completes his ride car quality is checked in case of accidents or damages and corresponding amount is displayed to customer. Also, this app provides an option for refurbishment. Customer can check the refurbishment cost while purchasing and can select for same.

1.3 Definitions, Acronyms, and Abbreviations

TERMS	**DEFINATIONS**
Seller	Person who is owner of the car and want to sell his car.
Customer	Person who is using app to get car on rent or to purchase car.
RDBMS	Relation Database
IEEE	Institute of Electrical and Electronics Engineers

1.4 References

- IEEE 830-1998
- IEEE 29148-2011
- http://freeonlineinvoice.com/wp-content/uploads/2015/04/car-rental-invoice-template.png

1.5 Overview

Following document consists of:

Section 2: Product Perspective, Product Function, User characteristics, Constraints Assumptions and dependencies, Allocation of requirements.

This section explains:

- Interfaces used in development.
- Potential users and their scope.
- Functions inside the applications.

Section 3: External Interferences, Functional requirements, Non-functional Requirements.

This section explains:

- External Interfaces used.
- Use Cases.
- Class diagrams.

Section 4: Other requirements.

Section 5: Open Issues.

Covers the common issues linked with the car rental/sell applications.

2 Overall Description

This section describes the general factors that affect the product and its requirements. It provides the background of the requirements. The constraints and assumptions for the system will also be presented.

2.1 Product Perspective

Based on the insights of the qualitative research on user's needs within the domain online car sell we have developed an application system with one stop solution for online car rental and sell. It is a mobile-based application. This application will have a sizeable market and will be used by customers and sellers. The Rider 2 Buyer application will add the necessary user-related information to the backend database and allow it to fulfill each user's request. Customer by sharing their trip experiences help others, connect with fellow customers and help to enhance services.

2.2 Product Functions

Below are the functions of the Riders to Buyers-

- **Login-** Authorized user can log in to the application, to browse, rent, purchase or sell the car.
- **Register**- New user must register, so that user can view the contents in app.
- **Rental-** User selects Rental option to browse through the cars available for rental.
- **Buy-** User selects Buy option to browse through the cars available for sell.
- **Filter-** User selects filter option to narrow the available selection.
- **Plan Journey-** User selects plan journey option to enter journey details like date of Travel, date of return, source and destination.
- **Request Refurbishment-** User can select request refurbishment to get the Refurbishment quotes from refurbishment department.
- **Payment-** User can select any one of the mode of payment from available list.
- **Edit Profile-** User can make necessary changes in their profile.
- **Get Receipts-** User can request for the receipts.
- **Feedback-** Customer can give feedback for the car or Seller can view the ratings and comments given to his cars.
- **Post car details-** Seller uses this function to provide car details.
- **Edit car details-** Seller uses this function to edit existing car details.

2.3 User Characteristics

Customer-

Customer installs the application in mobile. They can create account or login the application using existing valid credentials. Customer can either get car on rental or can purchase car from the existing available options. They can enter journey details to get cost details for rental. Customer can request for refurbishment quote at time of purchase. They can provide their feedback about the car and can also request for the receipts.

Seller-

Seller are the users who wants to sell their cars. Seller can register from mobile application. They can post their car details. Once car details are posted details are verified and advertisement is posted on app. Sellers are notified once request for car rental is done. Sellers can view the feedback given to their car. They can get all records of previous transactions.

Refurbishment Department-

Refurbishment department examines the car after user completes rental ride. They respond to the refurbishment request from customers. In case of accidents refurbishment department examines the car and sends report to account department.

Accounts Department-

Accounts department verifies posted car details. They respond to the requests of receipts from users. Account department forwards the quotation to the customers in case of accident refunds.

2.4 Constraints

The proposed service depends on the user having access to the internet and has access to android smartphone wherein the application can be downloaded. Also, the end user must have a valid debit/credit card to make the online payments if required.

2.5 Assumptions and Dependencies

Assumptions-

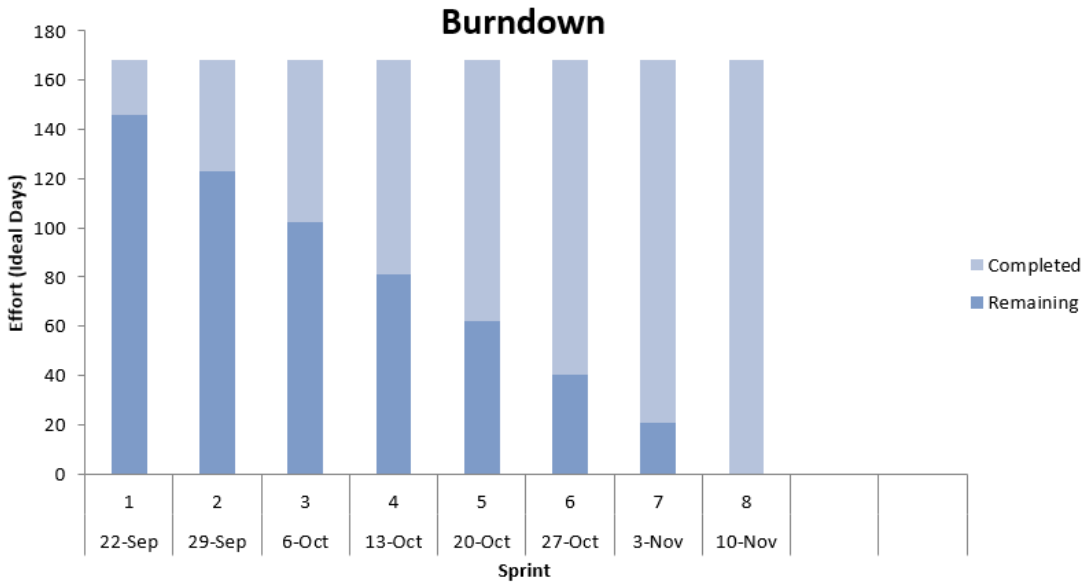
- Application is downloaded from App store.
- User has knowledge about car details.

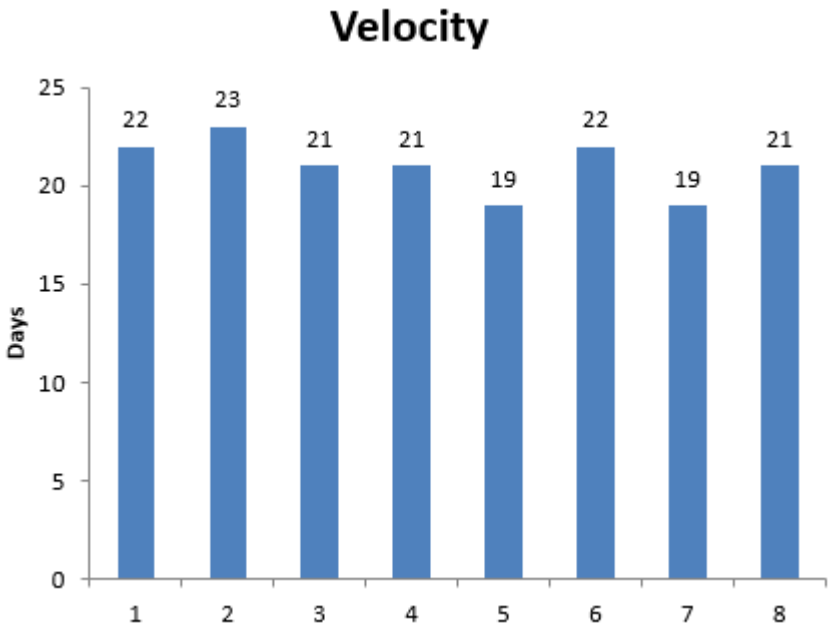
Dependencies-

- Requires Internet Connection.
- Database is functioning properly.
- Payment dependent on third party application.

2.6 Allocation of Requirements

For detail understanding of Sprint burndown chart please refer product backlog list.





3 Specific Requirements

3.1 External Interfaces

3.1.1 Data Interface

Majority of the data is stored inside the databases. Customer database is used to store customer information. Similarly, Seller database is used to store seller information. Car database is used to store the information about the cars. Every time on new user registration database is being updated. Also on each feedback provided database is being updated.

3.1.2 User Interface

This mobile application has multiple user views. The first view is for logging in to the application. Users will be able to view the home page of the mobile application, browse car and look for information about car. Registered sellers and customers will be able to list the cars online. The payment page will allow the user to submit a new payment. The update profile page will allow the user to update other details in his/her profile.

3.2 Functional Requirements

Use Case 1: Booking car for rental.

CHARACTERISTIC INFORMATION

Goal in Context: Customer logs in and browse for the car. Sets his destination and date of travel. Customer makes payment.

Scope: System

Level: Primary

Primary Actor: Customer
Channel to primary actor: Interactive

Supporting Actors: Seller
Channel to Secondary Actors: Interactive

Preconditions: Customer must have valid login credentials and has completed journey.

Success End Condition: Customer is able to book a car.

Failed End Condition: Customer unable to book a car.

Trigger: None

Sunny Day Scenario:

1. Customer logs in to the app.
2. Customer browses through available cars for rental.
3. Customer sets date of travel, source of pickup, destination and duration.
4. Customer gets price quotation.
5. Customer selects car as per his/her choice.
6. Customer makes payment.

Extensions:

1. Invalid login credentials-

    1.a. The system tells customer about the error in username or password.

    1.b. The system tells customer to re-enter the credentials.

    1.c. Go to step 2.

5. Car not available on desired date of travel-

    5.a. The system checks for the availability of car on desired date from seller.

    5.b. If car is unavailable, it notifies customer and looks for an equivalent car.

    5.c. If an equivalent car is found it gives the suggestion to the user.

    5.d. Go to step 6.

6. Payment failure-

    6.a. System checks for valid card details and balance.

    6.b. If card details are not valid it asks user to reenter credentials.

6.c. If customer does not have sufficient balance, transaction is declined.

6.d. Customer makes use of valid card to make payment.

Variations:

1. Login:
    a. Phone number
2. Customer selects car on basis of-
    a. User rating.
    b. Model.
    c. Distance travelled.
3. Payment options:
    a. ATM debit card
    b. Credit card
    c. Paypal

Use Case 2: Customer provide feedback after successful ride completion.

CHARACTERISTIC INFORMATION

Goal in Context: Customer log in and browse for the car. Sets his destination and date of travel. Customer makes payment and provides feedback after trip completion.

Scope: System

Level: Primary

Primary Actor: Customer

Channel to primary actor: Interactive

Supporting Actors: Seller

Channel to Secondary Actors: Interactive

Preconditions: Customer must have valid login credentials and has completed journey.

Success End Condition: Feedback successfully posted by customer.

Failed End Condition: Customer unable to post his/her feedback.

Trigger: Customer successfully completes his trip.

Sunny Day Scenario:

1. Customer logs in to the app.
2. Customer selects recent rides.
3. Customer provides feedback about the car of recent ride.

Extensions:

1. Invalid login credentials-

    1.a. The system tells customer about the error in username or password.

    1.b. The system tells customer to re-enter the credentials.

    1.c Go to step 2.

Variations:

1. Login:

    a. Phone number

Use Case 3: Purchase car.

CHARACTERISTIC INFORMATION

Goal in Context: Customer logs in and browse for the car. Selects desired car for purchase. Customer makes payment.

Scope: System

Level: Primary

Primary Actor: Customer
Channel to primary actor: Interactive

Supporting Actors: Seller
Channel to Secondary Actors: Interactive

Preconditions: Customer must have valid login credentials and has completed journey.

Success End Condition: Customer is able to purchase a car.

Failed End Condition: Customer unable to purchase a car.

Trigger: None

Sunny Day Scenario:

1. Customer logs in to the app.
2. Customer browses through available cars for purchase.
3. Customer selects car as per his/her choice.
4. Customer makes payment.

Extensions:

1. Invalid login credentials-

    1.a. The system tells customer about the error in username or password.

    1.b. The system tells customer to re-enter the credentials.

    1.c. Go to step 2.

6. Payment failure-

6.a. System checks for valid card details and balance.

6.b. If card details are not valid it asks user to reenter credentials.

6.c. If customer does not have sufficient balance, transaction is declined.

6.d. Customer makes use of valid card to make payment.

Variations:

1. Login:

b. Phone number

2. Customer selects car on basis of-

a. User rating.

b. Model.

c. Distance travelled.

3. Payment options:

d. ATM debit card
e. Credit card
f. Paypal

Use Case 4: Login into user account

CHARACTERISTIC INFORMATION

Goal in Context: Login for existing user

Scope: System

Level: Primary

Primary Actor: Buyer, Seller, members of Refurbishment department, members of account department

Supporting Actors: None

Preconditions: User has already registered in application.

Success End Condition: User can login and view system features

Failed End Condition: User is not able to login and cannot view system features

Trigger: None

Sunny Day Scenario:

1. User checks if account exists

2. User gets prompted to enter their username and password.

3. User clicks login button

Extensions:

2. Invalid login credentials-

2.a. The system tells customer about the error in username or password.

2.b. The system tells customer to re-enter the credentials.

2.c. Go to step 3.

Variations:

User Password Options include:

- Number
- Text
- Special Characters
- Combination of above.

Use Case 5: Post Sale/Rental Advertisement

CHARACTERISTIC INFORMATION

Goal in Context: Seller posts ads to rent/sell a car

Scope: System

Level: Primary

Primary Actor: Seller

Supporting Actors: Management

Preconditions: Seller has a car to Sell/Rent

Success End Condition: Post to Sell/Rent is published on the system

Failed End Condition: Post to Sell/Rent fails to publish on the system

Trigger: None

Sunny Day Scenario:

1. Seller Logs In to the application.
2. Seller selects Post Car details option.
3. Seller enters the car details.
4. Seller enters sale price.
5. Seller submits the request for Advertisement.

Extensions:

1. Invalid login credentials-
   1.a. The system tells customer about the error in username or password.
   1.b. The system tells customer to re-enter the credentials.
   1.c. Go to step 2.

Variations:

None.

Use Case 6: Update Profile

CHARACTERISTIC INFORMATION

Goal in Context: User wants to update his/her profile.

Scope: System

Level: Primary

Primary Actor: Buyer, Seller

Supporting Actors: Management

Preconditions: User has account

Success End Condition: User can update their profile

Failed End Condition: User cannot update their profile

Trigger: Addition of New Information into User Profile

Sunny Day Scenario:

1. User Logs In to the application.
2. User selects Update profile option from profile page.
3. Update Name
4. Update Address
5. Update Phone no
6. Update Email Address
7. Update User Type:
8. User Saves the updated information.

Extensions:

1. Invalid login credentials-
   1.a. The system tells customer about the error in username or password.
   1.b. The system tells customer to re-enter the credentials.
   1.c. Go to step 2.

5. Invalid Phone number format-
   5.a. System informs users about error in phone number.
   5.b. System tells users to reenter phone number.
   5.c. Go to step 6.

Variations: None

Use Case 7: Accept Sale/Rental offers

CHARACTERISTIC INFORMATION

Goal in Context: Buyer accepts/decline/counter a car sale/rental offer

Scope: System

Level: Primary

Primary Actor: Seller

Supporting Actors: Management

Preconditions: Seller has car to sell/rent and has received offer for the same.

Success End Condition: Seller accepts to sell/rent car.

Failed End Condition: Seller rejects the offer.

Trigger: Customer makes an offer for rent/purchase.

Sunny Day Scenario:

1. Seller Logs In application.
2. Seller clicks on Requests Link to view offer.
3. Seller either accepts/rejects or counter the offer.

Extensions:

1. Invalid login credentials-
   1.a. The system tells customer about the error in username or password.
   1.b. The system tells customer to re-enter the credentials.
   1.c. Go to step 2.

Variations:

1. Seller can also accept/reject or counter offer using-

   a. SMS received from Rider 2 Buyerz.

Use Case 8: Request Refurbishment quotes.

CHARACTERISTIC INFORMATION

Goal in Context: Customer logs in and browse for the car. Selects desired car for purchase. Customer makes request for refurbishment quotes.

Scope: System

Level: Primary

Primary Actor: Customer
Channel to primary actor: Interactive

Supporting Actors: Refurbishment department.
Channel to Secondary Actors: Interactive

Preconditions: Customer must have valid login credentials and has car selected for purchase.

Success End Condition: Customer receives refurbishment quotation.

Failed End Condition: Customer does not receive refurbishment quotation.

Trigger: None

Sunny Day Scenario:

5. Customer logs in to the app.
6. Customer browses through available cars for purchase.
7. Customer selects car as per his/her choice.
8. Customer selects Request Refurbishment.

Extensions:

1. Invalid login credentials-

    1.a. The system tells customer about the error in username or password.

    1.b. The system tells customer to re-enter the credentials.

    1.c. Go to step 2.

Variations:

1. Login:

    a. Phone number

2. Customer selects car on basis of-

    a. User rating.

    b. Model.

    c. Distance travelled.

Use Case 9: Request previous payment receipts.

CHARACTERISTIC INFORMATION

Goal in Context: User logs in and requests for previous payment receipts.

Scope: System

Level: Primary

Primary Actor: Customer, Seller
Channel to primary actor: Interactive

Supporting Actors: Accounts department.
Channel to Secondary Actors: Interactive

Preconditions: None

Success End Condition: User successfully requests for previous payment receipts.

Failed End Condition: User unable to request for previous payment receipts.

Trigger: None

Sunny Day Scenario:

1. User logs in to the app.
2. User navigates to profile page.
3. User selects Request previous payment receipts.

Extensions:

1. Invalid login credentials-

    1.a. The system tells customer about the error in username or password.

    1.b. The system tells customer to re-enter the credentials.

    1.c. Go to step 2.

Variations:

1. Login:

    a. Phone number

Use Case 10: Responding request for previous payment receipts.

CHARACTERISTIC INFORMATION

Goal in Context: Accounts department responds to the previous payment receipts requests from users.

Scope: System

Level: Primary

Primary Actor: Account department representative.
Channel to primary actor: Interactive

Supporting Actors: None
Channel to Secondary Actors: None

Preconditions: User has raised request for previous payment receipts.

Success End Condition: Account department successfully responds to request.

Failed End Condition: Account department unable to responds to request.

Trigger: None

Sunny Day Scenario:

1. Account department logs in to the app.
2. They check for pending requests.
3. Account department respond to the requests.

Extensions:

None

Variations:

None

3.3 Non-Functional (quality) Requirements

3.3.1. Accuracy: The information and navigation provided should be accurate enough to give a smooth experience to the customers.

3.3.2. Security: The Application needs to be secure and equipped with proper checks to deal with any security threat from users as well as external sites

3.3.3. Reusability: Application should be loosely coupled and well maintained, to ensure future modifications and integrations to enhance features and offerings.

3.3.4 Robustness:
In case of any hardware or software failures the customer should be able to retrieve his/her data at any time after the next login. Any errors or failures during the booking of car or payment process should be taken care of without hampering the efficiency of the application and without any loss of information.

3.3.5 Reliability:
The application should be efficient enough and should not crash under any circumstances. The situations in which invalid input data is submitted, the customer should be notified about the incorrect information and should be hinted of the correct format for an input data field. In case of any failures or errors while booking car the error message should be displayed.

3.4 Logical Database Requirements

This section specifies the logical requirements for any information that is to be placed into database. They are as follow-

- Information used by functions: Apart from positioning system interaction majority of the functions are heavily dependent upon the DB tables.
- Frequency of use: Considering the Primary user as Customer we can assume the DB will be frequently accessed, owing to their varied nature of browsing.
- Data entities: To support this system we require approximately 4 tables

Table Customer:

Attribute	*Data Type*	*Description*
CustomerEmail	String	Unique identifier for customer
CustomerName	String	Stores name of customer.
Password	String	Storing password for the username.
TransactionID	String	Stores previous transaction details
CustomerPhone	Integer	Contact number of customer
Age	Integer	Stores age of customer.
Address	String	Stores address of customer

Table Seller:

Attribute	*Data Type*	*Description*
SellerEmail	String (Primary Key)	Unique Identifier for a seller.
SellerName	String	Stores name of seller
Password	String	Storing password for the username.
TransactionID	String	Stores previous transaction details
SellerPhone	Integer	Contact number of Seller
Age	Integer	Stores age of seller.
CarID	String (Foreign Key)	Stores car details
Address	String	Stores address of Seller

Table Transaction:

Attribute	*Data Type*	*Description*
TransactionID	String (Primary Key) ref Car details	Unique Identifier to store transaction information.
Amount	Integer	Stores cost of the vehicle.
Date	Date	Stores date of transaction
Reciept	String	Stores overall receipt data.
CustomerName	String	Stores customer name
SellerName	String	Stores seller name

Table Car:

Attribute	*Data Type*	*Description*
CarID	String (Primary Key) ref Car details	Unique Identifier for a car
ExpectedCost	Integer	Stores cost of the vehicle.
Model	Integer	Stores Model number of car
Mileage	Integer	Stores mileage of the car
Distance Travelled	Integer	Stores distance travelled.
DamageDetails	String	Stores damage details (if any).
Feedback	String	Stores received feedback.

3.5 Design Constraints

This application deals with user's information such as name, address, contact number and credit card information. It should not cause any unintentional problems to the system and the database. This application will also deal with user's bank information to allow for the online payments through third party payment gateways, which will require proper security standards to prevent the data from being compromised.

3.6 Standards Compliance

No particular standard Compliance have been identified.

4 Other Requirements

Other requirements that have been derived to ensure the security and feasibility of the application are as follows:
App may be accessible to view updates from anywhere; this will ensure that users are informed of the recent deals and offerings whenever they come up.

5 Open Issues

- Car reliability is not checked.
- Financial issue like seller making false payment claims.

Appendix A: Supporting Analysis Information

Data Flow Diagrams (EXTRA)

Information Flows (BNF)

Data Dictionary for Seller Details

Field Name	Data Type	Data Format	Field Size	Description	Examples
Name	String		25	Name of Seller	Mary
Address	String		30	Address of Seller	17 Raymond Street, Bronx, NY 08910
Phone	Integer		10	Phone Number of Seller	909-890-1923
CarID	String		30	CarID associated with a seller	Audi3124
SellerEmail	String		25	Email ID of seller	Abc13@gmail.com
Password	String		25	Password for login	Abc123@a

Converting Seller Table to BNF notations:

Seller => SellerName+ SellerInfo+ carID+ TransactionID

SellerInfo => SellerEmail+ Password+ Age+ Address+ ({SellerPhone})

SellerPhone => (“phn1”)+(“phn2”)+(“phn3”)

SellerName => $^{1}\{\alpha\}^{25}$

SellerEmail => $^{1}\{\alpha\ |N\}^{25}$

Password => $^{1}\{\alpha\ |N\}^{25}$

Age => $^{1}\{N\}^{2}$

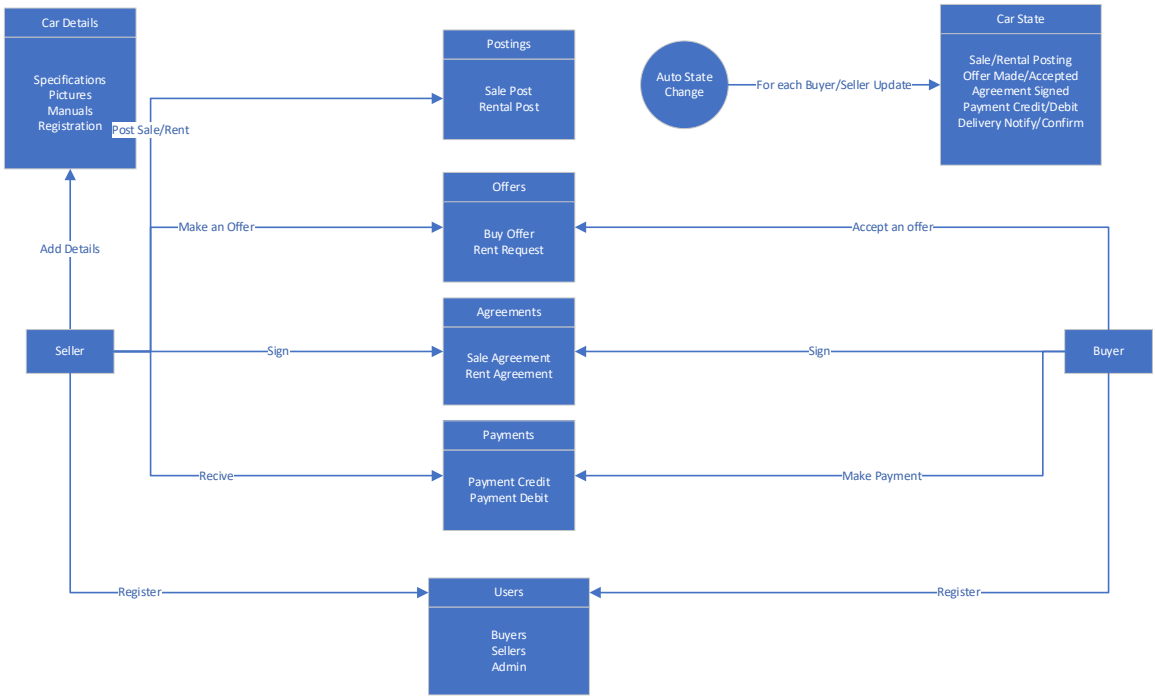
Address => $^{1}\{\alpha\ |N\}^{30}$

SellerPhone => $\{N\}^{10}$

CarID => $^{1}\{\alpha\ |N\}^{30}$

TransactionID => $^{1}\{\alpha\ |N\}^{30}$

Data Flow Diagram for Car Sales and Rental


Car Details
Specifications
Pictures
Manuals
Registration
Post Sale/Rent
Postings
Sale Post
Rental Post
Auto State Change
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Car State
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Offer Made/Accepted
Agreement Signed
Payment Credit/Debit
Delivery Notify/Confirm
Offers
Buy Offer
Rent Request
Make an Offer
Accept an offer
Add Details
Agreements
Sale Agreement
Rent Agreement
Seller
Sign
Sign
Buyer
Payments
Payment Credit
Payment Debit
Recive
Make Payment
Register
Users
Buyers
Sellers
Admin
Register