Insurance Renewal Using Android

Submitted in partial fulfillment of the requirements

for the degree of

Bachelor of Engineering

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KONKAN GYANPEETH COLLEGE OF ENGINEERING

KARJAT-410201

May 2021

Certificate

This is to certify that the project entitled **Insurance Renewal Using Android** is a bonafide work of **Swati Bhagat (Roll No.04), Diksha Kakphale (Roll No.27), Khushal Patil (Roll No.44), Dnyaneshwari Desai (Roll No.65)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **Undergraduate** in **DEPARTMENT OF INFORMATION TECHNOLOGY**.

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This thesis / dissertation/project report entitled **Insurance Renewal Using Android** by **Swati Bhagat (Roll No.04), Diksha Kakphale (Roll No.27), Khushal Patil (Roll No.44), Dnyaneshwari Desai (Roll No.65)** is approved for the degree of **DEPARTMENT OF INFORMATION TECHNOLOGY**.

Examiners

1.....

2.....

Date.

Place.

Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Signature
Swati Bhagat (Roll No.04)

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Date.

Abstract

Motor insurance has become as an essential aspect of the daily life playing a significant role in providing the cover mainly to the road vehicles and third party lives and property against accidental damage and many other perils including the natural disasters. Not like in other commercial contracts for the tangible products, the insured has no opportunity to examine the product prior to purchase. Accordingly, the customers get experience about the service provider after purchasing the product.

This study is to understand the customer awareness on insurance with special reference to Insurance company with the important element to improve the customer awareness towards insurance policies based on literature review and case study of successful vehicle Insurance Company. This study mainly focused on customer's awareness and satisfaction level on the car insurance policies offered by the company.

Acknowledgements

We wish to express our profound and sincere gratitude to Prof.M.B. ZEMSE, Department Information Technology, KGCE, Karjat, who guided us into the intricacies of this project with matchless magnanimity. We thank Dr. Anil W. Kale, Head of the Dept. of Information Technology, KGCE Karjat and Dr. M. J. LENGARE, Principal, KGCE Karjat for extending their support during the Course of this investigation. We would be failing in our duty if we don't acknowledge the co-operation Rendered during various stages of image interpretation by. We are highly grateful to who evinced keen interest and invaluable support in the progress and successful completion of our project work. We are indebted to for their constant encouragement, co-operation and help. Words of Gratitude are not enough to describe the accommodation and fortitude which they have shown throughout my endeavor.

Contents

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Abbreviations

FEA	**F**inite **E**lement **A**nalysis
FEM	**F**inite **E**lement **M**ethod
LVDT	**L**inear **V**ariable **D**ifferential **T**ransformer
RC	**R**einforced **C**oncrete

Symbols

D^{el}	elasticity tensor
σ	stress tensor
ε	strain tensor

Chapter 1

INTRODUCTION

1.1 Introduction

Safety and security is something that one should take on a prior basis for themselves, their family and the properties they have. General insurance is the right term for all the insecurities and worries. Only buying online insurance is not enough instead, online insurance renewal is also important at the same time. Every single person in Indian Territory is responsible for motor insurance as it is mandated as per government regulation. Initially, buying insurance as well as insurance renewal used to be done by insurance agents. Now, the internet has overpowered the place by making online insurance renewal feasible for people. The introduction of Vehicle Insurance Renewal application has made insurance renewal process hassle-free. It enables user to register themselves by filling up the form online and selecting a premium renewal option along with giving them option to make the payment online. The renewal process let's user receive notifications on their application before their due date of renewal, It also saves them from getting penalty. After making the payment online User will also receive insurance renewed receipt from the company on the application itself. This way user can renew their vehicle insurance simple and instantly.

1.2 Objectives

1. To enable the User to take a close view of the fund performance over the years
2. To motivate the selling of insurance schemes
3. To make the online payment feasible

4. To monitor the insurance schemes transactions
5. To trigger long term strategic planning
6. To encourage the expansion of capital markets.

1.3 Purpose, Scope, and Applicability

Purpose, Scope and Applicability: The description of Purpose, Scope, and Applicability are given below:

1.3.1 Purpose

The purpose of this project is to make an user friendly application for user that will enable them to select a preferable vehicle insurance as per their needs. To renew their insurance time to time before their due by sending them notifications in the application about renewal. To save them from penalty from the company.

1.3.2 Scope

The scope of this project is to help user to understand their vehicle renewal also to know their previous history of renewals on this application. It is quick and user friendly as it will let them make the payment online, select a premium renewal option of their choice. Also, it is secure as they will receive a company confirmation of the renewal after the payment is done. It will help user to unit will enable them to upload images of the documents they need to give in for offline procedure while registering for vehicle insurance.

1.3.3 Applicability

This vehicle Insurance renewal using android application helps user to not only get reminder of when their insurance is going to expire but also it is user friendly for both the agents and clients agents can put all their information in one app for the insurance renewal and the payment methods help users and agents both without any physical efforts of going out they can make their payments as it will get deducted and will be accepted by agent level directly.

1.4 Achievements

Nowadays as people has became friendly with online payments most of their payments are done directly through their cards or mobile applications such as UPIs. So this android based app is definitely a way to go for them it is user friendly both both companies and agents and reduce plenty of work from both ends as the application will always carry the acurate information of the clients. Also their are payment methods which can reduce their amount directly. It will also remind them when the insurance is going to expire.

Chapter 2

LITERATURE SURVEY

2.1 Research papers

2.1.1 TITLE:A Study on Customer Awareness on Car Insurance Policies with Special Reference to United India Insurance, Shivamogga [01] AUTHOR:Dr (HC) D. M. Arvind Mallik, Dr. Suhaib S

The research on customer's awareness on car Insurance policy with special reference to United India Insurance in shivammoga city was conducted as a part of the MBA course. During the research the respondent's positive response helped to do the research effectively. This research helped us to give an insight on the customer awareness on car Insurance policy with special reference to United India Insurance Company In shivammoga city, this research study provides a clear information about policy holder's awareness regarding about the policies terms and conditions, procedures, vehicle declaration value, IDV (insured declaration value), settlement procedures etc. In the research found that most of the customers are usually looking towards the service offered by the company to the customers,their mindset is on the basis of promotional activities of the company.

2.1.2 Determinants of the Customer Satisfaction in Motor Insurance [02] AUTHOR:Perera S. L1, Gamage S. K

In this study, the main purpose was to assess and analyze the determinants and effects of customer satisfaction on behavioral intentions of consumers to retain in motor insurance

industry. Specifically, it is important to examine the determinants of service quality in motor insurance products, then examine the influence of satisfaction on consumers behavior intentions. Therefore, research conducted to "identify key determinants of service quality towards to customer satisfaction and whether there is effect of customer satisfaction and behavioral intention with special reference to the motor policy holders in insurance companies.

2.1.3 Special insurance systems for motor vehicle liability [03] AUTHOR:Michael Faure

In this study, the main purpose was to gain more insight into the welfare effects of the special schemes, further empirical research needs to be undertaken on at least three levels :(1) research which analyzes how large subsidies need to be in order to have an effect on the decisions of uninsured drivers, (2) research which sheds more light on the accident frequency of uninsured drivers compared to insured drivers and (3) more in-depth analyses of the precise incentive schemes the various special facilities in Europe use.

2.2 Paper Comparison

|

Sr.No	Title	Author	Description
1	Customer Awareness on Car Insurance Policies .United India Insurance, Shivamogga [01]	Dr (HC) D. M. Arvind Mallik, Dr. Suhaib S	The research on customer's awareness on car Insurance policy with special reference to United India Insurance in shivammoga city was conducted as a part of the MBA course. During the research the respondent's positive response helped to do the research effectively.
2	Customer Satisfaction in Motor Insurance [02]	Perera S. L1, Gamage S. K	the main purpose was to assess and analyze the determinants and effects of customer satisfaction on behavioral intentions of consumers to retain in motor insurance industry.
3	Special insurance systems for motor vehicle liability [03]	Michael Faure	the main purpose was to gain more insight into the welfare effects of the special schemes, further empirical research needs to be undertaken on at least three levels

TABLE 2.1: Paper Comparison

Chapter 3

SURVEY OF TECHNOLOGIES

3.1 Android studio

Android Studio is the official integrated development environment (IDE) for Android application development. It is based on the IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools.To support application development within the Android operating system, Android Studio uses a Gradle-based build system, emulator, code templates, and Github integration. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules, and Google App Engine modules. Android Studio uses an Instant Push feature to push code and resource changes to a running application. A code editor assists the developer with writing code and offering code completion, refraction, and analysis. Applications built in Android Studio are then compiled into the APK format for submission to the Google Play Store

3.2 Andriod Emulator

The Android Emulator simulates Android devices on your computer so that you can test your application on a variety of devices and Android API levels without needing to have each physical device. The emulator provides almost all of the capabilities of a real Android device. You can simulate incoming phone calls and text messages, specify the location of the device, simulate different network speeds, simulate rotation and other hardware sensors, access the Google Play Store, and much more.Testing your app on the emulator

is in some ways faster and easier than doing so on a physical device. For example, you can transfer data faster to the emulator than to a device connected over USB.

3.3 UPI Gateway

UPI stands for Unified Payments Interface and is a way to collect payments from your customer's bank account securely and in real-time. This inter-operable payment infrastructure facilitates instant online payments from a smartphone using a Virtual Payment Address (VPA). VPA is a user-generated unique payment identifier, such as abc@bank where 'abc' is chosen by the customer based on availability, and 'bank' is the name of the bank/app where the customer signs up for UPI. VPA is mapped to the customer's bank account without disclosing account numbers or other details. It can also map multiple bank accounts to a single UPI enabled bank app with separate VPAs for each bank account.

Chapter 4

REQUIREMENTS AND ANALYSIS

4.1 Problem Definition

Insurance plays a key in promoting the socioeconomic development of modern economy. It's a policy where an insurance company promises to pay benefit on the deadth of the person whose life is insured. However, there is a problems related to insurance industries, which hinders its smooth operation .alarming declining premium rates due to unhealthy competition. Most branches of the company were concentrated around urban areas. Lack Of insurance professionalism and training staffs. Lack of adequates advertising to the promotion of insurance.

4.2 Requirements Specification

Hardware Requirements

- Processor: Pentium IV
- Hard Disk : 50GB
- RAM : 4GB (minimum)

Software requirements

- Operating System : Windows or Linux
- Android SDK, Emulator, IDE, OS
- Payment UPI ID

Front End

- Android Studio: - Android studio is used for developing the application. In android studio we can design multiple screens.

4.3 Planning and Scheduling

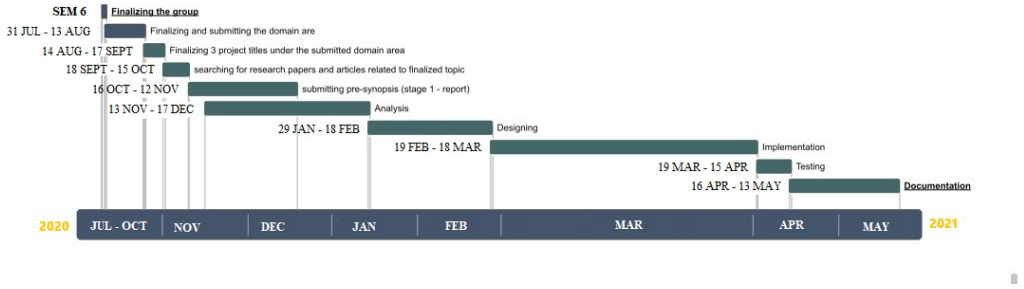

FIGURE 4.1: Gantt chart

Chapter 5

SYSTEM DESIGN

5.1 Zero Level DFD - Insurance Renewal System

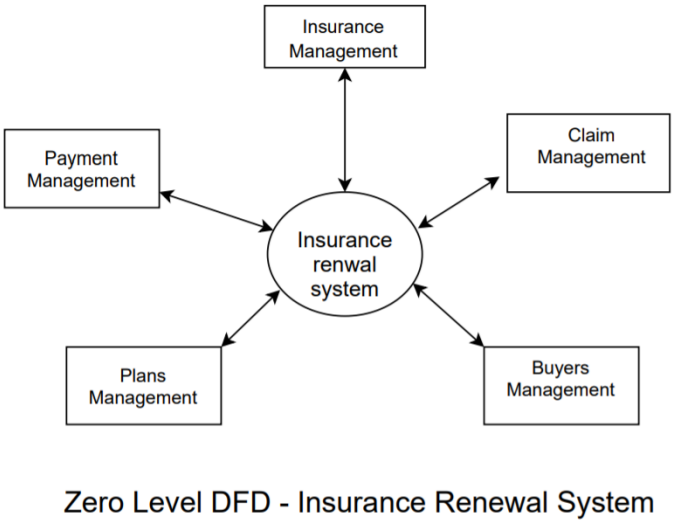

FIGURE 5.1: Zero Level DFD - Insurance Renewal System

5.2 Class Diagram

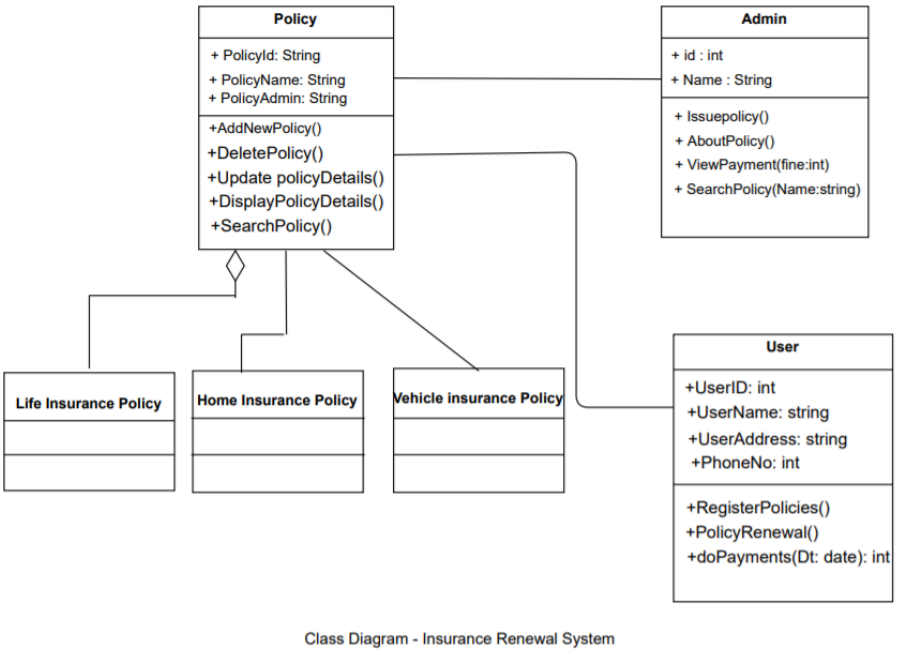

FIGURE 5.2: Class Diagram

5.3 ER Diagram

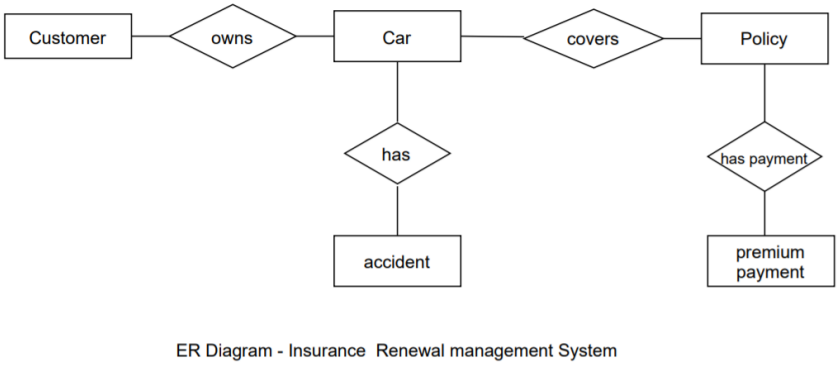

FIGURE 5.3: ER Diagram

5.4 Second Level DFD-Insurance Management System

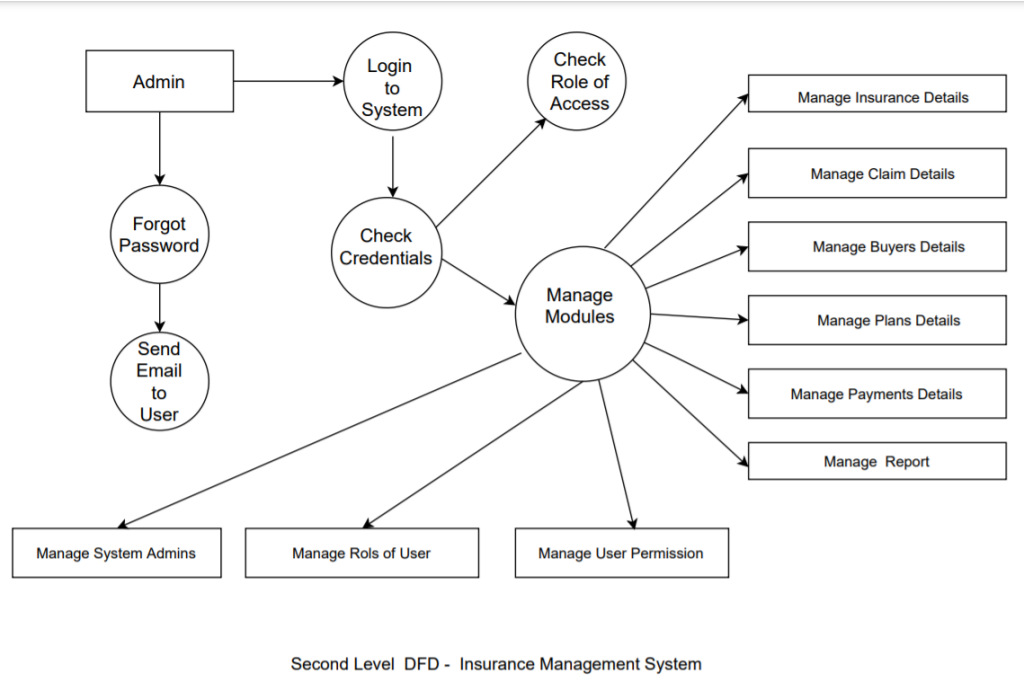

FIGURE 5.4: Second Level DFD-Insurance Management System

5.5 First Level DFD - Insurance Management system

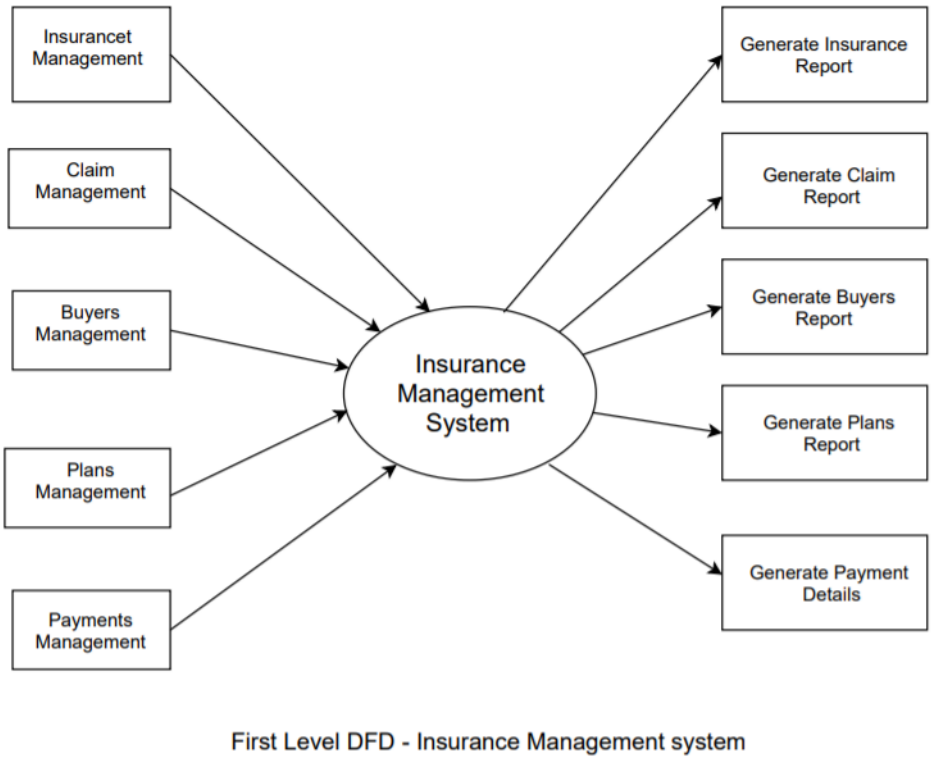

FIGURE 5.5: First Level DFD - Insurance Management system

Chapter 6

IMPLEMENTATION AND TESTING

6.1 Code

```
#set working directory, load data, load functions
setwd("C:/Users/Riki/Dropbox/UMN Courses/STAT 8051/Travelers/")
kangaroo <- read.csv("Kangaroo.csv")
kangtrain <- subset(kangaroo, split == "T")

SumModelGini <- function(solution, submission) {
  df = data.frame(solution = solution, submission = submission)
  df <- df[order(df$submission, decreasing = TRUE),]
  df
  df$random = (1:nrow(df))/nrow(df)
  df
  totalPos <- sum(df$solution)
  df$cumPosFound <- cumsum(df$solution) # this will store the cumulative number of positive exampl
  df$Lorentz <- df$cumPosFound / totalPos # this will store the cumulative proportion of positive
  df$Gini <- df$Lorentz - df$random # will store Lorentz minus random
  return(sum(df$Gini))
}

NormalizedGini <- function(solution, submission) {
  SumModelGini(solution, submission) / SumModelGini(solution, solution)
}

#cross validation with gini coefficients
cv <- function(fit, fit2 = NULL, data, data2 = NULL, K){
  cost = function(y, yhat) mean((y - yhat)^2)
  n = nrow(data)
  if(K > 1) s = sample(rep(1:K, ceiling(nrow(data)/K)),nrow(data)) else
  if(K == 1) s = rep(1, nrow(data))
```

```
  glm.y <- fit$y
  cost.0 <- cost(glm.y, fitted(fit))
  ms <- max(s)
  call <- Call <- fit$call
  if(!is.null(fit2)) call2 <- Call2 <- fit2$call
  CV <- CV.coef <- NULL

  pb <- winProgressBar(title = "progress bar", min = 0, max = K, width = 300)
  Sys.time() -> start

  for (i in seq_len(ms)) {
    j.out <- seq_len(n)[(s == i)]
    if(K > 1) j.in <- seq_len(n)[(s != i)] else if (K==1) j.in = j.out
    Call$data <- data[j.in, , drop = FALSE];
    d.glm <- eval.parent(Call)
    pred.glm <- predict(d.glm, newdata=data[j.out,], type="response")
    if(!is.null(fit2) & !is.null(data2)){
      j2.out.data <- merge(data2, data[j.out,])
        if(K > 1) j2.in.data <- merge(data2, data[j.in,]) else if (K==1) j2.in.data = j2.out.data
        Call2$data <- j2.in.data
      d.glm2 <- eval.parent(Call2)
        pred.glm2 <- predict(d.glm2, newdata=data[j.out,], type="response")
    }
    if(!is.null(fit2)) CV$Fitted = rbind(CV$Fitted, cbind(j.out, pred.glm*pred.glm2)) else
        CV$Fitted = rbind(CV$Fitted, cbind(j.out, pred.glm))
    CV.coef$coef <- rbind(CV.coef$coef, coef(d.glm))
    CV.coef$se <- rbind(CV.coef$se, coef(summary(d.glm))[,2])
    Sys.sleep(0.1); setWinProgressBar(pb, i, title=paste( round(i/K*100, 0),"% done"))
  }
  close(pb); Sys.time() -> end
  cat("Cross-Validation Time Elapsed: ", round(difftime(end, start, units="secs"),3) ,"seconds \n"
  Fitted <- CV$Fitted[order(CV$Fitted[,1]),2]
  Fitted
}

# bootstrap
library(boot)
bs <- function(formula, data, family, indices) {
  d <- data[indices,] # allows boot to select sample
  fit <- glm(formula, family, data=d)
  return(coef(fit))
}

#two part model (Count * Severity)
#model 1: count (offset(log(exposure))
pm.sub <- glm(numclaims ~ 0 + offset(log(exposure))+factor(agecat)+area+veh_value+veh_age+
        veh_value:veh_age+area:veh_value, family = poisson, data=subset(kangtrain))
summary(pm.sub)
Count = predict(pm.sub, newdata = kangaroo, type="response")

pm.bs <- boot(data=subset(kangtrain), statistic=bs, R=10, formula=formula(pm.sub), family = poisso
cbind(coef(pm.sub),colMeans(pm.bs$t))
```

```
pm.sub.bs <- pm.sub
pm.sub.bs$coefficients <- colMeans(pm.bs$t)
Count.bs = predict(pm.sub.bs, newdata = kangaroo, type="response")

#model 2: severity inverse gaussian model
ivg.sub <- glm((claimcst0/numclaims) ~ gender + veh_age + agecat,
        family=inverse.gaussian(link="log"),data=subset(kangtrain, clm > 0))
Severity = predict(ivg.sub, newdata=kangaroo, type="response")

ivg.bs <- boot(data=subset(kangtrain, clm > 0 & veh_value>0), statistic=bs, R=10, formula=formula(
cbind(coef(ivg.sub),colMeans(ivg.bs$t))

ivg.sub.bs <- ivg.sub
ivg.sub.bs$coefficients <- colMeans(ivg.bs$t)
Severity.bs = predict(ivg.sub.bs, newdata = kangaroo, type="response")

# gini coefficient on the whole training data
NormalizedGini(kangtrain$claimcst0, predict(pm.sub.bs, newdata=kangtrain, type="response")*predict

#cross validated gini coefficient
cv.ivg <- lapply(1:10, function(x) cv(fit=pm.sub, fit2=ivg.sub, data = kangtrain, data2=subset(kan
sapply(1:10, function(x) NormalizedGini(kangtrain$claimcst0, cv.ivg[[x]]))
mean(sapply(1:10, function(x) NormalizedGini(kangtrain$claimcst0, cv.ivg[[x]])))
sd(sapply(1:10, function(x) NormalizedGini(kangtrain$claimcst0, cv.ivg[[x]])))

group1 = as.numeric(subset(Count.bs*Severity.bs, kangaroo$split != "T"))
save(group1, file="group1.rda")
```

6.2 User Interface Design

Following Pictures/User Interface Design can be further modified in implementation phase

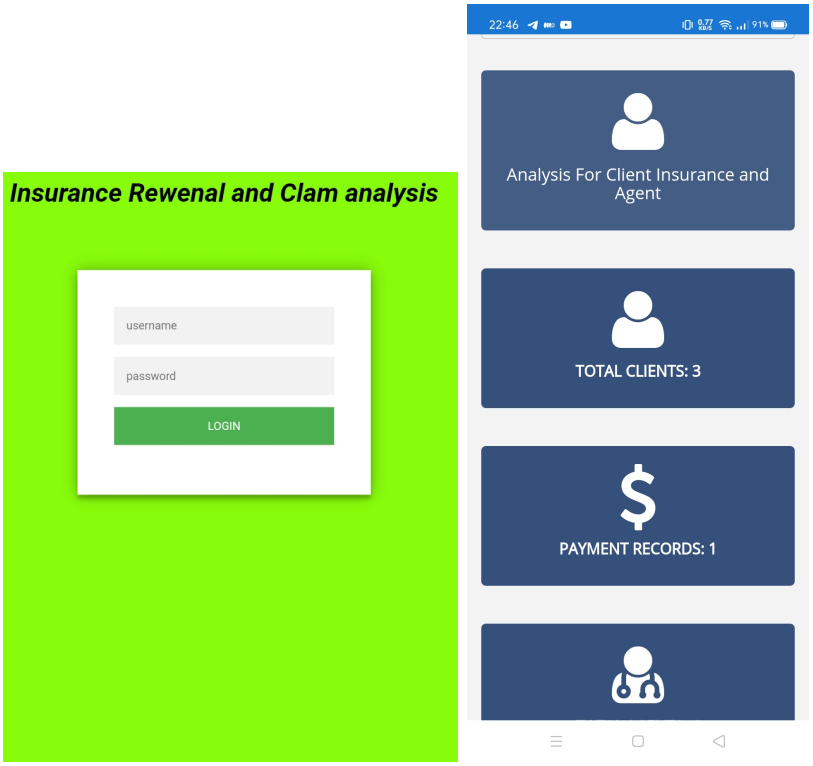

FIGURE 6.1: LOGIN MENU

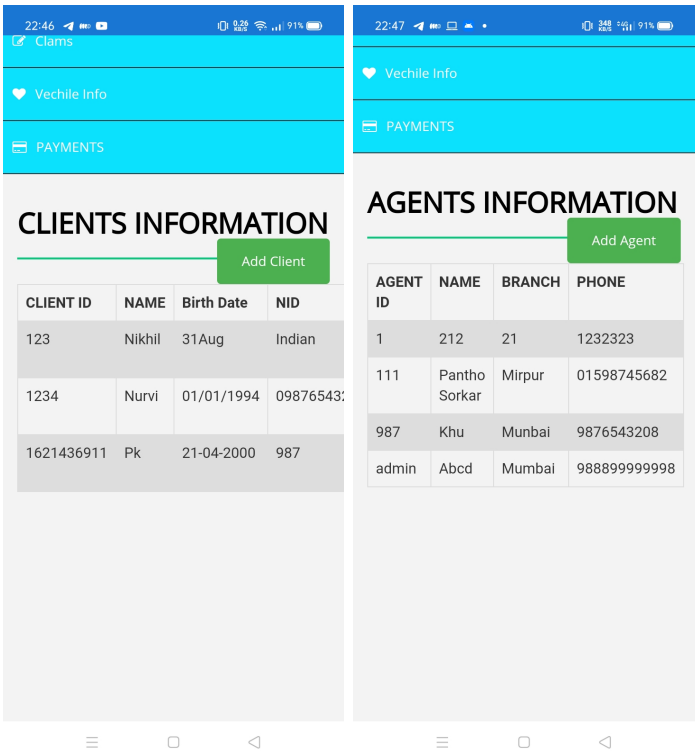

FIGURE 6.2: Clients and Agents Information

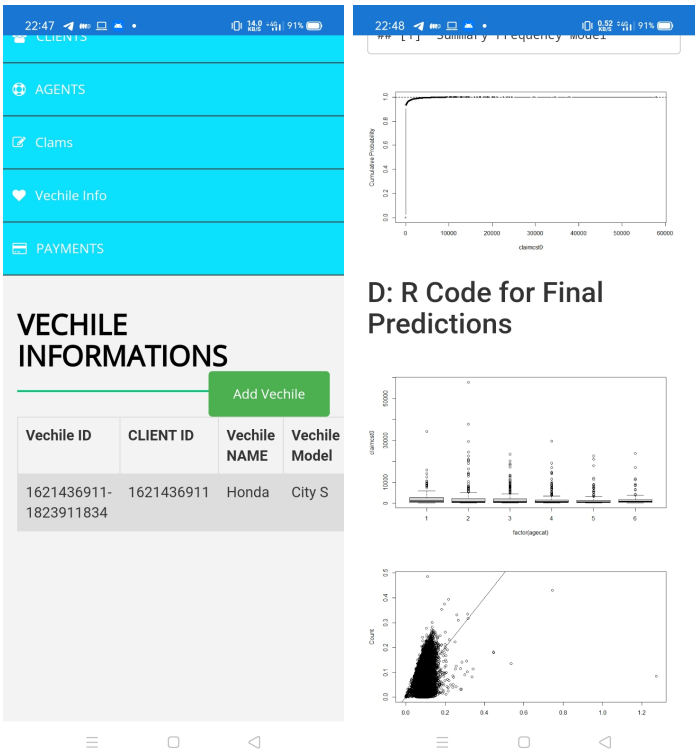

FIGURE 6.3: Vehicle Information And R Code for Final Predictions

Chapter 7

RESULTS AND DISCUSSION

7.1 Conclusion

By the implementation of this application, there will be a transparency in the field of vehicle insurance and it will help in the centralization of insurance renewal, by making user-friendly online payment options for end users. There will be messages in the form of notifications sent to users before their due date of expiring. It will help them not to get any penalty. There will be an option to upload documents. So it will eventually save the physical work of users by making it quick. Better insurance policies and premiums can be selected in the application. Such system implemented will be a result in various helps to the user as well as the insurance companies. The introduction has several parts as given below: Background: A description of the background and context of the project and its relation to work already done in the area. Summarise existing work in the area concerned with your project work.

7.2 Future Scope Of The Project

More payment options such payment gateway, bank prepaid cards, etc can be add.User can see the nearby insurance companies to their locations. More can companies can be added for better options for users and insurance companies as well. OCR can be introduced to scan the details of the documents.

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[4] (2019). Determinants of the customer satisfaction in motor insurance. saudi journal of business and management studies.