Car4U

Software Architecture Document

Introduction

This document will be used for managing the Design architecture of the Project.

Purpose of the Document

The purpose of this document is to:
- Identify various design approaches.
- Identify core modules of the system.
- Identify the best suitable technology.
- Identify database design (physical, logical etc).
- Identify and finalizing UI design in terms of technical implementation.

Objective of DD

The objectives for DD are to present the design and architecture of the entire project which would later be used by the developers during implementation.

Scope of DD

The scope of DD extends to all the systems of the project.

Acronyms and Definitions

This sub-section includes the definitions of all acronyms required to interpret the DD properly.

Sr. No.	Acronyms	Definitions
1.	REST	Representational State Transfer
2.		

System Overview

Software systems used in the project are:
1. Restful Services

   This Set of RESTful services will be developed which will provide all Services to the Android, iOS and Web Application. RESTful services are the only way to access the database for all application.
2. Web Application

   Web application which will be developed in ASP.NET MVC will have all UI modules. Logging, Registration, Offer a Ride, Find a Ride, Rate a Ride, Map, Chat etc. It will also provide access to Administrators and Super Administrators through separate modules to manage the Application.
3. Android App.

   Android App will provide Logging, Registration, Dashboard, Find a Ride, Rate a Ride, Map, Chat etc. App will use the Restful services to connect the Database. services
4. iOS App

   Android App will provide Logging, Registration, Dashboard, Find a Ride, Rate a Ride, Map,Chat etc.. App will use the Restful services to connect the Database.
5. Chat Services

   Chat should be provided for all users accessing through iOS/Android/Web Application to chat regarding the Item placed for selling and Buying.
6. Windows Service:

A windows service will be constantly running and monitors each and every user's preferences and checks for any matching products available and sends the users some notifications.

1 Architecture

1.1 System Architecture

This section provides an overview of the system architecture.

It also describes how the functionality and responsibilities of the system were partitioned and then assigned to subsystems or components.

The system is broadly categorized into the Restful services, Web Application, Android App, iOS App and Windows Service.

1. The Restful services are the centralized component which will contain the Business Layer of the Project and will connect to the underlying SQL Server Database.
2. Web Application, Android and iOS applications will consume the common Restful Services for Login, Signup, Find a Ride, Offer a Ride, Rate a Ride etc. Web application will have additional modules for Administrations to logging and managing the Users and Spam control, The Super Administrators can login and change the configuration settings and manage the Administrators.

Following diagram represents various components deployed for the Application:
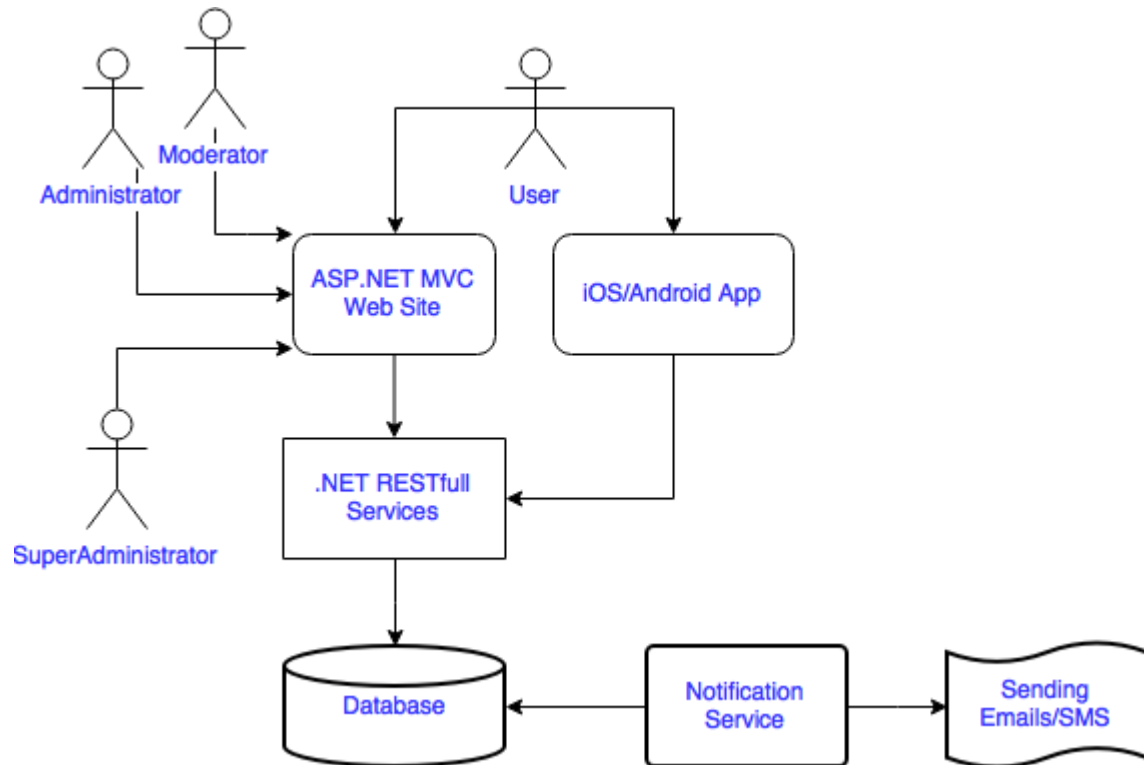

Figure 1: Deployment diagram.

Following is the component diagram shows how various components relate to each other:

Figure 2. Modules architecture diagram.

Figure 3: Use Case Diagram

1.2   Description of components

The Web Application has the following components

1. Logging
2. SignUp/Registration
3. Registration through Gmail/Facebook
4. Home Page
5. Dashboard
6. Offer a Ride.
7. Find a Ride.
8. Rate previous Ride
9. Administrator
10. Super Administrator

1.3   Main Page/Landing Page

The landing page should provide details about the website,

A feature for searching for a ride without login,

Login and sign up.

Quick links for travelogue, ratings, busy routes, etc

1.4   Login Page

Logging Page should provide user with Login and Password Field

1. User is allowed to Login with his registered and verified Email ID/Phone No.
2. Password is a Standard Password field with Min 8 Characters and Capital/Special Character and Digit validation.
3. Forgot Password should navigate user to a Page where he will be asked to enter his Email/Phone No and submit, On Submit an Email and SMS will be sent to the user to update the password.
4. Remember Me: On checking the Remember me option a cookie will be created on the User Browser with one week expiration Date, within the next week when the user visits the

website he will logged in through the cookied without he redirecting to login screen after 7 days the cookie will be expired and then he will be required to login and will be redirected to login screen.

5. On Login a User Logged in Entry should be added to log database

1.5   Signup/Registration

The user should be prompted with Details of

    a. First Name,
    b. Last Name
    c. Phone No
    d. Email
    e. etc.

The user's Facebook URL should be captured to track the user or the <mark>user can only be signup through Facebook</mark>?

Users Email should be verified by sending a unique link, and user should click on that link to verify his email.

User Phone No should be verified by sending a OTP to the mobile no.

If the user willing to offer a ride, Soft copies of his Driving Licence, Vehicle registration No, Insurance, Latest Servicing receipt, Car Pictures, Other ID's will be needed to upload to the website. Once uploaded these docs will be verified by the Admin and then he can book for a ride.

1.6   Home Page:

Once the User login, he will be landed to the Home Page.
User can Offer a ride, Find a ride, Book a ride, Rate a ride.

He can update his profile details by navigating to profile section.

A widget with all quick links should be provided.

1.6.1   User Profile

a. User Should be able to change his personal details like Name, Address, Phone, Email, Preferences, Change Password etc.
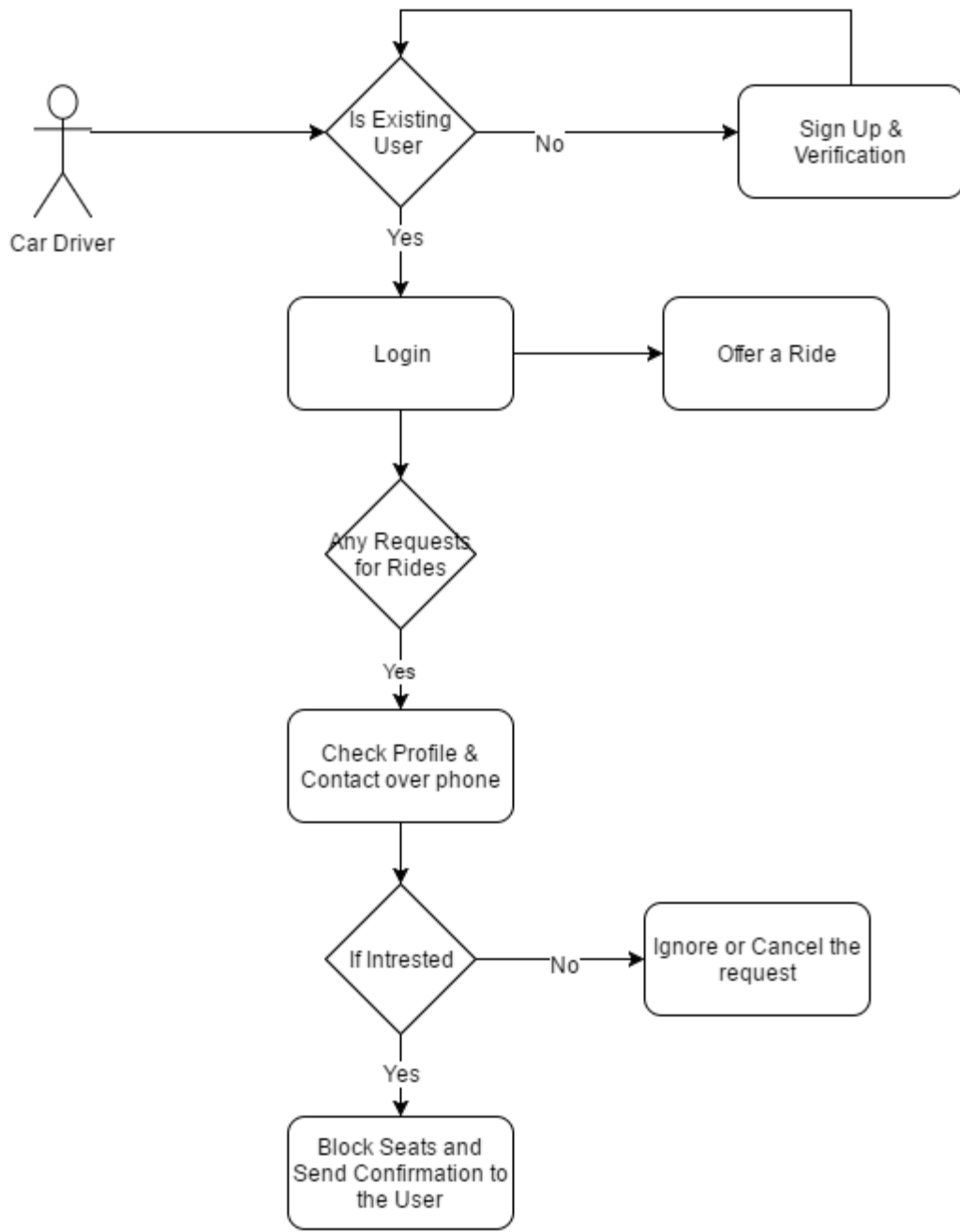
Email and Password changes need to revalidate the Phone No and Email, when a user requests for Changing Name/Address/Email/Phone ask to re-validate his credentials.
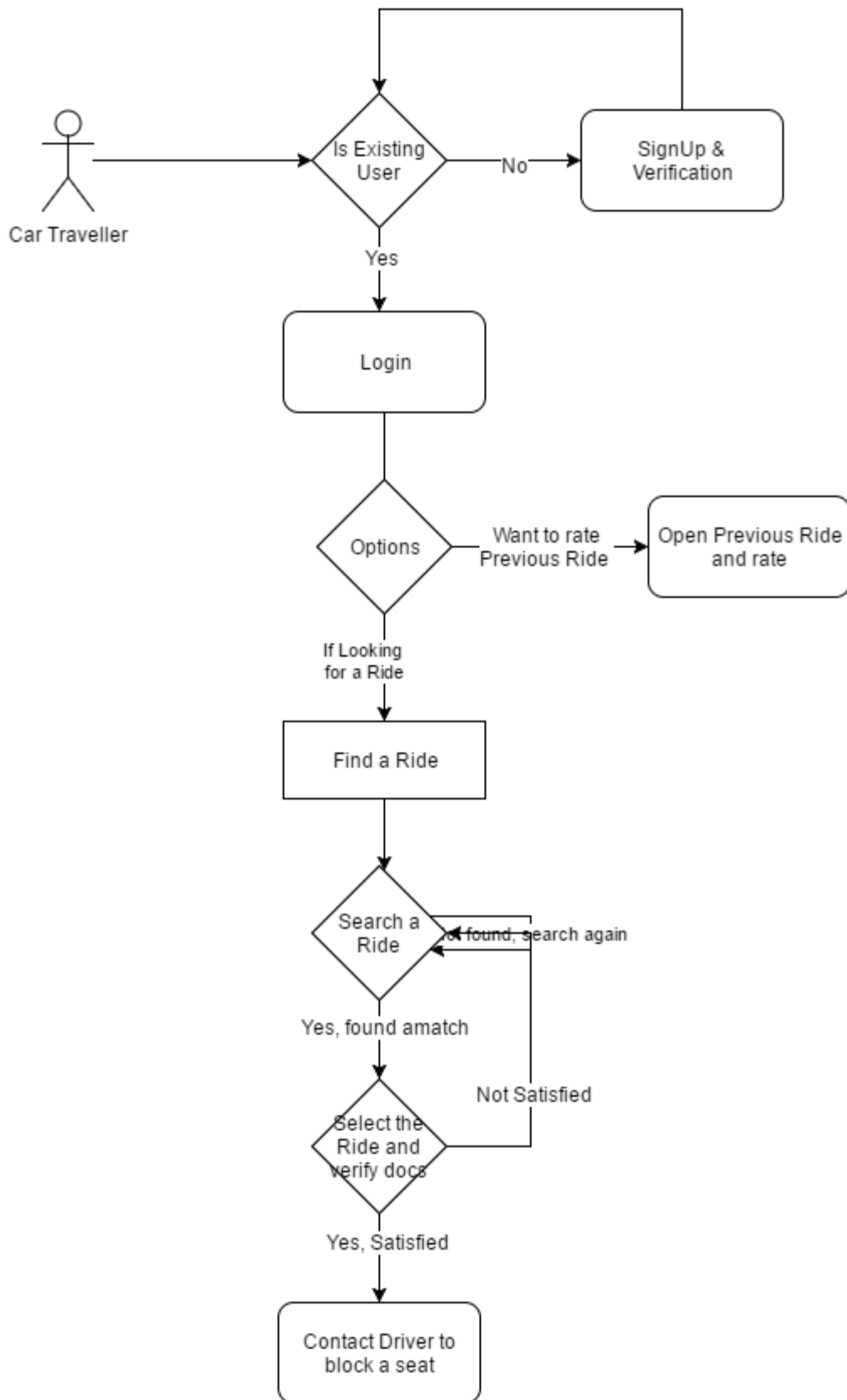
b. Change Password will let the User to Update the Password details.
    i. Changed Password details will be tracked in a separate table for future usage or validation that last 3 passwords

1.7 User

User is a person who will offer rides or find a ride.

His Email,Phone need to be verified. A person who is willing to offer a ride should also need to upload the travel documents like Driving Licence, Vehicle RC, Insurance Copy,etc. These details need to be verified and approved by the Administrator before he offer a ride.

Car Driver

Is Existing User

No → Sign Up & Verification

Yes

Login → Offer a Ride

Any Requests for Rides

Yes

Check Profile & Contact over phone

If Intrested

No → Ignore or Cancel the request

Yes

Block Seats and Send Confirmation to the User

1.7.1 Administrator Module

    a.   Administrator will be provided different login to access the Web Portal.

    b.   He can Add, Edit, Delete any web user profiles and activities.

c. He can Identify any Spam Users / Reviews / Comments and can remove them.
d. He can be given option to change password.
e. He will be shown his history activities to have a track.

They will be tracking all the Users activities

Removing the Spam Users - <mark>How to Identify Spam Users, etc should need to be elaborated</mark>

<mark>How to manage Administrators?</mark>

1.7.2 Super Administrator

a. Super Administrator is an User for managing the Website Settings for the WebPortal and Mobiles.
b. When a Super Administrator Logged in his logged IP and other details will be logged and only should be allowed from certain IP ranges described in the Database/configuration file.
c. Once the SuperAdmin login he will be shown a different Home Page from there he will manage Settings

<mark>List of Settings to Manage? Need more details here</mark>

Managing the administrators?

1.8 Windows Service

1.9 Logging and Exception Handling.

1.10 Security

1.11 Things that might need R&D

1. Facebook and Gmail plugin for Signup
2. Sending SMS for Phone Verification and Notifications on ride through SMS's.
3. Chat Services
4. Image handling