A Synopsis

on

Vehicle Services Application

in partial fulfillment of the requirement for the degree

of

Bachelor of Technology

In

COMPUTER SCIENCE AND ENGINEERING

Submitted by

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Introduction

This application allows the user to get the nearby car services in an effective and in a much simple way. This application will help the customer to get good and relevant car services at much lesser prices than ever.

This application reduces user's time by 70% and user effort by 60%.

This Application provides a wide platform for the vehicle services providers, and allows users to compare the price of services provided by different service providers

The project is developed according to the need of the current vehicle owners. This project helps them to solve the problem related to their vehicle servicing and the challenges arises during the vehicle servicing.

A lot of vehicle owners have faced many problems related to their vehicle that they are unable to track the problem in their vehicle. Sometimes they are unable to get the good quality services in their locality.

This application is built on pega platform which is helps in faster upgrades in changes and with the help of its features such as rule delegation, responsive UI, report definition we can easily make changes in application.

In this application we are providing both service provider and vehicle owner to register on the portal. The vehicle service provider will upload the details of the services and the parts provided to the user and after that the user will login through the portal and select the services which they want to access and the request is then transferred to the vehicle service provider.

We have also included a review feature that helps in other customer to get unbiased review on the products and helps them finding best services.

We have use pega as a platform so here is a brief introduction about pega and pegasystems.

Pegasystems Inc., incorporated on April 21, 1983, develops, markets, licenses and supports software applications for marketing, sales, service and operations. The Company's software is designed to assist clients in building, deploying and evolving enterprise applications. The Company also offers software applications built on the Pega platform. The Company's applications and platform intersect with and encompass several traditional software markets, including Customer Relationship Management (CRM); Business Process Management (BPM); Business Rules Management Systems (BRMS); Dynamic Case Management (DCM); Decision Management. The Company provides implementation, consulting, training, technical support and hosting services to facilitate the use of its software. The Company offers its services to financial, healthcare, insurance, communications and media, public sector, manufacturing, life sciences and other markets.

The Company's Pega Platform is a unified platform that enables clients to build enterprise applications. Its platform features an approach to application development that enables business and information technology (IT). All aspects of the application are captured in the model, including business strategy mapping, business processes, data models, case definitions, rules, decisions, reporting, interfaces, intelligent work management capabilities, business activity monitoring, and the user experience (UX) across both Web and mobile devices. The Company offers services and support through its global customer success group, global customer support group and Pega Academy training services group.

The Company's Customer Relationship Management Applications offer CRM software that maximizes the lifetime value of customers and helps to reduce the costs of serving customers. The Company provides marketing, sales and service applications to optimize sales processes and customer service interactions. The Company's Pega Sales Automation applications automate and manage the entire sales process from prospecting to product fulfillment. Cloud provides production, development and testing (Dev/Test) services to accelerate the development and deployment of Pegasystems's strategic applications and the Pega 7 platform.

We have made following cases types and lifecycles in our project

1. Shop Registration

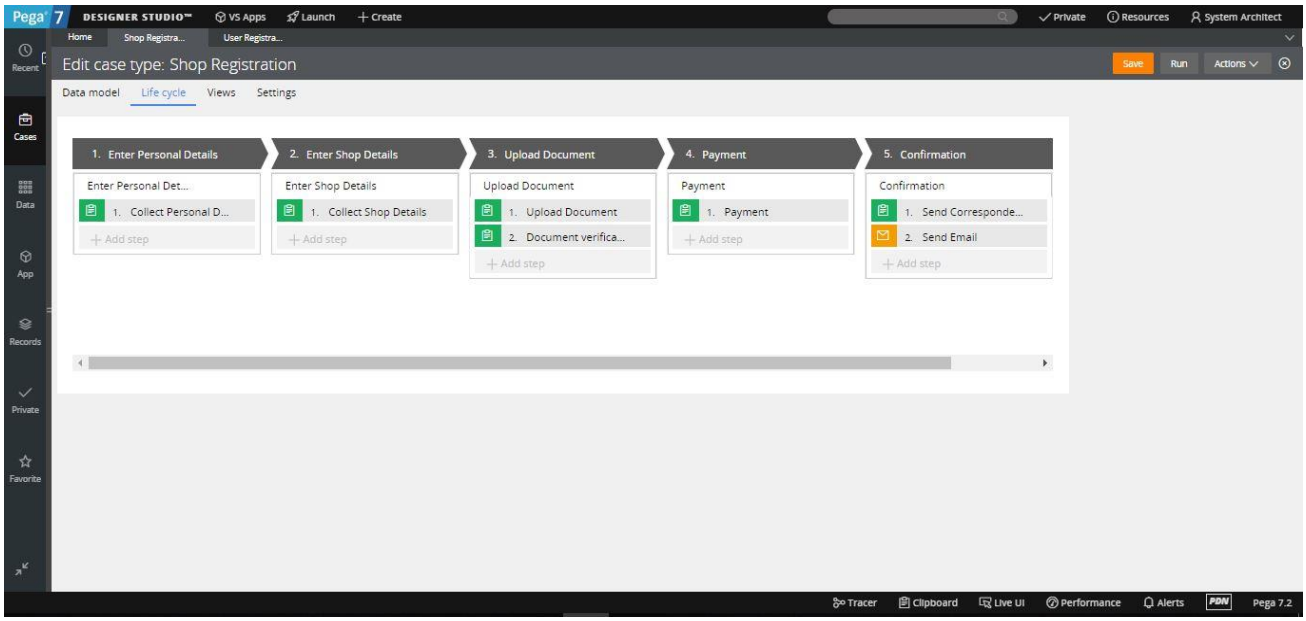


Fig 1: shop registration

2. User Registration

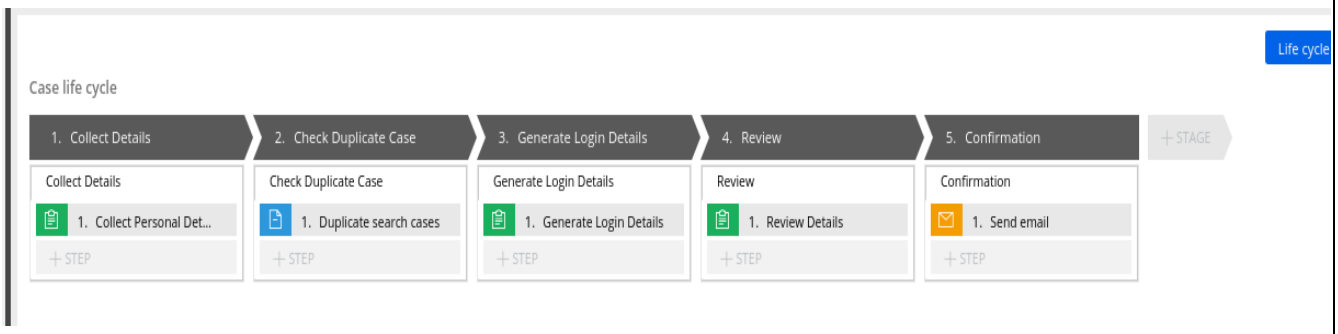


Fig 2: user registration

3. User Login

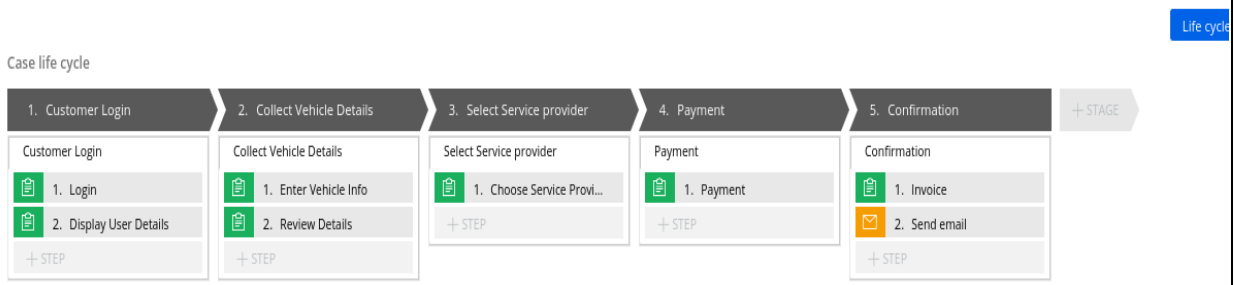


Fig 3: user login

Existing System

We have made a research on existing system and found that following websites are providing only limited features as mentioned.

Mazda company had developed similar kind of application. Mazda Motor Corporation is a Japanese automaker based in Fuchū,

Aki District, Hiroshima Prefecture, Japan. ‘MyMazda’ was the application developed by this company. This app consisted of features like giving user car info, locating and mapping of service centers, set appointments, etc. References of above applications and additions of some extra features are made in the proposed system. Extra features include-

(1) Navigation to the service center using GPS services.

(2) Request for all the services other than just appointment.

(3) Accessories chart.

(4) Set alarm.

(5) EMI calculator.

Carcrew.in- They are providing car servicing and body parts replacements but they are presenting their services as an individual shop.

- There is no competitive pricing amongst the service provider

- They didn’t mention which service provider/shop they are connected with.

Garageonroad.com & Carpathy.com- They mainly provide only service men on call or booking via app.

There are many other websites which are also providing the same features as above websites

The Tabular form of the literature survey :

Features/Current Technologies	MY Mazda	Carcrew.in	Carapathy .com	Garageonroad .com	Vehicle Services Application
Service at home	No	No	Yes	Yes	Yes
Authorized parts	Yes	No	No	No	Yes
Transparency in Services	No	No	No	No	Yes
List of Service Providers	No	No	No	No	Yes
Customer Reviews	Yes	No	No	No	Yes
Faster Upgrades	No	No	No	No	Yes
Price Comparison	No	No	No	No	Yes
Parts and Services	Yes	Yes	No	No	Yes

Problem Statement

At present vehicle owners are facing a lot of problems related to their vehicle's services. They need a lot of time to search for service centers that provide quality service within their budget. They need to go to various service centers and bargain to get the best price and in some cases, they were overcharged for the same services that other service center provides them at reasonable price. There are many fraud service centers that provide customers fake parts on the price of original one. They need to visit many times for a single problem in vehicle. In some cases, the service centers charges more than MRP of parts replaced in the vehicle by including extra taxes and other charges.

- Vehicle owners are facing problems related to over pricing
- Many of the service providers are providing fake parts and equipment
- There is lack quality service due to less competition
- Many of vehicle owners are unable to check the problem related to their vehicle
- There is no transparency in pricing i.e, taxes and base price

Proposed Methodology

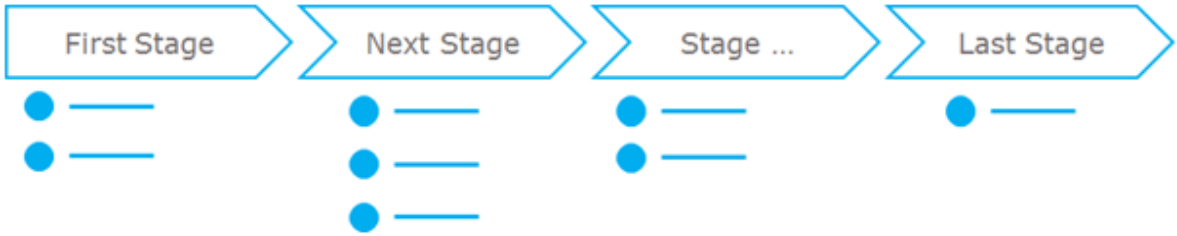
The objective of the work is to build an application to structure all the process and flows for getting the best vehicle service at nearby location with the help actors. The main priority is to provide the rich user interface by imposing PEGA rules to the user and get the suitable feedback.

Methodology

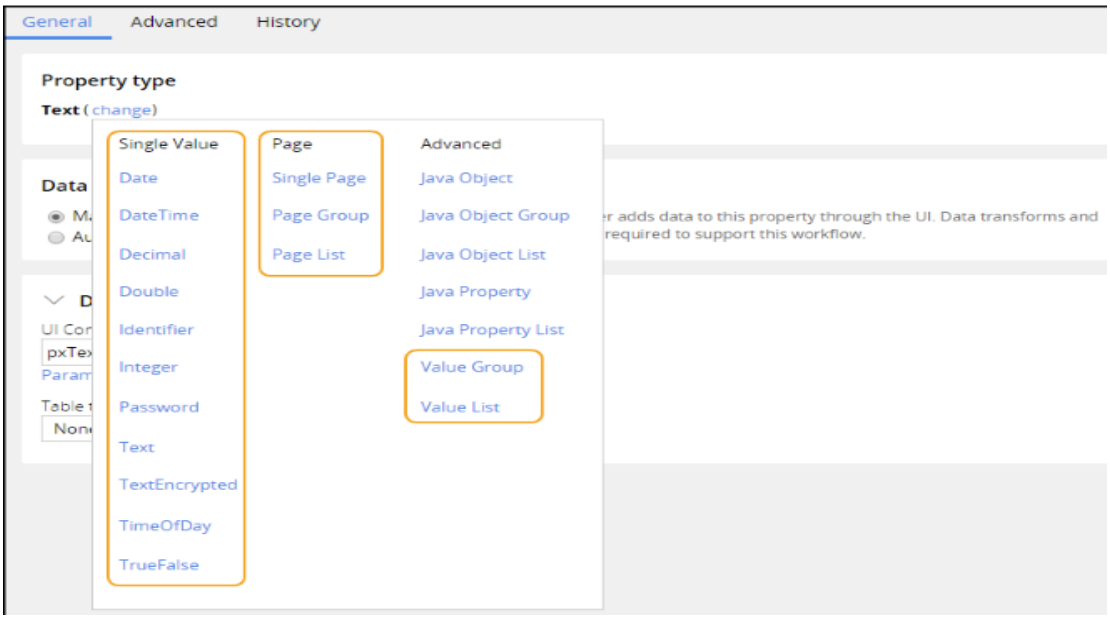
In the pega application all the working is done the use cases. In our application we have created the 2 cases which help in defining the various function and features that are being provided to the end user. As our application provides the various functionality like user and the shop registration. A case is work that delivers a business outcome. The outcome of a case is a meaningful deliverable provided to a customer, partner and internal stakeholder. These use cases help to divide the work between the engineers and then stitch these cases to form an application.

Imposing Various features and functions under pega using cases

Under the case we have steps, Stages are the first level of organizing the different tasks, or processes required to complete work associated with a case.



Under the stages we have the process which define one or more paths that the case must follow. Our application will consist of all these cases, steps and process. Under these cases and the steps we need to add some properties which will the input from the user like the data type in other languages.



PROPERTIES IN PEGA APPLICATION

Then we will use the rules which are some provided by pega called pega created rules. Some rules we also created which help in sending the correspondence, activity etc which are termed as developer created rules. In our project first will come the view which will ask for the UserId and the password which will be stored in the local data storage ,having the UserId as the primary key. This window will provide the link between the cases present in the case life cycle. If the user selects the option for the already

registered shop then he can access the application without providing the details again. Similarly, the case with the User. After that we will configure the cases.

CASES

1.SHOP REGISTRATION

This case basically helps in getting the proper verification of the shop. The shop is being registered and then stored in the local server. Then the important documents need to be uploaded which is being taken in the binary format under the pega application. Under the shop registration there are many rules being configured under the various flows. These rules help in providing the desired features in application. Under the shop registration there are 5 stages which helps in getting the information from the end users

CASE LIFE CYCLE OF SHOP REGISTRATION

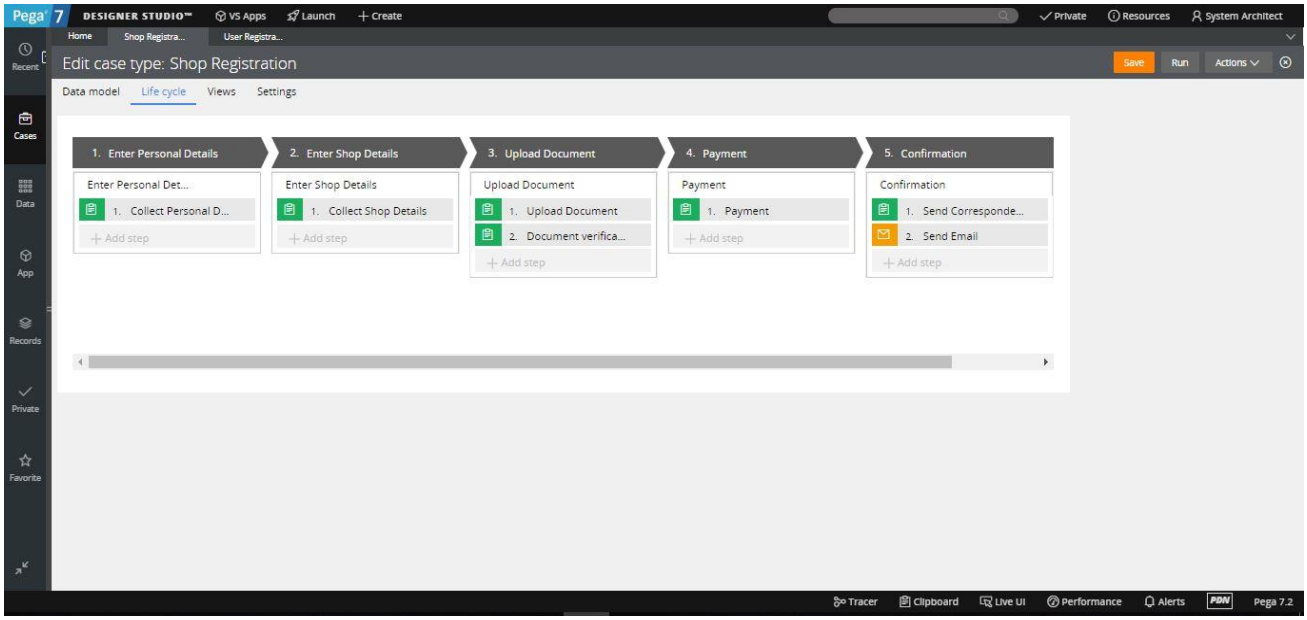
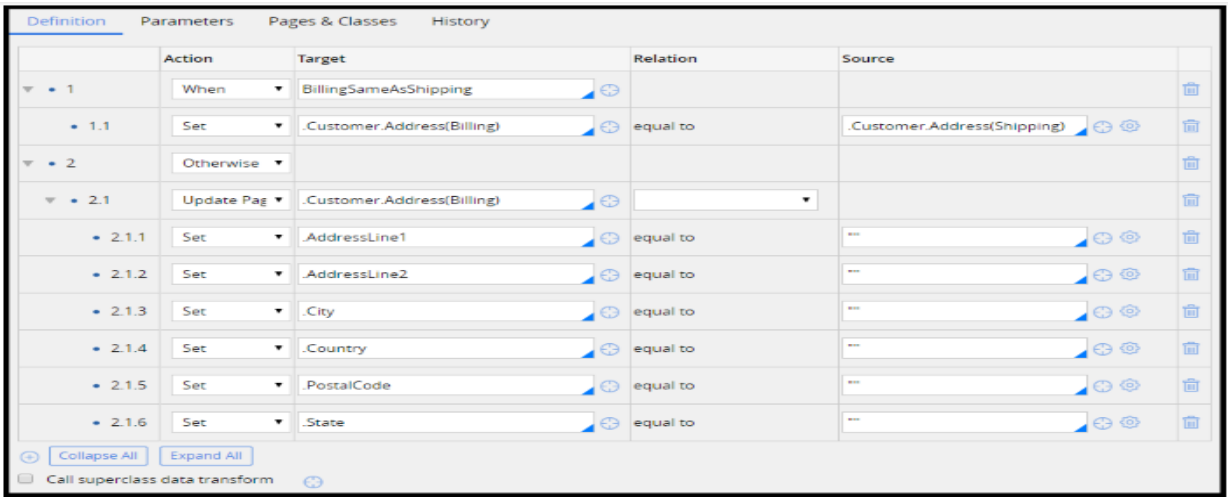


Fig 4: shop registration

- Under the 1st stage the shop owner will enter the personal details such as the name, address, DOB Email iPhone no which are the properties.

- In the Enter Shop Details the shop owner need to provide the Shop Registration No, Shop Location Proof, Tax Id
- In the Upload Document step the document are being uploaded in the database by configuring the binary file
- After that the payment gateway is being integrated with the application with the help of connectors.
- Next stage we as admin provide the confirmation to the vendors by providing the mail to the registered Email ID.

In Pega we need to configure every rule which we have created under this application for example SLA, Correspondence ,data transform etc .This are being configured under the process flow. These flow provide the basic structure of the working of the process. Let's take the example of the data transform we need to configure it on the outgoing connector of the assignment shape in which we have defined the property. After configuring the data transform we can test the working either it is providing the suitable response or not .This testing is done by the test tools provided by the Pega environment.



Then we can test the 1st case by running it after configuring the rules created under it. Since there is no link between the 1st case and the 2nd case so we will terminate it.

2.USER REGISTRATION

From the 1st view when the user selects the login as User Registration, then the system will ask for the UserID and password which will be check from the database. If the user is new then he/she has to create a fresh account to use our application.

The user will get the best experience in using the application. As we provide the trusted and best services. The user need to register by providing the necessary details .Our application then suggest the best shop by using the some rules created by the developers. These details then provided to the shop keeper which then provide the estimated bill to the user.

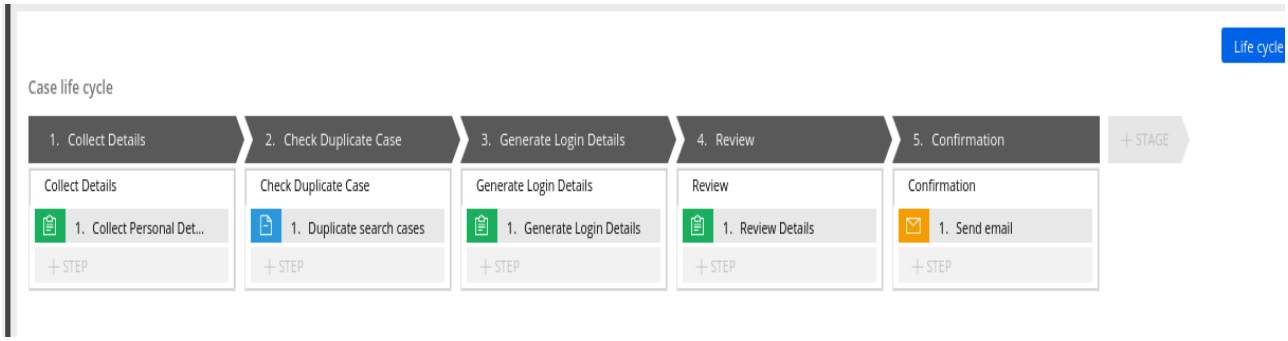


Fig 5: user registration

CASE LIFE CYCLE OF USER REGISTRATION

- Under the 1st stage the user will enter the personal details such as the name, address ,DOB Email ID, phone no which are the properties .
- In the 2nd stage the vehicle need to be entered by the user such as RC details, Chassis No which are also the properties created by the Admin.
- Next stage when the user enters the Pin Code our application then detects the nearby shop and having the best according to the customer review.
- In this we take the help of the declare expression and the dynamic list .This Dynamic list will show the user nearby shops in the list format.

This list is populated by taking the values from the local data source which has the address along with the pin code of the registered shops .

- The above step is also by integrating the GPS in our application . This will find the nearby shops more easily and efficiently.
- According the service type selected by the user ,such as pick up or delivery the shop will charge the customer.
- Now then after providing the details the estimated bill to the user .If the user confirms the bill then it goes to the next stage
- The confirmation is then being send to the user to its registered EmailId .
- After the whole process is being done the customer can provide the feedback regarding the services provided by the shop keeper.If the service provided by the shop is not up to the mark then we will check the issues .

This case has many rules being configured inside that such as the declare expression rule, data transform etc. The main feature of this case is to provide the smooth experience to the user . Similarly like in the above case we need to configure the rules in the process. This project will also requires the high level configuration which are being imposed by using the connectors done under the next certification which is the Pega CSSA. This application is then being tested by running the cases and providing our own values in the database .According to the working some place we also require human needs such as in checking the shop and find whether they are providing genuine products and also we need some mechanical engineers to find the actual price of the parts .So that the actual and correct price is asked from the user.

3. User Login

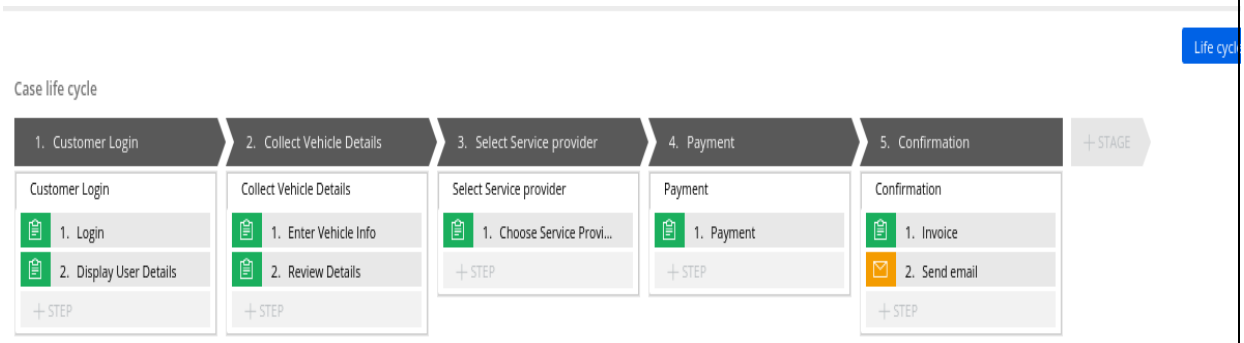


Fig 6: user login

In this case type the customer may login after completing user registration. This step enables user to enter login details and then enable user to enter vehicle details then after user selects the services provided to them. Then the user is routed to the payment phase and then final invoice is generated.

Then in the last phase a email is sent to user for confirmation.

This actual price and the price proposed by the shopkeeper will be checked by the application. Then it is being provided to the customer.

ER Diagram :

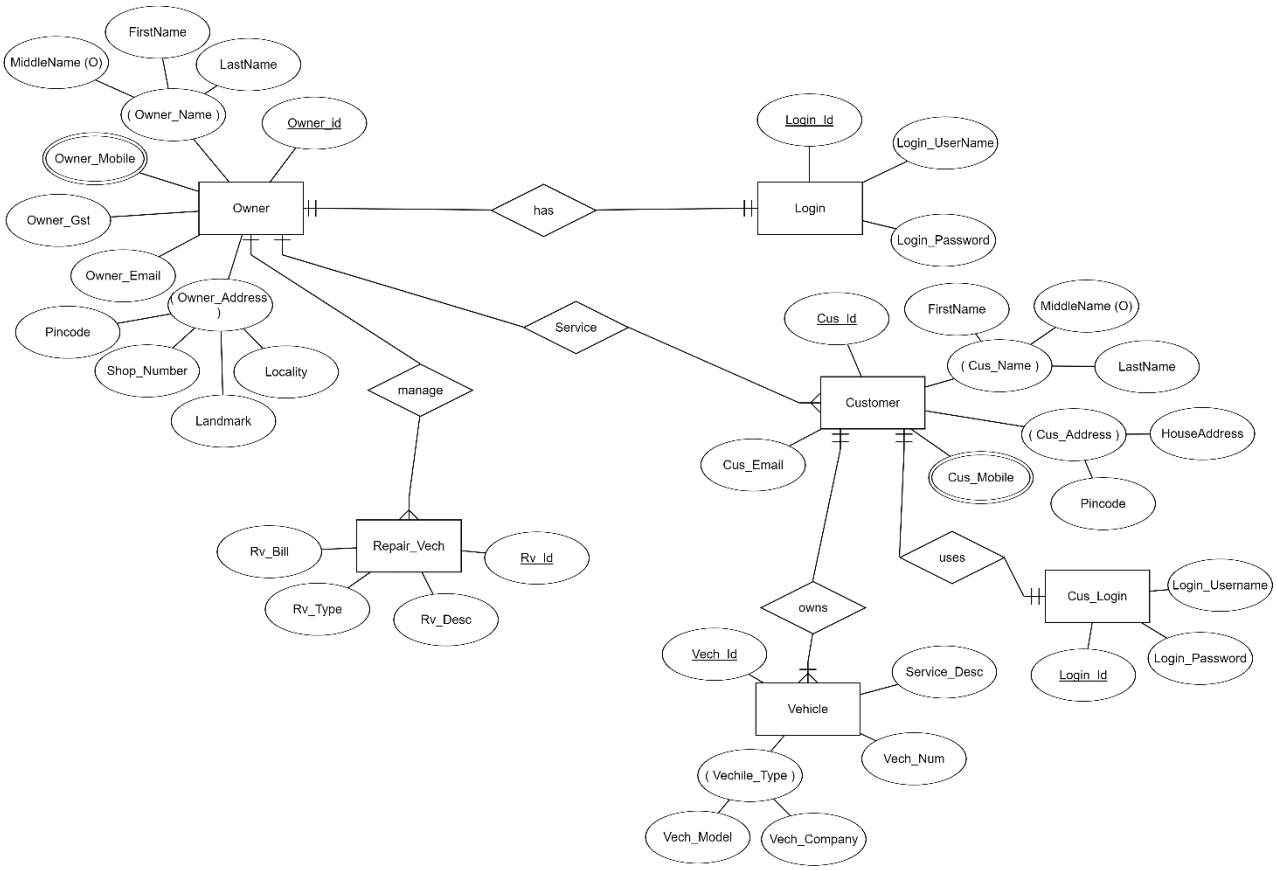


Fig 7: ER Diagram

Level 0 DFD:

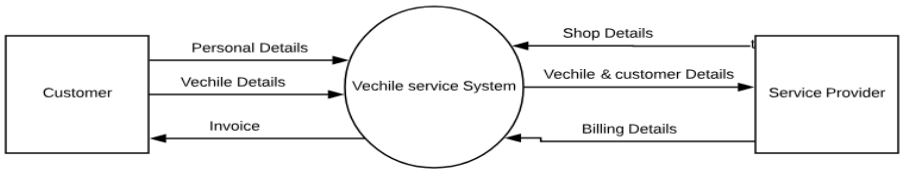


Fig 8: DFD Level 0

Level 1 DFD:

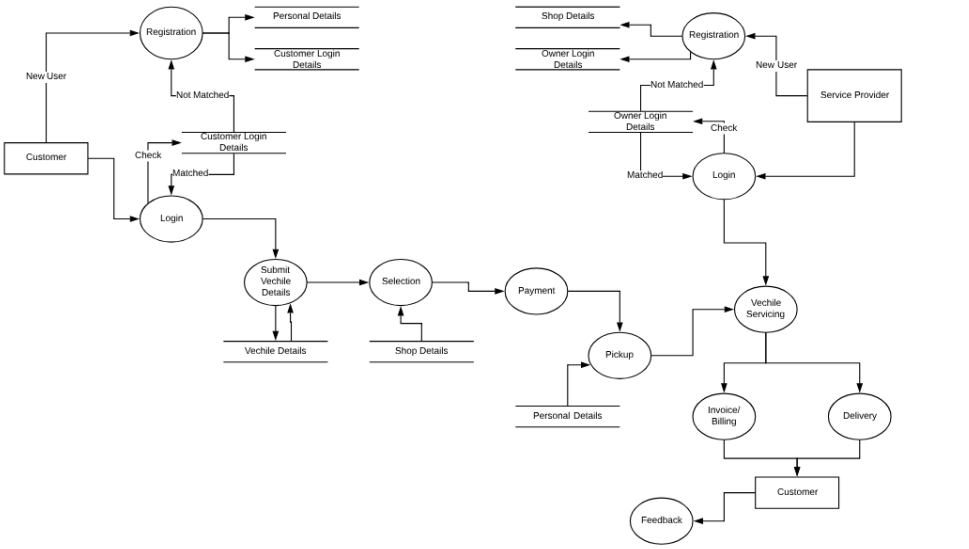


Fig 9: DFD level 1

FEASIBILITY STUDY

Our application Vehicle Service Management is a useful application for every person. This application provides a hassle-free solution to service their car in few steps. Our application can work online as well as offline. Online it doesn't require much a stable connection and Internet Explorer. But for the offline there is high requirement of RAM at least 8 GB and the processor generation must be i3 or greater.

Need:

The application guarantees in providing the

1. The best services and at affordable price
2. It saves time and work
3. Doesn't need to worry about the quality of services
4. Ensures trusted and genuine Shops.

Significance:

The Vehicle Service Management Application is most necessary for today's generation because everybody is having the heavy schedule so they don't have time to get their vehicle check. This will take a few simple steps to get their vehicle service by using our application. We also provide surety of having the genuine and trusted shops, which will provide original products at an affordable price.

Facilities Required

We have used following hardware and software facilities:

Software requirements:

This application need following software resources:

1. PEGA platform
2. PEGA developer login access
3. Business requirement specification
4. Web Browsers: Google chrome , Internet Explorer(recommended)

Hardware requirements :

This application need following hardware resources:

1. Computer System
2. Internet Access
3. The minimum system requirements to run this application are as follows:
    i. Windows: Windows 7, Windows 8, Windows 8.1, Windows 10 or later
    ii. Mac : OS X Yosemite 10.10 or later
    iii. Linux : 64-bit Ubuntu 14.04, An Intel Pentium 4 processor or later .

CONCLUSION

1. This application will provide rich user interface so that novice user can access easily.
2. It will give user a variety of services under one application with competitive pricing.
3. This app will reduce the time and effort of customer by 60-70% and it will provide a wide online marketplace for car service providers.

4.This will provide trusted and genuine shops which would provide the original products at an affordable price.

5.This application will provide you the best shops at your nearby location having the best reviews / rating provided by the genuine customers.

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