**BMS COLLEGE OF ENGINEERING**

**(Autonomous College under VTU)**

**Bull Temple Road, Basavanagudi, Bangalore – 560019**



A project report on

***“INSURANCE MANAGEMENT”***

Submitted in partial fulfillment of the requirements for the award of degree

**BACHELOR OF ENGINEERING**

**IN**

**INFORMATION SCIENCE AND ENGINEERING**

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Under the guidance of

Name of the Guide, Designation

**Department of Information Science and Engineering**

**2021-22**

**BMS COLLEGE OF ENGINEERING**

**(Autonomous College under VTU)**

**Bull Temple Road, Basavanagudi, Bangalore – 560019**



**Department of Information Science and Engineering**

CERTIFICATE

This is to certify that the project entitled INSURANCE MANAGEMENT is a bona-fide work carried out by **H Srujan Kumar, Hrishikesh Prahalad, and Hemanth Pai** in partial fulfillment for the award of degree of Bachelor of Engineering in **Information Science and Engineering**  from **Visvesvaraya Technological University, Belgaum** during the year **2021-2022**. It is certified that all corrections/suggestions indicated for Internal Assessments have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

**Signature of the Faculty Signature of the HOD**

**Name and Designation Name and Designation**

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**ABSTRACT**

Managing all the records of any company is very tedious and difficult, especially in the insurance industry, which is a highly document-intensive process. With the introduction of digital technologies this process can be made easier for the companies. The role of Insurance Management System are as follows:

1. Automated Business Processes
2. Improving Operational Efficiency
3. Better Internal Communication
4. Stronger Customer Relationships

Our project aims to design and implement a database management system to aid in the automated business process and improve operational efficiency for a vehicle insurance company. By helping the insurance agency to efficiently document the various aspects of the company, such as customers, agents, vehicles, accidents and others, we will make the process of managing the vehicle insurance of several clients much easier for the company. Our project was developed with Apache NetBeans, Java, and JDBC.

**INTRODUCTION**

**1.1 Purpose**

Keeping track of where consumer data is stored and how its used is of the utmost importance. For the vehicle insurance sector, there is an abundant amount of data to manage and protect. These data include information of the clients, vehicles, agents, and policies. The most successful insurance company, State Farm, holds 16 percent of the American market. In order to manage the data of so many clients and agents the insurance company must have an extremely efficient and durable database. An effective insurance database tracks the details of the insurance policy, improves agent productivity, and provides instant access to client data. It also helps customers manage claims and handle commissions for agents. The insurance database automates multiple processes which saves time and makes the agency operations fast and efficient. Therefore, our purpose is to build an efficient database management system to help insurance companies manage their data in a quick and secure way.

* 1. **Scope**

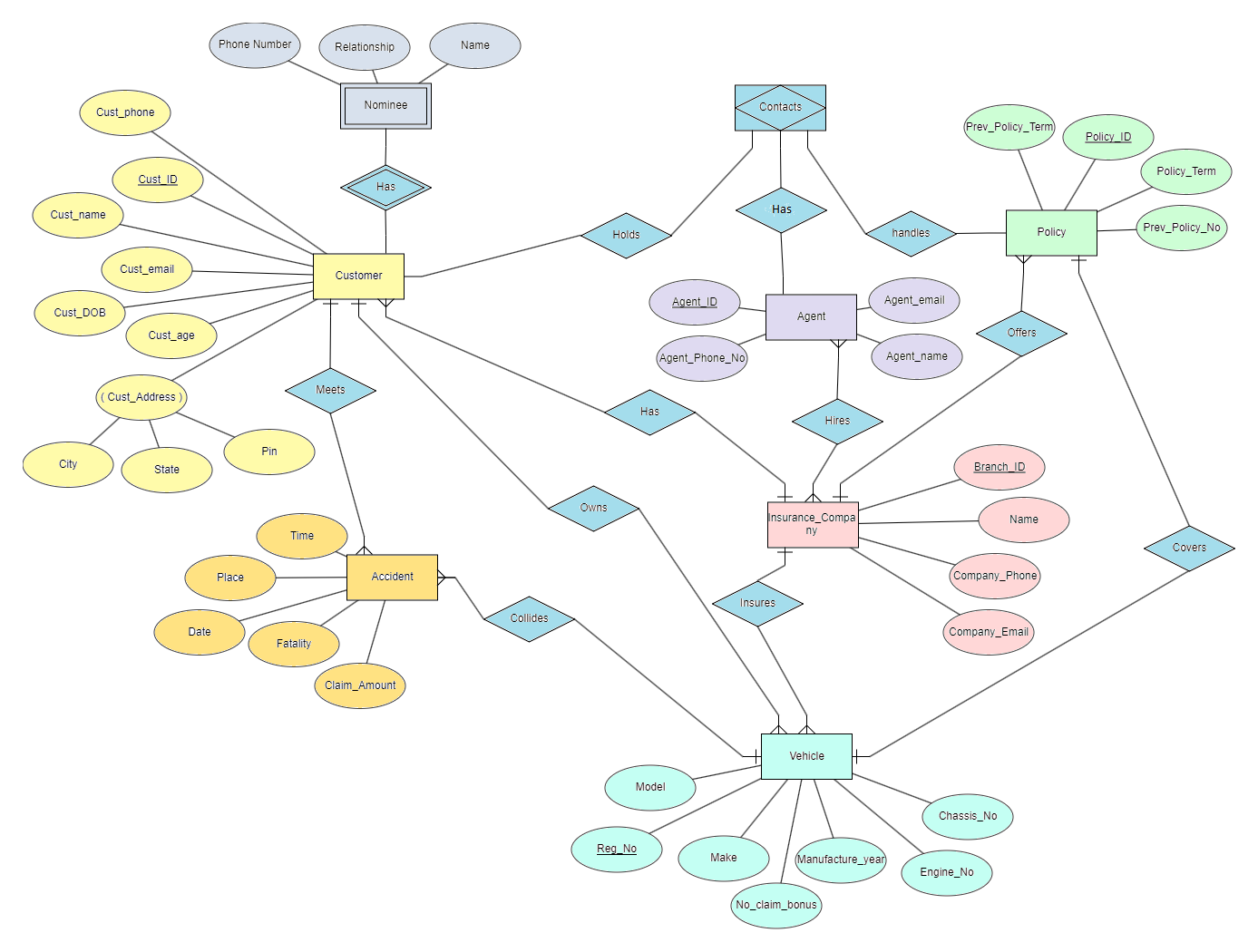
In 2009, India had 75 million registered Two Wheelers on road. This number increased to a staggering 221 million as of 2019. As the population and economy of a nation continues to increase, a greater number of people will opt to purchase vehicles. The vehicle insurance sector is one with high demand that will continue to be operational for an indefinite number of years. The traditional method of storing the details of clients and agents on pen and paper is no longer a feasible or appropriate solution as the number of clients continue to increase exponentially. Converting to a sophisticated database system will aid the insurance company to manage the data in a fast and efficient way. The data will also be secure and will not be subjected to the risk of being lost or manipulated. Our proposed solution will help clients choose their agents and policy in a hassle-free manner. It will ensure that the company can view all their data in a user-friendly manner. Additionally, the agents will be provided with an easy way to access the details of their clients.

**SOFTWARE REQUIREMENT SPECIFICATION**

**2.1 Software Requirements**

* Operating System – Windows 10 or higher
* Java Development Kit (JDK)
* Text Editor -jGRASP/ VS Code/ NetBeans
* JDBC (Java Database Connectivity) driver to connect back end with the front end
  1. **Hardware Requirements**
* Hard Disk – 256 GB or higher
* Processor – 64-bit, four core, or higher
* RAM – 8Gb or higher
  1. **Functionality**
* The software provides a graphical user interface that provides authentication for the Customers, Agents, and Company.
* The customer can easily view the details of their agents, current policy and many more
* The agent can access their respective details of the various customers that they are in-charge of.
* The company can access the details of all the customers, agents, and effectively manage all the various aspects.
* The system shall be available all the time and is user-friendly.
* The customer, agent, and company will be able to update all their respective data.

**ER DIAGRAM**



**RELATIONAL SCHEMA**

Customer(CustomerID,Customer name, Mobile Number, Email, Address, Age, DOB, Branch\_ID)

Insurance Company(Name, Address, Branch ID, Number, Email)

Contact(Agent\_no, Customer\_ ID,Policy No)

Hires(Branch\_id, Agent\_id)

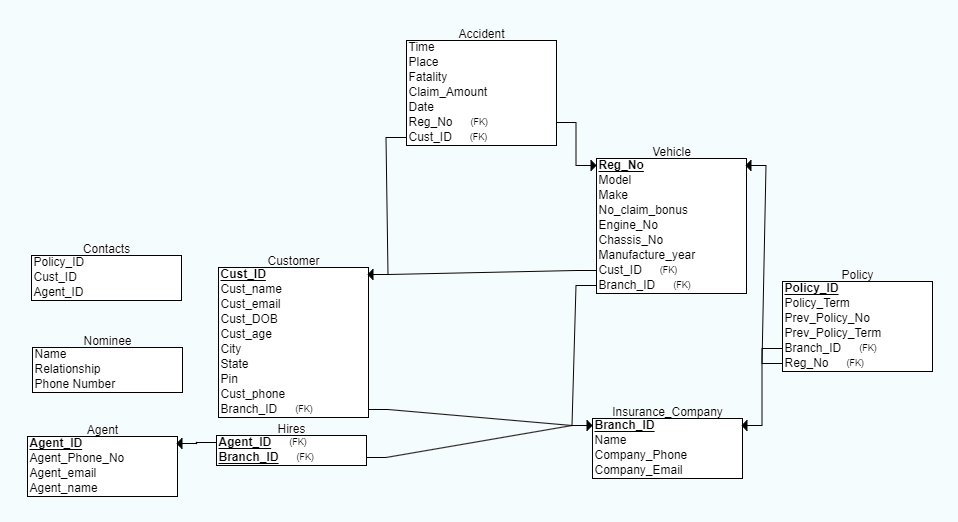
Agent( Agent\_Id, name, contact number, email)

Nominee(Name, Relationship,Phone number, Customer ID)

Vehicle( Regno, Model, Make, No Claim Bonus, Chassis Number, Manufacturing Year, Engine Number, Branch\_ID, Cust\_ID)

Policy (Policy Number, Policy term, Previous Policy Number, Previous Policy Term, Reg\_no, Branch\_ID)

Accident(Time, Date, Place, Fatality, Claim Amount, Cust\_ID, Reg\_NO)



**IMPLEMENTATION**

**5.1 SQL Queries**

**1. Creating Database**

create database HHH\_insurance;

use HHH\_insurance;

**2. Creating Table**

**Insurance company**

create table insurance\_company

(

Branch\_id int Primary key,

name1 varchar(20),

city varchar(250),

state varchar(50),

pin int,

email varchar(50),

p\_no int

);

**Customer**

create table customer

(

cust\_id varchar(20) primary key,

cust\_name varchar(50),

cust\_email varchar(50),

cust\_p\_no varchar(50),

cust\_dob date,

cust\_age int,

cust\_city varchar(20),

cust\_locality varchar(30),

cust\_pin int,

Branch\_id int references insurance\_company(Branch\_id)

);

**Agent**

create table agent

(

agent\_no varchar(20),

agent\_name varchar(50),

agent\_no varchar(20),

agent\_email varchar(20)

);

**Nominee**

create table nominee

(

nom\_name varchar(50),

nom\_rel varchar(50),

nom\_phno varchar(20),

cust\_id int references customer(cust\_id)

);

**Vehicle**

create table vehicle

(

v\_regno varchar(20) primary key,

v\_model varchar(20),

v\_make varchar(20),

v\_n\_c\_b varchar(20),

v\_chasis\_no varchar(20),

v\_man\_year varchar(20),

v\_eng\_no varchar(20),

Branch\_id int references insurance\_company(Branch\_id),

cust\_id varchar(20) references customer(cust\_id)

);

**Policy**

create table policy

(

policy\_no varchar(20) primary key,

policy\_term int,

prev\_p\_no varchar(20),

prev\_p\_t varchar(20),

reg\_no varchar(20) references vehicle(v\_regno),

agent\_no varchar(20) references agent(agent\_no),

Branch\_id int references insurance\_company(Branch\_id)

);

**Accident**

create table accident

(

acc\_id int primary key,

acc\_time time,

acc\_date date,

acc\_place varchar(20),

acc\_fatality bool,

acc\_claim\_amt double,

cust\_id varchar(20) references customer(cust\_id),

reg\_no varchar(20) references vehicle(reg\_no)

);

**Contact (Relation)**

create table contact

(

agent\_no varchar(20) references agent(agent\_no),

c\_id varchar(20) references customer(cust\_id);

);

**Hires**

create table hires

(

Branch\_id int references insurance\_company(Branch\_id),

agent\_no varchar(20) references agent(agent\_no)

);

1. **Inserting Data into the Database**

**Customer**

* insert into Customer values('1','Hrishi','hp@gmail.com','1234567897','2000-01-08','22','Bangalore','Chikkalasandra','520019',10);
* insert into Customer values('2','Hemanth','hem@gmail.com','9876542128','2002-03-07','20','Delhi','KSLayout','520015',20);
* insert into Customer values('3','Srujan','hsruj@gmail.com','1594872633','1995-01-08','27','Delhi','HSR layout','520359',20);
* insert into Customer values('4','Bob','bob@gmail.com','9985632143','1970-05-08','52','Hydrabad','Chikpette','527019',30);
* insert into Customer values('5','Billy','billy@gmail.com','1235874697','1974-08-08','48','Bangalore','Chamrajpete','529019',10);
* insert into Customer values('6','Tommy','tomi@gmail.com','2152243688','1960-05-04','62','Hydrabad','Kormangala','520059',30);
* insert into Customer values('7','John','Jo@gmail.com','7895211123','1974-02-08','48','Kolkata','Whitefield','520049',40);
* insert into Customer values('8','Dave','DaveR@gmail.com','236559841','2003-10-08','19','Bangalore','Jayanagar','520819',10);
* insert into Customer values('9','Johnny','JS@gmail.com','1114253694','2004-09-04','18','Chennai','Ramanjanayanagar','520419',50);
* insert into Customer values('10','Jim','JimH@gmail.com','8856947123','1999-11-08','23','Chennai','JP Nagar','525019',50);

**Insurance**

* insert into Insurance values(10, 'Blore',' Bangalore', 'Karnataka', '560061', 'blore@gmail.com', '9584712589');
* insert into Insurance values(20,'Dli','Delhi', 'Delhi','850061', 'delhi@gmail.com', '8475958471');
* insert into Insurance values(30,'Hbad','Hydrabad','Andra Pradesh','845967', 'hbad@gmail.com','3215648975');
* insert into Insurance values(40,'Kka','Kolkata','West Bengal','526461', 'kka@gmail.com', '9584576589');
* insert into Insurance values(50,'Cni','Chennai', 'TamilNadu','485061', 'cni@gmail.com', '6542812589');

**Agent**

* insert into agent values('100','Denzel','4857988541','den@gmail.com');
* insert into agent values('101','Daniel','4986558741','dan@gmail.com');
* insert into agent values('102','Damian','4563547841','dam@gmail.com');

**Vehicle**

* insert into vehicle values('ABBZ1234','M8','BMW', '5', 'DHJK89456D', '2021','RE5FD575HG',10,'1');
* insert into vehicle values('HJET3689','Phantom','Rolls Royce','10', 'DFAS5F4DEW' ,'2021','54FG4S5GRF',20,'2');
* insert into vehicle values('BDNJ8745','Maybach','Mercedes','15' , 'DF454ADFAE','2002','254FGSDGF5',20,'3');
* insert into vehicle values('LAKS9823','NSX','Honda','20','HGDF5DTY45', '2001','DSG4548FF5',30,'4');
* insert into vehicle values('OWIE2365','R8','Audi','35','54ER1D2S4F' ,'2020','YDFS45357D',10,'5');
* insert into vehicle values('QTWR9632','Continental','Bentley','25' , 'AFG4FF5H5Y','2006','FG57G7R6FH',30,'6');
* insert into vehicle values('NVMF9958','DBS','Aston Martin','20', 'JD4YJ2DT8D','2010','JHF87865TY',40,'7');
* insert into vehicle values('VCBD4412','Pulser','Bajaj','35', 'TR2F4S5789', '2015','TTYFS7FG5R',10,'8');
* insert into vehicle values('LMKJ9654','Huracan','Lamborghini','25', 'FG4R5F1D4W','2016','HGS57Y8TSG',50,'9');
* insert into vehicle values('VBNX0007','Veyron','Bugatti','40', 'TYS1FG4SRS', '2014','HFS57RRS5F',50,'10');

**Policy**

* insert into policy values('15236','5','74856','2','ABBZ1234','100','10');
* insert into policy values('23564','2','54137','10','HJET3689','100','20');
* insert into policy values('65423','1','12347','5','BDNJ8745','100','20');
* insert into policy values('89765','3','89465','1','LAKS9823','101','30');
* insert into policy values('98756','5','99865','8','OWIE2365','101','10');
* insert into policy values('55457','2','54637','3','QTWR9632','101','30');
* insert into policy values('15648','1','12689','4','NVMF9958','102','40');
* insert into policy values('95633','3','89453','1','VCBD4412','102','10');
* insert into policy values('12345','4','75489','3','LMKJ9654','102','50');
* insert into policy values('97541','10','98346','10','VBNX0007','102','50');

**Accident**

* insert into accident values('200','01-23','2019-01-01','Bangalore','1',15000, '8','VCBD4412');
* insert into accident values('201','17-44','2001-09-11','Bangalore','0',15000,'8', 'VCBD4412');

**Nominee**

* insert into nominee values('Jesus','Father','0001010101','1');
* insert into nominee values('Jessica','Sister','1235684911','2');
* insert into nominee values('Pablo','Father','5698472351','3');
* insert into nominee values('Don Juan','Son','9658741236','4');
* insert into nominee values('Pedro','Brother','8556985584','5');
* insert into nominee values('Gabriel','Father','2245698874','6');
* insert into nominee values('Gabriella','Daughter','5588446985','7');
* insert into nominee values('Don Pedro','Uncle','5547448963','8');
* insert into nominee values('Javier','Brother','2236654487','9');
* insert into nominee values('Escobar','GodFather','2266558899','10');

1. **Main Queries**

**Connecting front end to back end**

Class.forName("com.mysql.jdbc.Driver");

Connection con=DriverManager.getConnection("jdbc:mysql://localhost:3306/hhh\_insurance?autoReconnect=true&useSSL=false", "root", "1234");

Statement st1=con.createStatement();

**Customer**

String query="select \* from customer;";

ResultSet rs=st1.executeQuery(query);

while(rs.next())

{

int cust\_id=rs.getInt("cust\_id");

String name= rs.getString("cust\_name");

String email= rs.getString("cust\_email");

String ph\_no= rs.getString("cust\_p\_no");

String date= rs.getString("cust\_dob");

int age= rs.getInt("cust\_age");

String city= rs.getString("cust\_city");

String locality= rs.getString("cust\_locality");

int pin= rs.getInt("cust\_pin");

int branch\_id= rs.getInt("Branch\_id");

DefaultTableModel model=(DefaultTableModel)c.output.getModel();

model.addRow(new Object[]{cust\_id, name, email, ph\_no, date, age, city, locality, pin, branch\_id});

}

**Agents**

String query="select count(agent\_no), branch\_id from hires group by branch\_id order by branch\_id;";

//agent display

String query="select \* from agent";

ResultSet rs=st1.executeQuery(query);

while(rs.next())

{

String name= rs.getString("agent\_name");

String email= rs.getString("agent\_email");

String ph\_no= rs.getString("agent\_pno");

String no= rs.getString("agent\_no");

DefaultTableModel model=(DefaultTableModel)d.det.getModel();

model.addRow(new Object[]{no,name, email, ph\_no});

}

**Customer Login**

String username=USERNAME.getText();

String password1=PASSWORD.getText();

Statement st1=con.createStatement();

String query="select \* from customer where cust\_id='"+username+"' and cust\_dob='"+password1+"'";

ResultSet rs=st1.executeQuery(query);

if(rs.next()){

Cust\_op op=new Cust\_op();

op.USERID.setText(USERNAME.getText());

op.setVisible(true);

dispose();

}

else

{

JOptionPane.showMessageDialog(this,"Incorrect User ID or Password.......");

USERNAME.setText("");

PASSWORD.setText("");

}

**Nominee Details**

String user=USERID.getText();

Statement st1=con.createStatement();

String query="select \* from nominee where cust\_id='"+user+"'";

ResultSet rs=st1.executeQuery(query);

while(rs.next())

{

String nominee\_name=rs.getString("nom\_name");

String nominee\_relation=rs.getString("nom\_rel");

String nominee\_ph=rs.getString("nom\_phno");

String cust\_id=rs.getString("cust\_id");

DefaultTableModel model1=(DefaultTableModel)n.nominee.getModel();

model1.addRow(new Object[]{nominee\_name,nominee\_relation, nominee\_ph, cust\_id});

}

**Accident Details**

String user=USERID.getText();

Statement st1=con.createStatement();

String query="select \* from accident where cust\_id='"+user+"'";

ResultSet rs=st1.executeQuery(query);

while(rs.next())

{

String acc\_id= rs.getString("acc\_id");

String acc\_time=rs.getString("acc\_time");

String acc\_date=rs.getString("acc\_date");

String acc\_place=rs.getString("acc\_place");

String acc\_fat=rs.getString("acc\_fatality");

String acc\_amt=rs.getString("acc\_claim\_amt");

String reg\_no=rs.getString("reg\_no");

DefaultTableModel model=(DefaultTableModel)a.acc\_det.getModel();

model.addRow(new Object[]{acc\_id, acc\_time, acc\_date, acc\_place, acc\_fat, acc\_amt, reg\_no});

}

**Vehicle Details**

String user=USERID.getText();

Statement st1=con.createStatement();

String query="select \* from vehicle where cust\_id='"+user+"'";

ResultSet rs=st1.executeQuery(query);

while(rs.next())

{

String v\_model=rs.getString("v\_model");

String v\_make=rs.getString("v\_make");

String v\_n\_c\_b=rs.getString("v\_n\_c\_b");

String v\_chasis=rs.getString("v\_chasis\_no");

String v\_man\_year=rs.getString("v\_man\_year");

String v\_e\_no=rs.getString("v\_eng\_no");

DefaultTableModel model1=(DefaultTableModel)v.veh\_det.getModel();

model1.addRow(new Object[]{v\_model, v\_make, v\_n\_c\_b, v\_chasis, v\_man\_year, v\_e\_no});

}

**Renew Policy**

String new\_num1=new\_num.getText();

String new\_term1=new\_term.getText();

String user1=USER\_ID.getText();

//Statement st1=con.createStatement();

String q1="update policy set prev\_p\_no=policy\_no;";

String q2="update policy set prev\_p\_t=policy\_term;";

String q3="update policy set policy\_no='"+new\_num1+"' where cust\_id='"+user1+"';";

String q4="update policy set policy\_term='"+new\_term1+"' where cust\_id='"+user1+"';";

//String query="select \* from customer where cust\_id='"+username+"' and cust\_dob='"+password1+"'";

st1.executeUpdate(q1);

st1.executeUpdate(q2);

st1.executeUpdate(q3);

st1.executeUpdate(q4);

**Delete Customer**

String cust\_id1=cus\_id.getText();

Statement st1=con.createStatement();

String query="delete from customer where cust\_id='"+cust\_id1+"';";

st1.executeUpdate(query);

**Customer Policy**

String agent\_id1=agent\_id.getText();

Statement st1=con.createStatement();

Statement st2=con.createStatement();

String query="select cust\_id, cust\_name from customer where cust\_id=(select cust\_id from contact where agent\_no='"+agent\_id1+"')";

String query2="select policy\_no from policy where policy\_no=(select policy\_no from contact where agent\_no='"+agent\_id1+"')";

ResultSet rs=st1.executeQuery(query);

ResultSet rs2=st2.executeQuery(query2);

while(rs.next()&& rs2.next())

{

String cust\_id1=rs.getString("cust\_id");

String cust\_name1=rs.getString("cust\_name");

String policy\_no1=rs2.getString("policy\_no");

DefaultTableModel model=(DefaultTableModel)c.cust\_pol.getModel();

model.addRow(new Object[]{cust\_id1, cust\_name1, policy\_no1});

}

**Insert Customer**

String cust\_id1=cust\_id.getText();

String cust\_name1=cust\_name.getText();

String cust\_email1=cust\_email.getText();

String cust\_p\_no1=ph\_no.getText();

String cust\_dob1=cust\_dob.getText();

String cust\_age1=cust\_age.getText();

String cust\_city1=cust\_city.getText();

String cust\_locality1=locality.getText();

String cust\_pin1=cust\_pin.getText();

String Branch\_id=branch\_id.getText();

String policy\_no1=policy\_no.getText();

String policy\_term1=policy\_term.getText();

String prev\_p\_no1=pre\_pol\_no.getText();

String prev\_p\_t1=pre\_pol\_term.getText();

String reg\_no1=reg\_no.getText();

String query="insert into customer(cust\_id, cust\_name, cust\_email, cust\_p\_no, cust\_dob, cust\_age, cust\_city, cust\_locality, cust\_pin, Branch\_id) values('"+cust\_id1+"','"+ cust\_name1+"', '"+cust\_email1+"', '"+cust\_p\_no1+"', '"+cust\_dob1+"', '"+cust\_age1+"' ,'"+cust\_city1+"' ,'"+cust\_locality1+"', '"+cust\_pin1+"', '"+Branch\_id+"');";

PreparedStatement ptst=(PreparedStatement) con.prepareStatement(query);

ptst.executeUpdate(query);

String query1="insert into policy(policy\_no, policy\_term, prev\_p\_no, prev\_p\_t, reg\_no,Branch\_id )values('"+policy\_no1+"' , '"+policy\_term1+"', '"+prev\_p\_no1+"', '"+prev\_p\_t1+"', '"+reg\_no1+"', '"+Branch\_id+"');";

PreparedStatement ptst1=(PreparedStatement) con.prepareStatement(query1);

ptst1.executeUpdate(query1);

**CONCLUSION**

**6.1 Summary**

As the population increases and economy of the nation increases the number of vehicles will increase dramatically in the coming years. The traditional pen and paper approach to keep records will become obsolete with the increasing technological advancements. The aim of our project is to use Database Management System to automate the tedious process of manually maintaining records. This will dramatically improve the efficiency of the insurance company and provide a user-friendly interface for the company, agents, and costumers who will all be able to quickly and securely view and update their data.

**6.2 Limitations**

* The customer does not have any information regarding the agent. The agent is given full access of the customer’s information. However, the customer does not know about the agent.
* We do not have a method for agents to contact new potential customers. They are limited with the already existing ones that they are assigned to.

**6.3 Further Enhancements**

Further, we would like to enhance our system by implementing the following

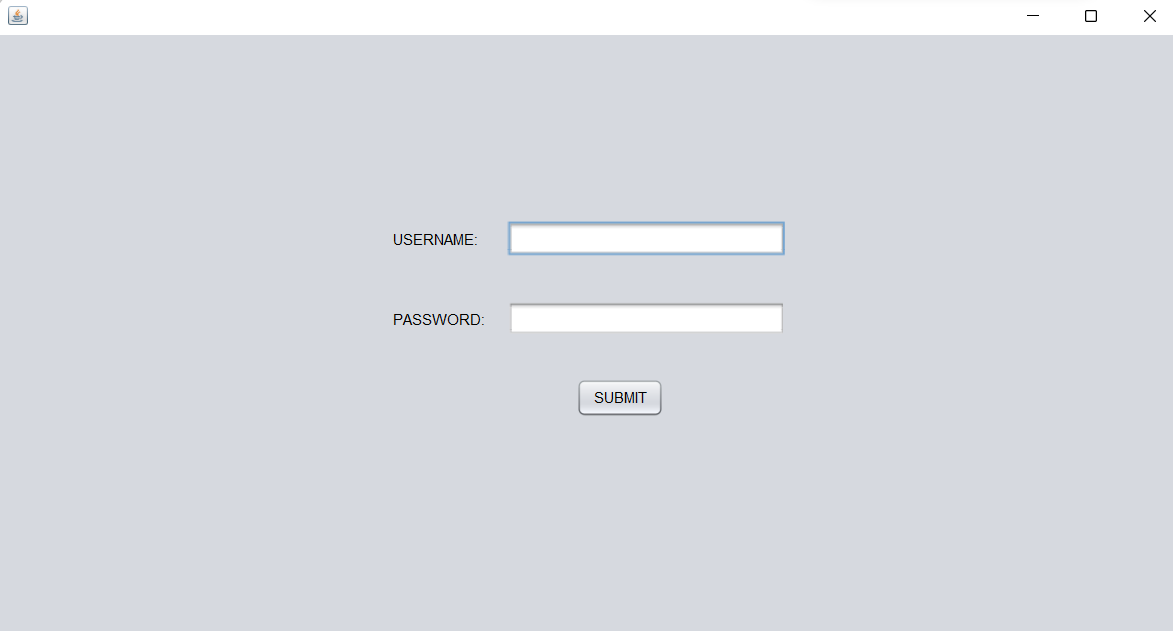
* Introduce a method for the client to access certain information about the agent
* Implement a way for the insurance company and agents to access a list of potential customers and market to them
* We can implement a way to obtain the real-time status of a customer policy and other details.

**APPENDIX**

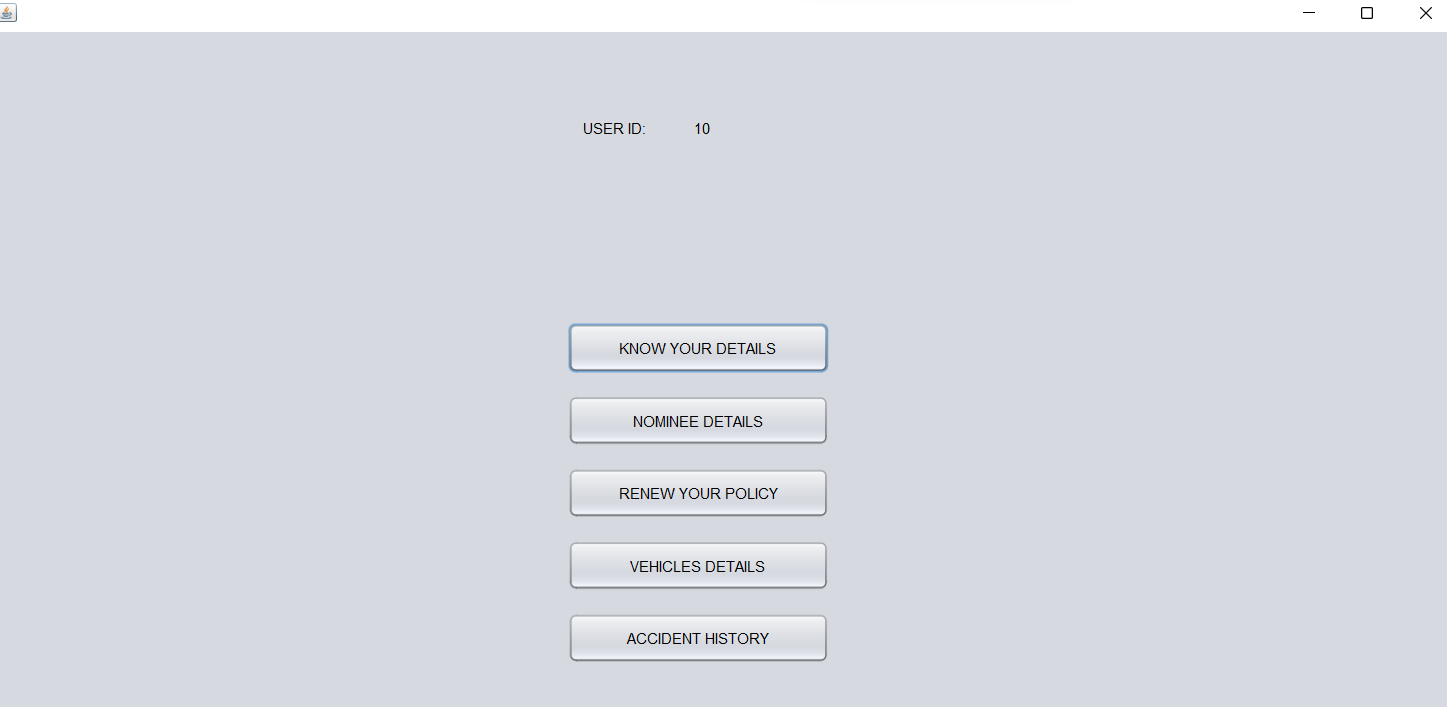
**HOME**

****

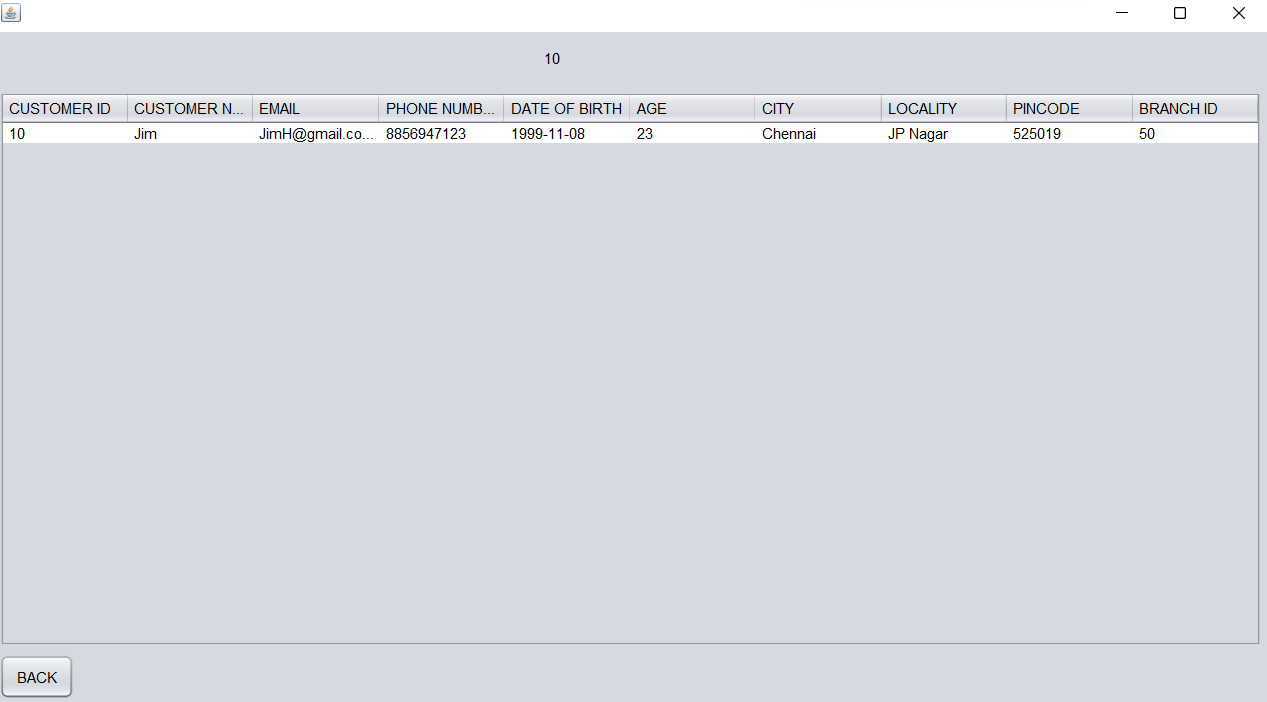
**Customer Login**



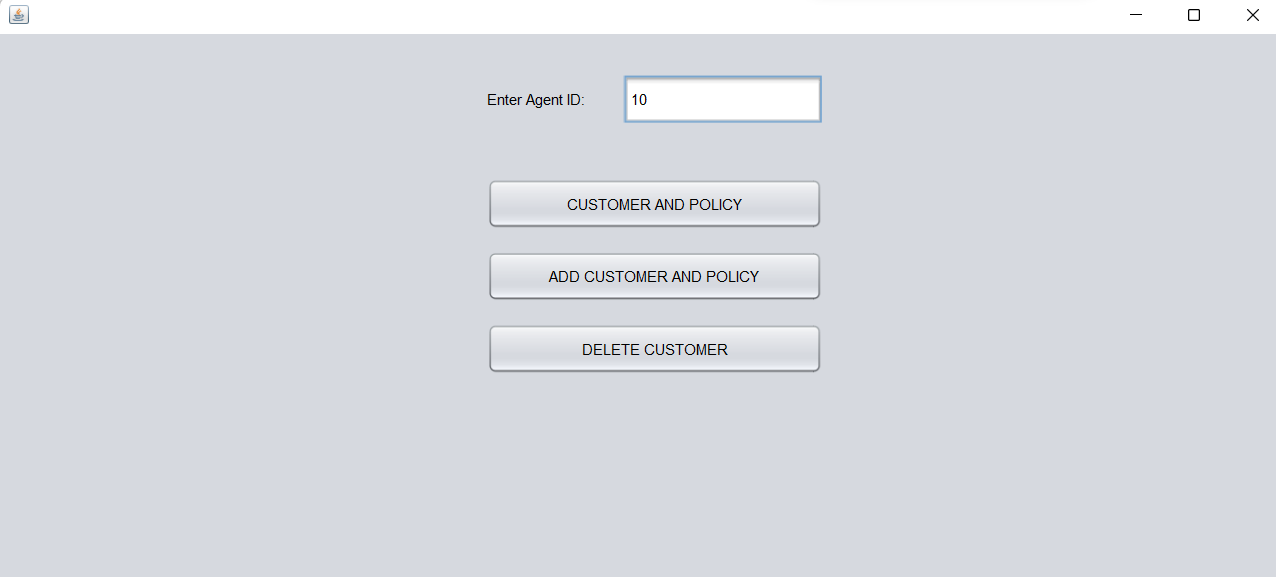
**Customer Page**



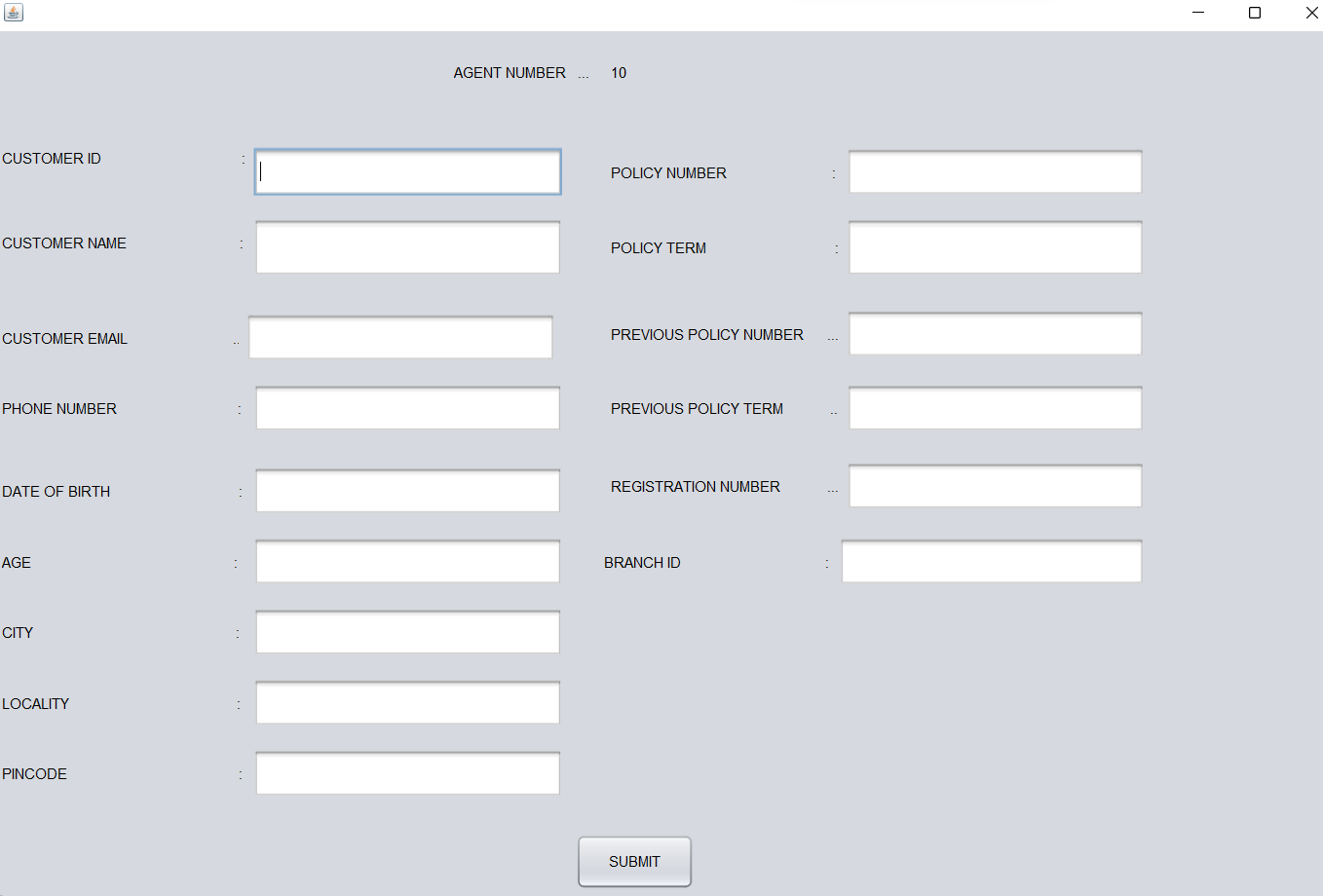
**Customer Details**



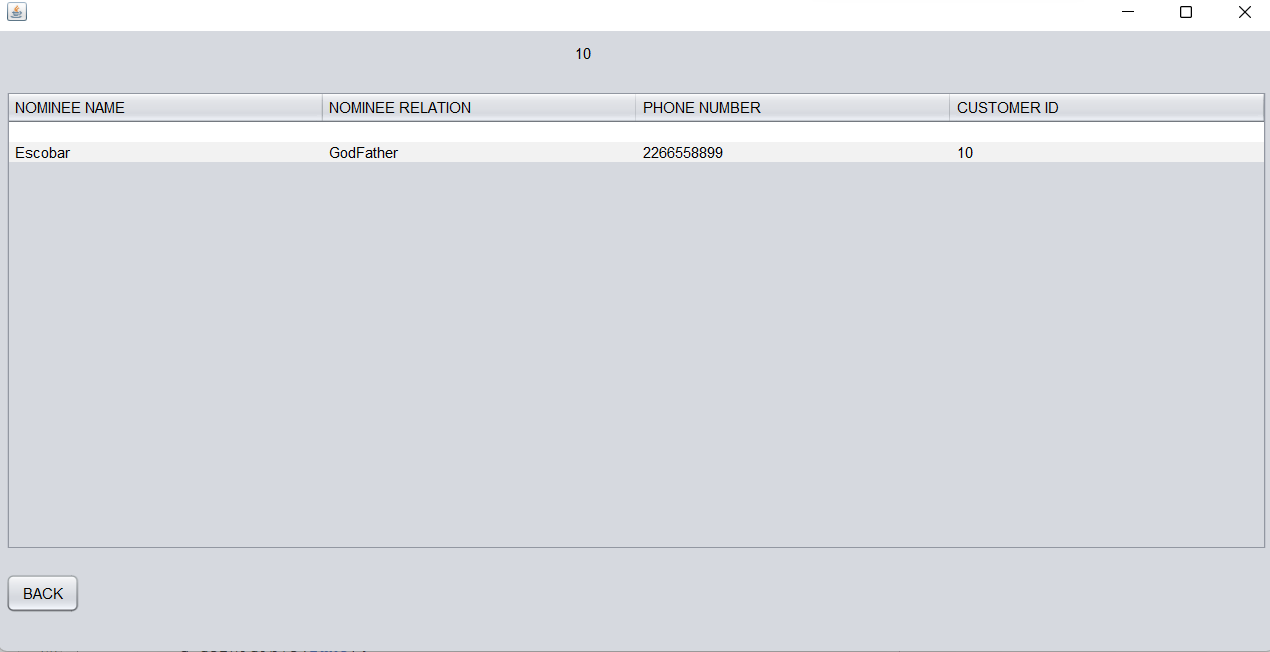
**Agent Login**



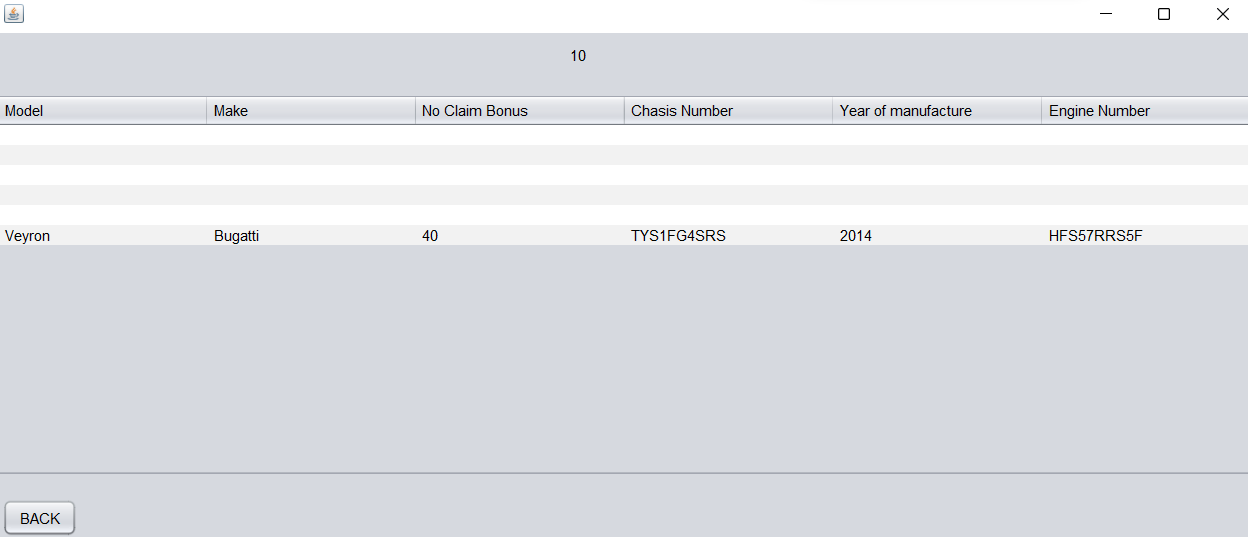
**New Customer Form**



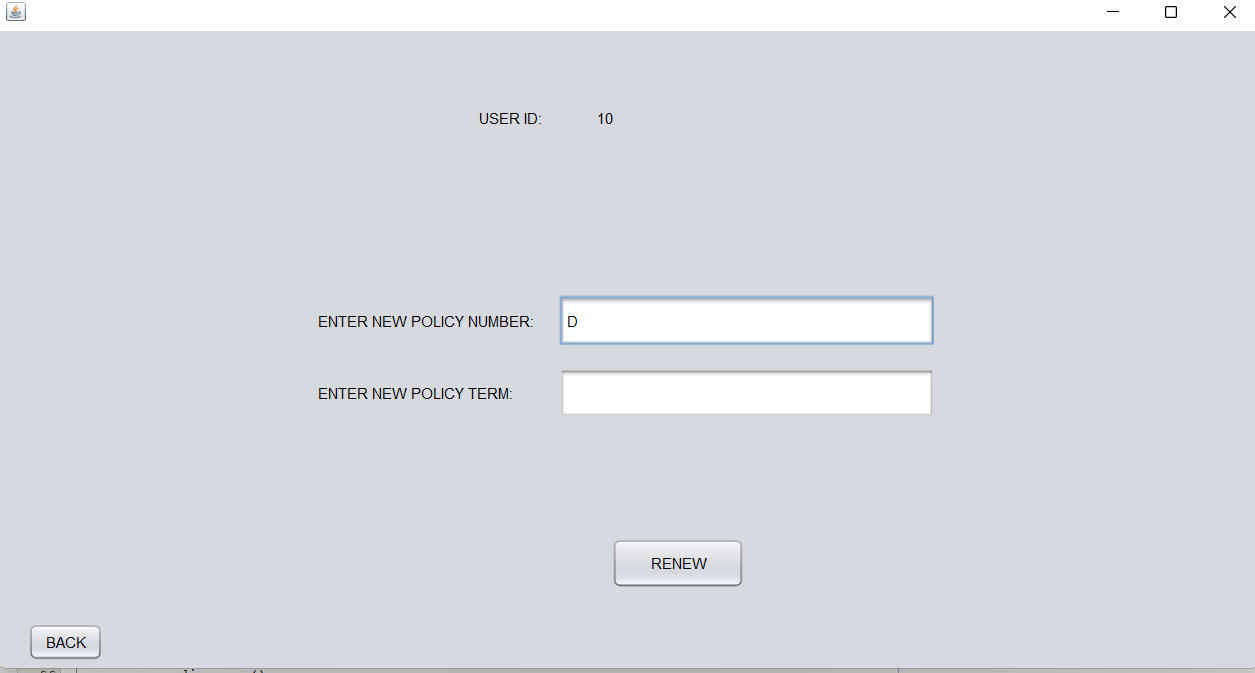
**Nominee Details**



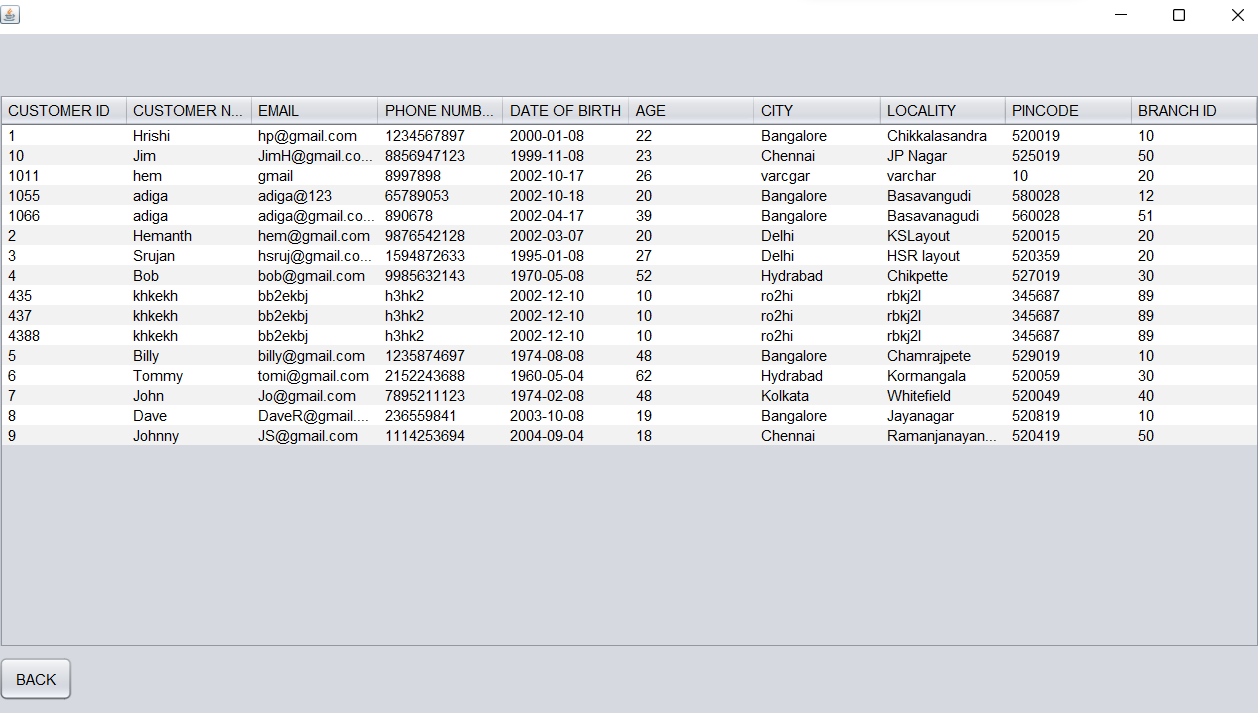
**Vehicle**



**Renewing Policy**



**Customers of the Company**



**Number of Agents Registered**

