

NATURAL LANGUAGE PROCESSING CSE4022

Final Project Report

**Topic: Intelligent Sound Enabled Chat-bot for
E-Commerce Web Application**

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Abstract

Implementing NLP involves initiating the process of learning through the natural acquisition in the educational systems. It is based on effective approaches for providing a solution for various problems and issues in education. The country where education prices are increasing day by day and the population of lower-middle/middle class is increasing at an exponential rate, we need a cheaper way for education. These people are not able to receive the level of education they deserve. Well the technology we are working on is basically for these people and also for all the learning enthusiasts (independent of their class). NLP is a field of computer science and linguistics concerned between computers and human (natural) languages. One of the major application is CHAT-BOT.

INTRODUCTION

Chat-bots are computer programs that interact with users using natural languages. They use natural language processes for interaction. Chat-bot is a computer program which conducts a conversation via auditory or textual methods. Chat-bots are also used in dialog systems for various practical purposes including customer service or information acquisition. Some chat-bots use sophisticated natural language processing systems, but many simply scan for keywords within the input and pull a reply with the most matching keywords, or the most similar wording pattern, from a textual database. The idea is a basically about creating a platform where students can learn and clear their doubts. We aim to include the concept of NLP (Natural Language Processing & machine learning concept) which will work as a tutor and a genius friend for students. This amazing feature of ours shall act as mate for students whom they can approach any time they want, can ask any question they want to and discuss with them in a more interactive way just like as we all do with our friends. NLTK is a leading platform for building Python programs to work with human language data. It provides easy-to-use interfaces to over 50 corpora and lexical resources such as WordNet, along with a suite of text processing libraries for classification, tokenization, stemming, tagging, parsing, and semantic reasoning, wrappers for industrial-strength NLP libraries, and an active discussion forum. Thanks to a hands-on guide introducing programming fundamentals alongside topics in computational linguistics, plus comprehensive API documentation, NLTK is suitable for linguists, engineers, students, educators, researchers, and industry users alike. NLTK is available for Windows, Mac OS X, and Linux. Best of all, NLTK is a free, open source, community-driven project. NLTK has been called “a wonderful tool for teaching, and working in, computational linguistics using Python,” and “an amazing library to play with natural language.” All the current companies in this field have the idea of solving doubts online but the problem is that always this same set of questions are available for students which becomes kind of boring so instead our innovation called “The Personal Tutor” will create random questions and judge the student on the basis of series of questions it had asked. The Machine Learning that we have included will continuously be learning from discussions of teachers and students. The software will then work as a perfect companion/tutor for students. These services will not only make studies at home more interesting but also children will find it as a fun activity to do. The software will also ask the students questions that are related to their query which helps them solve their doubts and will scale

down their problems, analyze them and will make sure that the student is now cleared with the concepts of that topic.

Literature Review:

[1] In this paper the author explains on how to analyze social media information using NLP. Automatic summarization is a three phase technique which reduces large paragraphs into small texts. Objects, name of a person and place can be identified using Named entity recognition. Speech tagging is most important technique where verbs, nouns, adjectives are classified. Sense of a whole sentence is checked through word sense disambiguation. This basically all constitutes a web mining system which follows 4 steps i.e. data gathering, preprocessing, indexing and mining. So these techniques were combined and made an efficient use of NLP.

[2] This paper takes into consideration the rise in the number of documents present on the web and each document needs to be classified into some or the other category so that searching for them again can become easy. A number of pre-processing steps are discussed to reduce the complexities present with the document, this also means dimensionality reduction. The text being processed is tokenized so that is the point where NLP comes into play. The way the documents are treated in the numeric format is because of the feature selection part where the documents are processed in such a way that the learning algorithm can be implemented on it . The learning algorithms explained are the k-NN and k-means algorithm representing the supervised and unsupervised classification respectively.

[3] This paper focuses on the basics of making an expert system for Question Answering (QA) system. This system unlike the search engine does not show related documents instead shows how to create a perfect answer to a question with the help of natural language processing. Knowledge base is the first and the foremost important thing within an expert system since it is the place where the answer is formulated and takes into account many important aspects like document retrieval or information retrieval .The knowledge base is also the place where the query or the string inserted is tokenized and analyzed further and hence this is where NLP comes into play.

[4] This paper focuses on the techniques required for making a chat-bot. It also draws comparison between many chat-bots and the types of algorithms used to make them function properly. The important techniques required to design a chat-bot are parsing, pattern matching, AIML, chat script, relational database, Markov chain and language tricks . The paper discusses about how to create a knowledge base and how to interact with it, with the help of NLP. Speech analysis plays major role in the chat-bot since that is the process which will make the bot interactive. It has many steps and they are

- 1) Converting speech to text
- 2) Splitting the words and go for speech tagging
- 3) Chunking of on the techniques and algorithms used to phrases
- 4) Choosing a phrase and 5) making a response.

FLOW CHART:

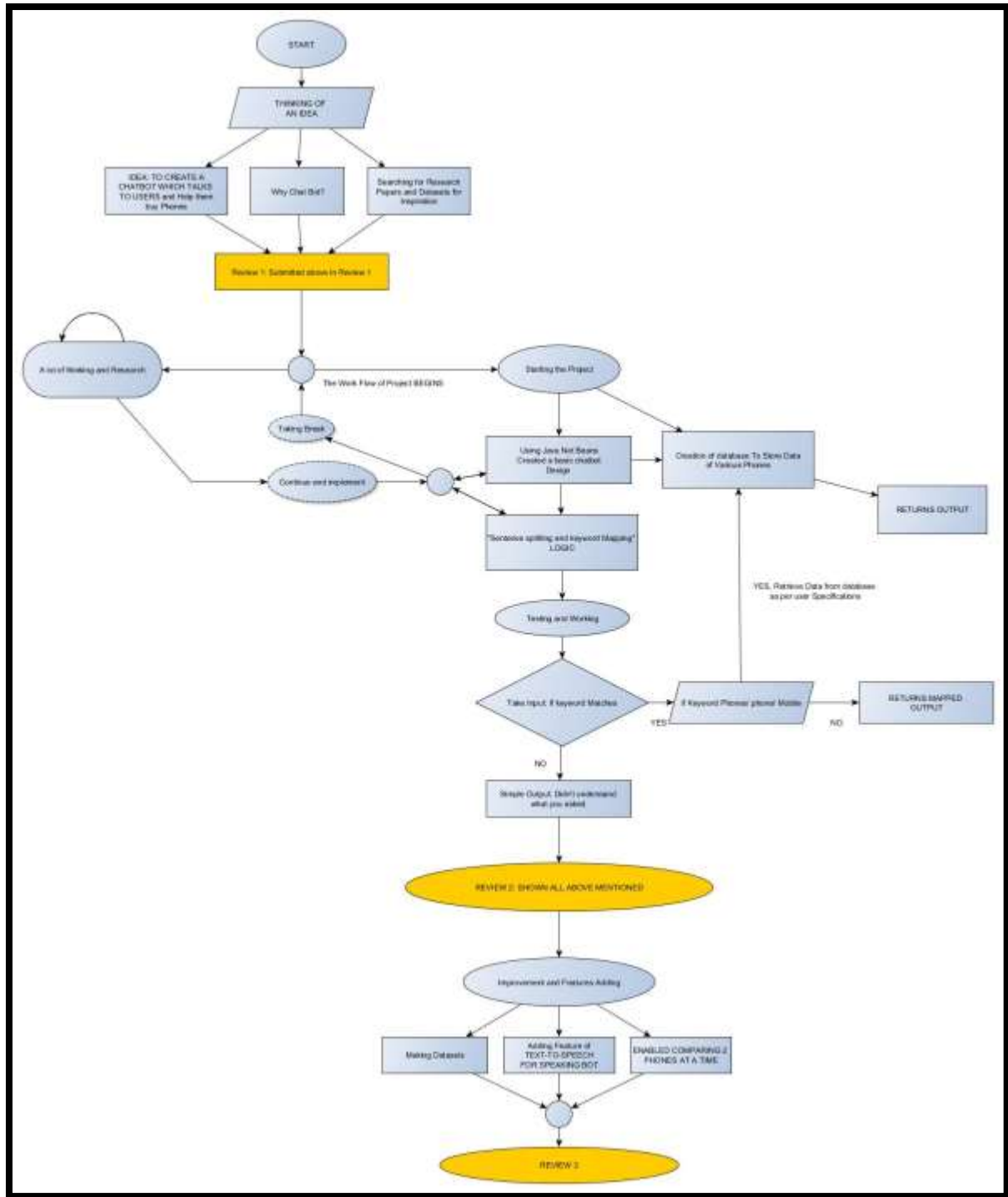


Fig 1: - This is a combined Flow Chart which gives a details about work flow of Work-done on project throughout the semester and giving a basic overview of the working flow chart of the project as well.

Project Work Flow:

I have created a small application used for the purpose of buying smartphones Online. The Chat-Bot created is the sole representor of the online 'Mobile Shoppe'.

Software Used:

Database used is MySQL DB for the purpose. The complete program is written in JAVA language.

Database Tables Created

```
mysql> use nlp;
Database changed
mysql> desc login;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Username | varchar(20) | NO   | PRI | NULL    |       |
| Password | varchar(20) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> desc signup;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| f_name         | varchar(20)   | YES  |     | NULL    |       |
| lname         | varchar(20)   | YES  |     | NULL    |       |
| email          | varchar(30)   | YES  |     | NULL    |       |
| password       | varchar(30)   | YES  |     | NULL    |       |
| confirm_password | varchar(30)   | YES  |     | NULL    |       |
| dob            | date          | YES  |     | NULL    |       |
| gender         | varchar(10)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> desc phones;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Ph_ID          | bigint(20)    | NO   | PRI | NULL    |       |
| Brand          | varchar(30)   | YES  |     | NULL    |       |
| Model          | varchar(30)   | YES  |     | NULL    |       |
| Type           | varchar(20)   | YES  |     | NULL    |       |
| Camera         | double(4,2)   | YES  |     | NULL    |       |
| Battery_Life_mAh | int(11)       | YES  |     | NULL    |       |
| Display_inch   | double(4,2)   | YES  |     | NULL    |       |
| RAM            | int(11)       | YES  |     | NULL    |       |
| Internal_Memory | int(11)       | YES  |     | NULL    |       |
| Price          | double(8,2)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

Fig A) All the tables created

DATASET CREATED FOR PROJECT

```
mysql> select * from phones;
```

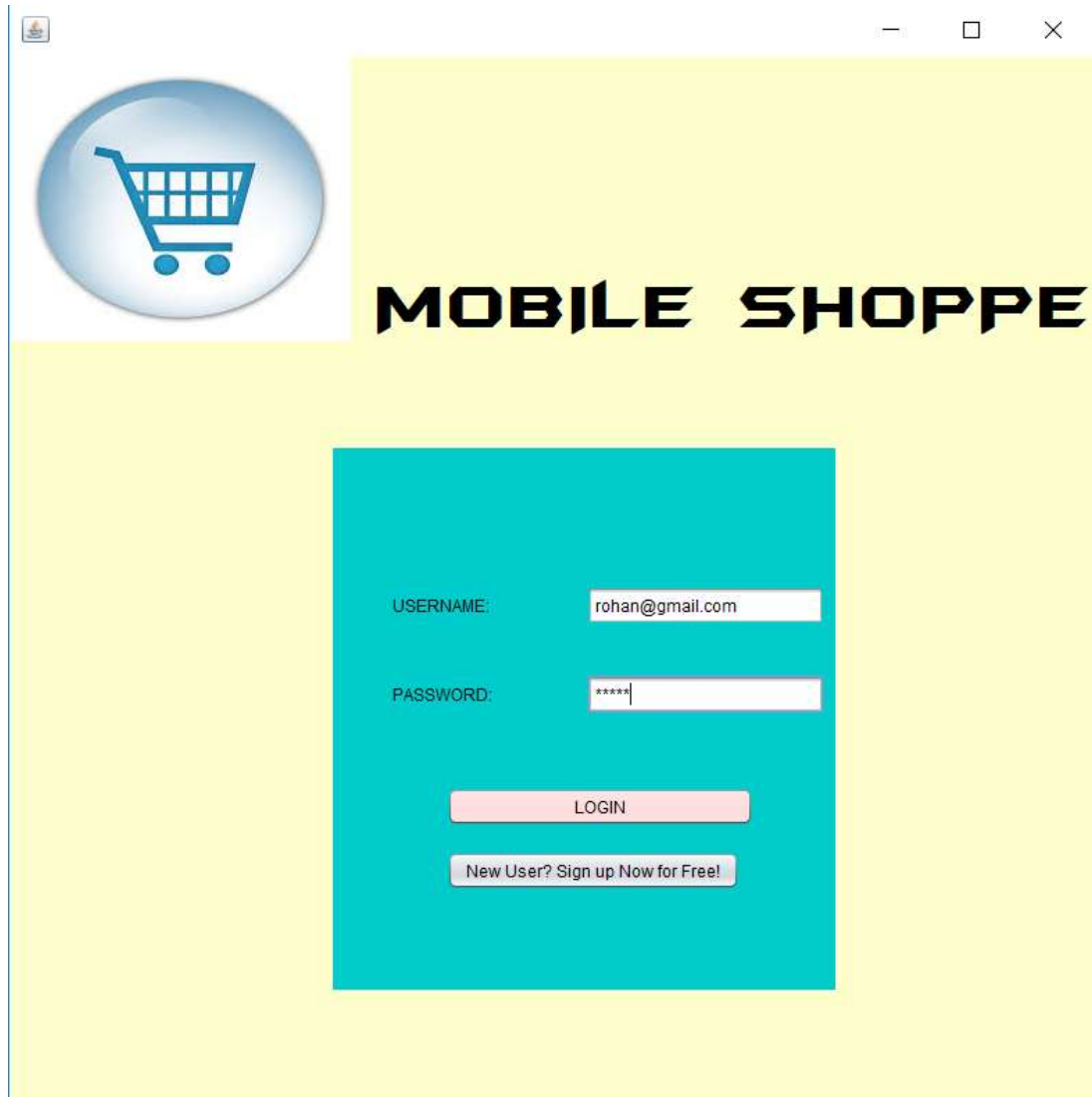
Ph_ID	Brand	Model	Type	Camera	Battery_Life_mAh	Display_Inch	RAM	Internal_Memory	Price
1001	Samsung	Galaxy J6	Android	13.00	3000	5.60	4	64	11990.00
1002	Samsung	S9	Android	12.00	3000	5.81	4	64	41990.00
1003	Samsung	Galaxy J7 Max	Android	13.00	3300	5.70	4	32	11046.00
1004	Samsung	Galaxy M20	Android	13.00	5000	6.30	4	64	12990.00
1005	Samsung	Galaxy A7	Android	24.00	3300	6.00	4	64	18990.00
1006	Samsung	Galaxy A9	Android	24.00	3800	6.30	6	128	30890.00
1007	Samsung	Galaxy Note 9	Android	12.00	4000	6.40	6	128	58800.00
1008	Samsung	Galaxy A8 Plus	Android	16.00	3500	6.00	6	64	29890.00
2001	One Plus	6T	OxygenOS	20.00	3700	6.41	8	128	41990.00
3001	Redmi	Mi Poco F1	Android	20.00	4000	5.41	8	64	22699.00
3002	Redmi	Note 6 Pro	Android	12.00	4000	6.26	4	62	13560.00
3003	Redmi	Mi A2	Android	20.00	3010	5.99	6	128	15999.00
3004	Redmi	5A	Android	13.00	3000	5.00	2	16	5986.00
3005	Redmi	6A	Android	13.00	3000	5.45	2	16	6599.00
4001	Sony	M5	Android	21.50	2600	5.00	3	32	22000.00
4002	Sony	Xperia XA1	Android	23.00	2300	5.00	3	32	12990.00
4003	Sony	Xperia R1	Android	13.00	2620	5.20	2	16	7990.00
4004	Sony	Xperia z3	Android	20.70	3100	5.20	3	16	51000.00
4005	Sony	Xperia XZ2	Android	19.00	3180	5.70	6	64	74990.00
4006	Sony	Xperia C4 Dual	Android	13.00	2600	5.50	2	16	15990.00
5001	Apple	iPhone X	iOS	12.00	2716	5.80	3	64	74999.00
5002	Apple	iPhone SE	iOS	12.00	1642	4.00	2	32	16999.00
5003	Apple	iPhone XS Max	iOS	12.00	3174	6.50	4	64	106512.00
5004	Apple	iPhone 7 Plus	iOS	12.00	2900	5.50	3	32	49865.00
5005	Apple	iPhone 8 Plus	iOS	12.00	2675	5.50	3	64	67400.00
5006	Apple	iPhone 6S Plus	iOS	12.00	2750	5.50	2	32	33999.00

26 rows in set (0.00 sec)

Fig B) Dataset used

FRONT-END FORMS

Login.java



The image shows a Java Swing window titled "MOBILE SHOPPE". The window has a yellow background. In the top-left corner, there is a blue circular icon containing a shopping cart. The title "MOBILE SHOPPE" is displayed in large, bold, black letters. Below the title, there is a cyan-colored rectangular area containing a login form. The form has two input fields: "USERNAME:" with the text "rohan@gmail.com" and "PASSWORD:" with masked characters "*****". Below these fields is a pink "LOGIN" button. At the bottom of the cyan area, there is a link that says "New User? Sign up Now for Free!".

Fig 2. Login Page

CODE:

```
import java.sql.Connection;  
import java.sql.DriverManager;
```

```

import java.sql.ResultSet;
import java.sql.Statement;
import javax.swing.JOptionPane;

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

/**
 *
 * @author hp
 */
public class LoginPage extends javax.swing.JFrame {

    /**
     * Creates new form LoginPage
     */
    public LoginPage() {
        initComponents();
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */

```



```

@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jPanel2 = new javax.swing.JPanel();
    logo = new javax.swing.JLabel();
    jLabel4 = new javax.swing.JLabel();
    jPanel1 = new javax.swing.JPanel();
    jLabel2 = new javax.swing.JLabel();
    user = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    pass = new javax.swing.JPasswordField();
    login = new javax.swing.JButton();
    signup = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
    setBackground(new java.awt.Color(102, 204, 255));
    setPreferredSize(new java.awt.Dimension(800, 800));

    jPanel2.setBackground(new java.awt.Color(255, 255, 204));

    logo.setIcon(new javax.swing.ImageIcon(getClass().getResource("/logo.jpg"))); // NOI18N

    jLabel4.setBackground(new java.awt.Color(51, 204, 255));
    jLabel4.setFont(new java.awt.Font("BatmanForeverAlternate", 1, 48)); // NOI18N
    jLabel4.setText("MOBILE SHOPPE");
    jLabel4.setVerticalAlignment(javax.swing.SwingConstants.BOTTOM);

```

```

jPanel1.setBackground(new java.awt.Color(0, 204, 204));
jPanel1.setBorder(new javax.swing.border.MatteBorder(null));

jLabel2.setText("USERNAME:");

jLabel3.setText("PASSWORD:");

login.setBackground(new java.awt.Color(255, 204, 204));
login.setText("LOGIN");
login.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        loginActionPerformed(evt);
    }
});

signup.setText("New User? Sign up Now for Free!");
signup.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        signupActionPerformed(evt);
    }
});

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(44, 44, 44)

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING
)

    .addComponent(jLabel3,    javax.swing.GroupLayout.PREFERRED_SIZE,    77,
javax.swing.GroupLayout.PREFERRED_SIZE)

    .addComponent(jLabel2,    javax.swing.GroupLayout.PREFERRED_SIZE,    77,
javax.swing.GroupLayout.PREFERRED_SIZE))

    .addGap(63, 63, 63)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)

    .addComponent(user)

    .addComponent(pass,    javax.swing.GroupLayout.DEFAULT_SIZE,    171,
Short.MAX_VALUE))

    .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))

    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())

    .addContainerGap(83, Short.MAX_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

    .addGroup(jPanel1Layout.createSequentialGroup())

        .addComponent(login,    javax.swing.GroupLayout.PREFERRED_SIZE,    221,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addContainerGap())

        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())

            .addComponent(signup)

            .addGap(70, 70, 70))))

);

jPanel1Layout.setVerticalGroup(

    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

```

```

        .addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(100, 100, 100)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 26,
        javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(user, javax.swing.GroupLayout.PREFERRED_SIZE,
        javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(36, 36, 36)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 26,
        javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(pass, javax.swing.GroupLayout.PREFERRED_SIZE,
        javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(53, 53, 53)
        .addComponent(login)
        .addGap(18, 18, 18)
        .addComponent(signup)
        .addContainerGap(73, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
    jPanel2.setLayout(jPanel2Layout);
    jPanel2Layout.setHorizontalGroup(
        jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel2Layout.createSequentialGroup()
            .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(logo)
                .addGap(18, 18, 18)
            )
        )
    );

```

```

        .addComponent(jLabel4,      javax.swing.GroupLayout.PREFERRED_SIZE,      547,
javax.swing.GroupLayout.PREFERRED_SIZE))

        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup())

        .addContainerGap()

        .addComponent(jPanel1,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

        .addGap(216, 216, 216))

    );

    jPanel2Layout.setVerticalGroup(

        jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(jPanel2Layout.createSequentialGroup())

        .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING
)

            .addComponent(jLabel4)

            .addComponent(logo))

            .addGap(77, 77, 77)

            .addComponent(jPanel1,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addContainerGap(134, Short.MAX_VALUE))

    );

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);

    layout.setHorizontalGroup(

        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(layout.createSequentialGroup()

            .addComponent(jPanel2,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addGap(0, 0, Short.MAX_VALUE))

```

```

);

layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jPanel2,
            javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
);

pack();
} // </editor-fold>

```

```

private void signupActionPerformed(java.awt.event.ActionEvent evt) {
    Signup d1=new Signup();
    d1.setVisible(true);
    // TODO add your handling code here:
}

```

```

private void loginActionPerformed(java.awt.event.ActionEvent evt) {
    String user1=user.getText();
    String p=new String(pass.getPassword());
    Chatapp d1=new Chatapp();
try{
    Class.forName("com.mysql.jdbc.Driver");
    Connection conn = DriverManager.getConnection("jdbc:mysql://localhost/nlp","root","");
    Statement st=conn.createStatement();
    String str="select * from login where username='"+user1+"' and password='"+p+"'";
    System.out.println("Okay");
    ResultSet rs=st.executeQuery(str);
    if(rs.next())
    {if(p.equals(rs.getString("password")))}
}
}

```

```

        JOptionPane.showMessageDialog(null, "Login Successful");
d1.setVisible(true);
close();}

else
JOptionPane.showMessageDialog(null, "Login Failed");
st.close();
conn.close();}

catch(Exception e){System.out.println("Login Failed" + e.getMessage());
}

    // TODO add your handling code here:

}

/**
 * @param args the command line arguments
 */

public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    }
}

```

```

        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(LoginPage.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(LoginPage.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(LoginPage.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(LoginPage.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        }
    }
}
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new LoginPage().setVisible(true);
    }
});
}

// Variables declaration - do not modify
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;

```



```
private javax.swing.JPanel jPanel1;  
private javax.swing.JPanel jPanel2;  
private javax.swing.JButton login;  
private javax.swing.JLabel logo;  
private javax.swing.JPasswordField pass;  
private javax.swing.JButton signup;  
private javax.swing.JTextField user;  
  
// End of variables declaration  
  
private void close() {  
    throw new UnsupportedOperationException("Not supported yet."); //To change body of  
generated methods, choose Tools | Templates.  
}  
}
```

Signup.java



The image shows a Java Swing application window titled "MOBILE SHOPPE". The window has a light blue background. In the top-left corner, there is a circular icon containing a shopping cart. The main content area is a darker blue rectangle. Inside this rectangle, there is a sign-up form with the following fields and values:

Field	Value
First Name	Rahol
Last Name	Saha
E-Mail	rahul@gmail.com
Password	*****
Confirm Password	*****
Date of Birth	1 / 4 / 1,998
Gender	Male

Below the form is a "Sign Up" button. At the bottom of the window, there is a "Message" dialog box with a close button (X). The dialog box contains an information icon (i) and the text "Sign-Up Successful!". There is an "OK" button at the bottom right of the dialog box.

Fig 3. Signup page with result on successful sign-up

Code:

```
import java.awt.Toolkit;
import java.awt.event.WindowEvent;
import java.sql.*;
import javax.swing.JOptionPane;

public class Signup extends javax.swing.JFrame {
    public Signup() {
        initComponents();
    }
    public void close1(){

        WindowEvent winClosingEvent = new
        WindowEvent(this,WindowEvent.WINDOW_CLOSING);
        Toolkit.getDefaultToolkit().getSystemEventQueue().postEvent(winClosingEvent);

    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
```

```
logo = new javax.swing.JLabel();
jLabel4 = new javax.swing.JLabel();
jPanel2 = new javax.swing.JPanel();
l1 = new javax.swing.JLabel();
l2 = new javax.swing.JLabel();
l3 = new javax.swing.JLabel();
l4 = new javax.swing.JLabel();
l5 = new javax.swing.JLabel();
l7 = new javax.swing.JLabel();
l6 = new javax.swing.JLabel();
lname = new javax.swing.JTextField();
email = new javax.swing.JTextField();
pass = new javax.swing.JPasswordField();
cpass = new javax.swing.JPasswordField();
sign = new javax.swing.JButton();
gender = new javax.swing.JComboBox();
date = new javax.swing.JSpinner();
month = new javax.swing.JSpinner();
year = new javax.swing.JSpinner();
fname = new javax.swing.JTextField();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setBackground(new java.awt.Color(204, 255, 255));

jPanel1.setBackground(new java.awt.Color(204, 255, 255));

logo.setIcon(new javax.swing.ImageIcon(getClass().getResource("/logo.jpg"))); // NOI18N
```

```
jLabel4.setBackground(new java.awt.Color(51, 204, 255));
jLabel4.setFont(new java.awt.Font("BatmanForeverAlternate", 1, 48)); // NOI18N
jLabel4.setText("MOBILE SHOPPE");
jLabel4.setVerticalAlignment(javax.swing.SwingConstants.BOTTOM);

jPanel2.setBackground(new java.awt.Color(0, 153, 255));
jPanel2.setPreferredSize(new java.awt.Dimension(480, 350));

l1.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l1.setForeground(new java.awt.Color(255, 255, 255));
l1.setText("First Name");
l1.setPreferredSize(new java.awt.Dimension(120, 30));

l2.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l2.setForeground(new java.awt.Color(255, 255, 255));
l2.setText("Last Name");
l2.setPreferredSize(new java.awt.Dimension(120, 30));

l3.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l3.setForeground(new java.awt.Color(255, 255, 255));
l3.setText("E-Mail");
l3.setPreferredSize(new java.awt.Dimension(120, 30));

l4.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l4.setForeground(new java.awt.Color(255, 255, 255));
l4.setText("Password");
l4.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
l5.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l5.setForeground(new java.awt.Color(255, 255, 255));
l5.setText("Confirm Password");
l5.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
l7.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l7.setForeground(new java.awt.Color(255, 255, 255));
l7.setText("Gender");
l7.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
l6.setFont(new java.awt.Font("Georgia", 0, 18)); // NOI18N
l6.setForeground(new java.awt.Color(255, 255, 255));
l6.setText("Date of Birth");
l6.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
lname.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
email.setPreferredSize(new java.awt.Dimension(120, 30));
```

```
pass.setPreferredSize(new java.awt.Dimension(120, 30));
pass.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        passActionPerformed(evt);
    }
});
```

```
cpass.setPreferredSize(new java.awt.Dimension(120, 30));
cpass.addActionListener(new java.awt.event.ActionListener() {
```

```

        public void actionPerformed(java.awt.event.ActionEvent evt) {
            cpassActionPerformed(evt);
        }
    });

    sign.setFont(new java.awt.Font("Georgia", 0, 16)); // NOI18N
    sign.setText("Sign Up");
    sign.setPreferredSize(new java.awt.Dimension(60, 25));
    sign.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            signActionPerformed(evt);
        }
    });

    gender.setFont(new java.awt.Font("Georgia", 0, 16)); // NOI18N
    gender.setModel(new javax.swing.DefaultComboBoxModel(new String[] { "Male",
"Female" }));
    gender.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            genderActionPerformed(evt);
        }
    });

    date.setModel(new javax.swing.SpinnerNumberModel(1, 1, 31, 1));
    date.setPreferredSize(new java.awt.Dimension(50, 30));

    month.setModel(new javax.swing.SpinnerNumberModel(1, 1, 12, 1));
    month.setPreferredSize(new java.awt.Dimension(50, 30));

```

```

year.setModel(new javax.swing.SpinnerNumberModel(1950, 1950, 2100, 1));
year.setPreferredSize(new java.awt.Dimension(50, 30));

fname.setPreferredSize(new java.awt.Dimension(120, 30));

javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
jPanel2.setLayout(jPanel2Layout);
jPanel2Layout.setHorizontalGroup(
    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel2Layout.createSequentialGroup()
            .addGap(28, 28, 28)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel2Layout.createSequentialGroup()
        .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(l1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 120,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(l2, javax.swing.GroupLayout.PREFERRED_SIZE, 120,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(71, 71, 71)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(lname, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(fname, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addComponent(l7, javax.swing.GroupLayout.PREFERRED_SIZE, 120,
javax.swing.GroupLayout.PREFERRED_SIZE)

```



```

        .addComponent(l6,      javax.swing.GroupLayout.PREFERRED_SIZE,      120,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addGroup(jPanel2Layout.createSequentialGroup())

        .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup())

            .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

                .addComponent(l3,  javax.swing.GroupLayout.PREFERRED_SIZE,  120,
javax.swing.GroupLayout.PREFERRED_SIZE)

                .addComponent(l4,  javax.swing.GroupLayout.PREFERRED_SIZE,  120,
javax.swing.GroupLayout.PREFERRED_SIZE))

                .addGap(72, 72, 72))

            .addGroup(jPanel2Layout.createSequentialGroup())

                .addComponent(l5,  javax.swing.GroupLayout.PREFERRED_SIZE,  159,
javax.swing.GroupLayout.PREFERRED_SIZE)

            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))

        .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING
)

            .addComponent(pass,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addComponent(email,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addComponent(cpass,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

            .addGroup(jPanel2Layout.createSequentialGroup())

                .addComponent(date,  javax.swing.GroupLayout.PREFERRED_SIZE,  47,
javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

        .addComponent(month,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addComponent(year,  javax.swing.GroupLayout.PREFERRED_SIZE,  67,
javax.swing.GroupLayout.PREFERRED_SIZE))

        .addComponent(gender, javax.swing.GroupLayout.PREFERRED_SIZE, 120,
javax.swing.GroupLayout.PREFERRED_SIZE))

        .addGap(38, 38, 38)))

        .addContainerGap(9, Short.MAX_VALUE))

.addGroup(jPanel2Layout.createSequentialGroup())

        .addGap(142, 142, 142)

        .addComponent(sign,      javax.swing.GroupLayout.PREFERRED_SIZE,      150,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))

);

jPanel2Layout.setVerticalGroup(

    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(jPanel2Layout.createSequentialGroup())

            .addContainerGap()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASLIN
E)

        .addComponent(11,      javax.swing.GroupLayout.PREFERRED_SIZE,      30,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addComponent(fname,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

```

```

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

    .addComponent(l2,      javax.swing.GroupLayout.PREFERRED_SIZE,      30,
javax.swing.GroupLayout.PREFERRED_SIZE)

    .addComponent(lname,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

    .addGroup(jPanel2Layout.createSequentialGroup()

        .addComponent(l3,      javax.swing.GroupLayout.PREFERRED_SIZE,      30,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addComponent(l4,      javax.swing.GroupLayout.PREFERRED_SIZE,      30,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addGap(6, 6, 6)

        .addComponent(l5,      javax.swing.GroupLayout.PREFERRED_SIZE,      30,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addGap(16, 16, 16))

    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()

        .addComponent(email,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addComponent(pass,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addComponent(cpass,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)))

```

```

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(l6,                javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(month,    javax.swing.GroupLayout.PREFERRED_SIZE,    34,
javax.swing.GroupLayout.PREFERRED_SIZE)

    .addComponent(year,    javax.swing.GroupLayout.PREFERRED_SIZE,    34,
javax.swing.GroupLayout.PREFERRED_SIZE)

    .addComponent(date,    javax.swing.GroupLayout.PREFERRED_SIZE,    34,
javax.swing.GroupLayout.PREFERRED_SIZE)))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
    .addComponent(l7,                javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

    .addComponent(gender))

.addGap(31, 31, 31)

.addComponent(sign,    javax.swing.GroupLayout.PREFERRED_SIZE,    30,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGap(31, 31, 31))
);

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addComponent(logo)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

```

```

        .addComponent(jLabel4,    javax.swing.GroupLayout.PREFERRED_SIZE,    527,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(0, 20, Short.MAX_VALUE))
        .addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(174, 174, 174)
        .addComponent(jPanel2,    javax.swing.GroupLayout.PREFERRED_SIZE,    450,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    );
    jPanel1Layout.setVerticalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup())

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING
        )

        .addComponent(logo)
        .addComponent(jLabel4))
        .addGap(76, 76, 76)
        .addComponent(jPanel2,    javax.swing.GroupLayout.PREFERRED_SIZE,    370,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(0, 149, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jPanel1,
                javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(0, 0, Short.MAX_VALUE))
        );

    pack();
} // </editor-fold>

```

```

private void passActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

```

```

private void cpassActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

```

```

private void signActionPerformed(java.awt.event.ActionEvent evt) {
    String a=new String(pass.getPassword());
    String b=new String(cpass.getPassword());
    Object c=gender.getSelectedItemAt();
    int d=(int)date.getValue();
    int e=(int)month.getValue();
    int f=(int)year.getValue();
}

```

```

try{
    Class.forName("com.mysql.jdbc.Driver");
    Connection conn = null;
    conn = DriverManager.getConnection("jdbc:mysql://localhost/nlp","root","");
    Statement st = (Statement) conn.createStatement();
    System.out.println("Okay");
    if(a.equals(b)){
        String str="insert into signup
values("+fname.getText()+","+lname.getText()+","+email.getText()+","+a+","+b+","+f+"-
"+e+"-"+d+","+c+"");";
        String str1="insert into login values("+email.getText()+","+a+"");";
        System.out.println(str);
        System.out.println(str1);
        st.executeUpdate(str);
        st.executeUpdate(str1);
        JOptionPane.showMessageDialog(null,"Sign-Up Successful!");
        Chatapp d1=new Chatapp();
        d1.setVisible(true);
        st.close();
        conn.close();}
    else
        {JOptionPane.showMessageDialog(null,"Re-enter Password");}
    catch(Exception e1){System.out.println(e1.getMessage()+"Not successful");};

    // TODO add your handling code here:
}

private void genderActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:

```

```

    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
                javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

            java.util.logging.Logger.getLogger(Signup.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (InstantiationException ex) {

            java.util.logging.Logger.getLogger(Signup.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (IllegalAccessException ex) {

            java.util.logging.Logger.getLogger(Signup.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

```



```

    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Signup.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new Signup().setVisible(true);
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JPasswordField cpass;
private javax.swing.JSpinner date;
private javax.swing.JTextField email;
private javax.swing.JTextField fname;
private javax.swing.JComboBox gender;
private javax.swing.JLabel jLabel4;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
private javax.swing.JLabel l1;
private javax.swing.JLabel l2;
private javax.swing.JLabel l3;
private javax.swing.JLabel l4;
private javax.swing.JLabel l5;

```

```
private javax.swing.JLabel l6;  
private javax.swing.JLabel l7;  
private javax.swing.JTextField lname;  
private javax.swing.JLabel logo;  
private javax.swing.JSpinner month;  
private javax.swing.JPasswordField pass;  
private javax.swing.JButton sign;  
private javax.swing.JSpinner year;  
// End of variables declaration  
}
```

Chatapp.java

Code:

```
import java.sql.Connection;  
import java.sql.DriverManager;  
import java.sql.ResultSet;  
import java.sql.Statement;  
import javax.swing.JOptionPane;  
import com.sun.speech.freetts.Voice;  
import com.sun.speech.freetts.VoiceManager;  
import com.sun.speech.freetts.audio.JavaClipAudioPlayer;  
import java.awt.Toolkit;  
import java.awt.event.WindowEvent;  
import java.sql.SQLException;  
import javax.swing.JFrame;  
  
public class Chatapp extends javax.swing.JFrame {  
    private JFrame frame;
```

```

private static final String jarvis = "kevin16";

public Chatapp() {
    initComponents();
}

public void close(){
    WindowEvent winClosingEvent = new
WindowEvent(this,WindowEvent.WINDOW_CLOSING);
    Toolkit.getDefaultToolkit().getSystemEventQueue().postEvent(winClosingEvent);
}

public void phones(){
    Voice iTalk;
    String msg="";
    int count=0;
    int msgcount=0;
    VoiceManager iSpeak = VoiceManager.getInstance();
    iTalk = iSpeak.getVoice(jarvis);
    iTalk.allocate();
    iTalk.speak("Please enter your desired specifications for better results.");
    msgbox.append("\n\nJ.A.R.V.I.S.>> Please enter your desired specifications for better
\nresults.");
    String price = JOptionPane.showInputDialog("Please enter your Maximum Price
affordability:");
    String cam = JOptionPane.showInputDialog("Please enter your minimum Camera
requirements if any, else enter 'None:");
    String battery = JOptionPane.showInputDialog("Please enter minimum Battery
requirements(mAh), else enter 'None:");
    String mindisp = JOptionPane.showInputDialog("Please enter the preferred minimum size
of Phone, else enter 'None:");

```

```

String maxdisp = JOptionPane.showInputDialog("Please enter the preferred maximum size
of Phone, else enter 'None:");

String ram = JOptionPane.showInputDialog("Please enter the expected RAM for your
phone, else enter 'None:");

String rom = JOptionPane.showInputDialog("Please enter the preferred minimum Internal
Memory, else enter 'None:");

String query = "select * from phones where Price <="+price+" and RAM >= "+ram+" and
Internal_Memory>= "+rom+" and Battery_Life_mAh>= "+battery+" "
            + "and Camera>= "+cam+" and Display_inch<= "+maxdisp+" and
Display_inch>= "+mindisp+"";

try{
    Class.forName("java.sql.Driver");
    Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nlp", "root",
""");

    Statement st = con.createStatement();
    ResultSet rs = st.executeQuery(query);
    msgbox.append("\n\nJ.A.R.V.I.S>> Here are the results");
    String temp="Here are the results";
    iTalk.allocate();
    iTalk.speak(temp);
    while (rs.next()) {
        String Ph_ID = rs.getString("Ph_ID");
        String brand = rs.getString("Brand");
        String Model = rs.getString("Model");
        String OS = rs.getString("Type");
        String Camera = rs.getString("Camera");
        String Battery = rs.getString("Battery_Life_mAh");
        String Display = rs.getString("Display_inch");
        String RAM = rs.getString("RAM");
        String ROM = rs.getString("Internal_Memory");
    }
}

```

```

        String Price = rs.getString("Price");

        msg = "\n\nMobile "+count+":\n\n"
            + brand+Model+"\nType: "+OS+",\n"+Camera+"MP Camera, \nBattery -
"+Battery+"mAh. \nDisplay - "+Display+" inches. \n"
            + "Internal Memory - "+ ROM+"GB and "+RAM+"GB RAM. \nBest price
Rs."+Price+" /-";

        msgbox.append(msg);

        count++;

    }

    if (msg == null){

        msgbox.append("\n\nJ.A.R.V.I.S>> Couldn't find as per your choice or you have not
entered the required data. :D\n\n");

        iTalk.allocate();

        iTalk.speak("Couldn't find as per your choice or you have not entered the required
data.");

    }

    else{

        msginput.setText(null);

        msgbox.append("\n\nJ.A.R.V.I.S>> Feel free to converse if you need any more help!
:D\n\n");

        msgbox.append("\n\nJ.A.R.V.I.S>> Also, Would you like to compare phones as per
your \nchoice? If yes, simply type 'compare':D\n\n");

        iTalk.speak("Also, Would you like to compare phones as per your choice? If yes,
simply type 'compare'");

    }

    con.close();

    st.close();

}

catch (ClassNotFoundException | SQLException e1) {

```

```

        JOptionPane.showMessageDialog(null, e1.getMessage());        // TODO add your
handling code here:

    }

    msgcount++;

}

@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jScrollPane1 = new javax.swing.JScrollPane();
    msgbox = new javax.swing.JTextArea();
    msginput = new javax.swing.JTextField();
    jLabel1 = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
    addWindowListener(new java.awt.event.WindowAdapter() {
        public void windowActivated(java.awt.event.WindowEvent evt) {
            formWindowActivated(evt);
        }
        public void windowOpened(java.awt.event.WindowEvent evt) {
            formWindowOpened(evt);
        }
    });

    msgbox.setEditable(false);
    msgbox.setColumns(20);
    msgbox.setFont(new java.awt.Font("Monospaced", 0, 18)); // NOI18N

```

```

msgbox.setRows(5);
jScrollPane1.setViewPortView(msgbox);
msgbox.getAccessibleContext().setAccessibleParent(this);

msginput.setFont(new java.awt.Font("Tahoma", 0, 24)); // NOI18N
msginput.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        msginputActionPerformed(evt);
    }
});

jLabel1.setFont(new java.awt.Font("Calibri", 1, 48)); // NOI18N
jLabel1.setText("User:");

jButton1.setBackground(new java.awt.Color(51, 51, 255));
jButton1.setFont(new java.awt.Font("Calibri", 1, 24)); // NOI18N
jButton1.setText("SEND");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addContainerGap()
            .addComponent(msginput, javax.swing.GroupLayout.DEFAULT_SIZE, 200, true)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, 100, true)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE, 100, true)
            .addContainerGap())
);

```

```

        .addContainerGap()

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
        .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 768,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 118,
                javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(msginput, javax.swing.GroupLayout.PREFERRED_SIZE, 533,
                javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
        .addContainerGap(20, Short.MAX_VALUE))
    );

    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(21, 21, 21)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 645,
                javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                .addComponent(msginput)
                .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 60,
                    javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(56, Short.MAX_VALUE))
    );

```



```

    );

    pack();
} // </editor-fold>

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
String input = msginput.getText();
String Sbot = "";
int count = 1;

msgbox.append("\n\nUSER>> "+input);
input = input.replace(".", " ");
String[] words = input.split(" ");
Voice iTalk;
VoiceManager iSpeak = VoiceManager.getInstance();
iTalk = iSpeak.getVoice(jarvis);
String a;
Payment nextPage = new Payment();
String msg = null;
int msgcount=0;
if("How are you?".equalsIgnoreCase(input)||"What's up?".equalsIgnoreCase(input)){
    Sbot = "Am doing good! Thanks for asking! It's always comforting to know that humans care
about machines like me!";
}
for(int i=0;i<words.length;i++)
{
    a = words[i];

    if("Hi".equalsIgnoreCase(a)||"Hello".equalsIgnoreCase(a)||"What's
up".equalsIgnoreCase(a)||"Hey".equalsIgnoreCase(a))

```

```

{
    Sbot = a+" user! How are you!";
    msgcount++;
}

else if("How".equalsIgnoreCase(a) && "are".equalsIgnoreCase(words[i+1]) &&
("you?".equalsIgnoreCase(words[i+2])||"you".equalsIgnoreCase(words[i+2])))
{
    Sbot = "Am doing good! Thanks for asking! It's always \ncomforting to know that humans
care about machines like me!";
    msgcount++;
}

else if(("fine".equalsIgnoreCase(a)||"good".equalsIgnoreCase(a)||"great".equalsIgnoreCase(a))
&& i==(words.length-1))
{
    Sbot = " Well that's great! How may I help you today?";
    msgcount++;
}

else if(("fine".equalsIgnoreCase(a)||"good".equalsIgnoreCase(a)||"great".equalsIgnoreCase(a))
&& i<(words.length-1))
{

if("phones".equalsIgnoreCase(words[i+1])||"mobiles".equalsIgnoreCase(words[i+1])||"mobile".e
qualsIgnoreCase(words[i+1])||"phone".equalsIgnoreCase(words[i+1])){
    phones();
    msgcount++;
}

else{
    Sbot = " Well that's great! How may I help you today?";
    msgcount++;
}
}

```

```

    }

    else
    if("bad".equalsIgnoreCase(a)||"worse".equalsIgnoreCase(a)||"worst".equalsIgnoreCase(a)||"dark".
equalsIgnoreCase(a)||"sad".equalsIgnoreCase(a))
    {
        Sbot = " Oh! Maybe shopping might cheer you up? Or would you like a joke? That might
cheer you up too! What do you call security guard at Samsung Store? It's simple: Guardians of the
Galaxy!";

        msgcount++;
    }

    else if("help".equalsIgnoreCase(a))
    {
        Sbot = "I am here for your help only. I can help you find Phones according to your
specifications. \n I am also able to compare mobiles. My developer is working on comparing more
than 2 mobiles. ";

        msgcount++;
    }

    else
    if("thanks".equalsIgnoreCase(a)||"thank".equalsIgnoreCase(a)||"Cheered".equalsIgnoreCase(a)||"f
unny".equalsIgnoreCase(a))
    {
        Sbot = "Am glad I could help you out! :D. Would you like me to look for something else
for you?";

        msgcount++;
    }

    else
    if("bored".equalsIgnoreCase(a)||"exhausted".equalsIgnoreCase(a)||"tired".equalsIgnoreCase(a)||"i
rritated".equalsIgnoreCase(a))
    {
        Sbot = "I understand, you had a long day! Why don't you \nlisten somme music or share
your experience. I'll hear you out.";
    }

```

```

        msgcount++;

    }

    else if("purchase".equalsIgnoreCase(a)||"buy".equalsIgnoreCase(a)){

        nextPage.setVisible(true);

    }

    else if("iphone".equalsIgnoreCase(a)||"iPhones".equalsIgnoreCase(a))
    {
        try{
            Class.forName("java.sql.Driver");
            Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nlp", "root",
""");

            Statement st = con.createStatement();
            String query = "select * from phones where Brand = 'Apple'";
            ResultSet rs = st.executeQuery(query);
            msgbox.append("\n\nJ.A.R.V.I.S>> Here are the results");
            String temp="Here are the results";
            iTalk.allocate();
            iTalk.speak(temp);
            while (rs.next()) {
                String Ph_ID = rs.getString("Ph_ID");
                String brand = rs.getString("Brand");
                String Model = rs.getString("Model");
                String OS = rs.getString("Type");
                String Camera = rs.getString("Camera");
                String Battery = rs.getString("Battery_Life_mAh");
                String Display = rs.getString("Display_inch");

```

```

String RAM = rs.getString("RAM");
String ROM = rs.getString("Internal_Memory");
String Price = rs.getString("Price");
msg = "\n\nMobile "+count+":\n\n"
+ brand+Model+"\nType: "+OS+",\n"+Camera+"MP Camera, \nBattery -
"+Battery+"mAh. \nDisplay - "+Display+" inches. \n"
+ "Internal Memory - "+ ROM+"GB and "+RAM+"GB RAM. \nBest price
Rs."+Price+" /-";
msgbox.append(msg);
count++;
}
if (msg == null){
msgbox.append("\n\nJ.A.R.V.I.S>> Couldn't find as per your choice or you have not
entered the required data. :D\n\n");
iTalk.allocate();
iTalk.speak("Couldn't find as per your choice or you have not entered the required
data.");
}
else{
msginput.setText(null);
msgbox.append("\n\nJ.A.R.V.I.S>> Feel free to converse if you need any more help!
:D\n\n");

msgbox.append("\n\nJ.A.R.V.I.S>> Also, Would you like to compare phones as per
your choice? :D\n\n");
iTalk.speak("Also, Would you like to compare phones as per your choice?");
}
con.close();
st.close();
}

```

```

        catch (ClassNotFoundException | SQLException e1) {

            JOptionPane.showMessageDialog(null, e1.getMessage());        // TODO add your
handling code here:

        }

        msgcount++;
    }

    else if("compare".equalsIgnoreCase(a))
    {

        Float e1 = null,e2 = null,f1 = null,f2 = null,g1 = null,g2 = null,h1 = null,h2 = null,i1 = null,i2
= null,j1 = null,j2 = null;

        String b1 = null,c1 = null,b2 = null,c2 = null, d1 = null, d2 = null;

        String model1 = JOptionPane.showInputDialog("Enter Model of phone : 1");
        String query1 = "select * from phones where Model='"+model1+"'";
        String model2 = JOptionPane.showInputDialog("Enter Model of phone : 2");
        String query2 = "select * from phones where Model='"+model2+"'";

    try{

        Class.forName("java.sql.Driver");

        Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nlp", "root",
""");

        Statement st = con.createStatement();

        ResultSet rs = st.executeQuery(query1);

        while (rs.next()) {

            String a1 = rs.getString("Ph_ID");

            b1 = rs.getString("Brand");

            c1 = rs.getString("Model");

            d1 = rs.getString("Type");

```

```

        e1= rs.getFloat("Camera");
        f1 = rs.getFloat("Battery_Life_mAh");
        g1 = rs.getFloat("Display_inch");
        h1= rs.getFloat("RAM");
        i1 = rs.getFloat("Internal_Memory");
        j1 = rs.getFloat("Price");
    }
    ResultSet rs1 = st.executeQuery(query2);
    while (rs1.next())
    {
        String a2 = rs1.getString("Ph_ID");
        b2 = rs1.getString("Brand");
        c2 = rs1.getString("Model");
        d2 = rs1.getString("Type");
        e2= rs1.getFloat("Camera");
        f2 = rs1.getFloat("Battery_Life_mAh");
        g2 = rs1.getFloat("Display_inch");
        h2= rs1.getFloat("RAM");
        i2 = rs1.getFloat("Internal_Memory");
        j2 = rs1.getFloat("Price");
    }
    iTalk.allocate();
    iTalk.speak("Comparing phones. This might take a while... ");
    iTalk.speak("Aah! Here are your results after comparing");
    msgbox.append("\n\nJ.A.R.V.I.S.>>Comparing phones. This might take a while...");
    int ctr1=0;
    int ctr2=0;
    if(e1 > e2){

```

```
    ctr1++;  
}  
else if(e1 < e2){  
    ctr2++;  
}  
else{  
    ctr1++;  
    ctr2++;  
}  
if(f1 > f2){  
    ctr1++;  
}  
else if(f1 < f2){  
    ctr2++;  
}  
else  
{  
    ctr1++;  
    ctr2++;  
}  
if(g1 > g2){  
    ctr1++;  
}  
else if(g1 < g2){  
    ctr1++;  
}  
else  
{
```



```
        ctr2++;
        ctr1++;
    }
    if(i1 > i2){
        ctr1++;
    }
    else if(i1 < i2){
        ctr2++;
    }
    else
    {
        ctr1++;
        ctr2++;
    }
    if(h1 > h2){
        ctr1++;
    }
    else if(h1 < h2){
        ctr2++;
    }
    else
    {
        ctr1++;
        ctr2++;
    }
    if(j1 < j2){
        ctr1++;
    }
}
```

```

else if(j1 > j2){
    ctr2++;
}
else
{
    ctr1++;
    ctr2++;
}

msg = "\n\nMobile 1:\n\n"+b1+" "+c1+"\nType: "+d1+",\n"+e1+"MP Camera, \nBattery - "+f1+"mAh. \nDisplay - "+g1+" inches. \n"
        + "Internal Memory - "+i1+"GB and "+h1+"GB RAM. \nBest price Rs."+j1+"
/-"+"\n\nMobile 2:\n\n"+b2+" "+c2+"\nType: "+d2+",\n"+e2+
        "MP Camera, \nBattery - "+f2+"mAh. \nDisplay - "+g2+" inches. \n"
        + "Internal Memory - "+i2+"GB and "+h2+"GB RAM. \nBest price Rs."+j2+"
/-";

msgbox.append(msg);

count++;

msgbox.append(msg);

if(ctr1 > ctr2){
    Sbot = "Mobile "+b1+" "+c1+" is better buy than \n"+b2+" "+c2+" as per the given
conditions.";
}
else if(ctr1 < ctr2){
    Sbot = "Mobile "+b2+" "+c2+" is better buy than \n"+b1+" "+c1+" as per the given
conditions.";
}
else{
    Sbot = "Mobile "+b2+" "+c2+" and \n"+b1+" "+c1+" are both equally great phones.";
}

con.close();

```

```

        st.close();
    }
    catch (ClassNotFoundException | SQLException e) {
        JOptionPane.showMessageDialog(null, e.getMessage());    // TODO add your handling
code here:
    }
    msgcount++;
}
else
if("phone".equalsIgnoreCase(a)||"phones".equalsIgnoreCase(a)||"mobiles".equalsIgnoreCase(a)||"
mobile".equalsIgnoreCase(a) && msgcount==0)
{
    phones();
}
else
{
    if(i==words.length-1 && msgcount == 0)
        Sbot = " Sorry I didn't understand that! Am still Learning.!!";
    else
        continue;
}

msgbox.append("\n\nJ.A.R.V.I.S>> "+Sbot+"\n\n");
iTalk.allocate();
iTalk.speak(Sbot);
msginput.setText(null);
}
}

```

```

private void msginputActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

private void formWindowActivated(java.awt.event.WindowEvent evt) {
// TODO add your handling code here:
}

private void formWindowOpened(java.awt.event.WindowEvent evt) {
Voice iTalk;
VoiceManager iSpeak = VoiceManager.getInstance();
iTalk = iSpeak.getVoice(jarvis);
iTalk.allocate();
iTalk.speak("Hey User! How are you?");
msgbox.append("J.A.R.V.I.S.>> Hey User! How are you?");// TODO add your handling code
here:
}
/**
 * @param args the command line arguments
 */
public static void main(String args[]){
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    }
    catch (ClassNotFoundException ex) {
        java.util.logging.Logger.getLogger(Main.class).log(java.util.logging.Level.SEVERE,
"Could not load L&F", ex);
    }
    catch (InstantiationException ex) {
        java.util.logging.Logger.getLogger(Main.class).log(java.util.logging.Level.SEVERE,
"Could not instantiate L&F", ex);
    }
    catch (IllegalAccessException ex) {
        java.util.logging.Logger.getLogger(Main.class).log(java.util.logging.Level.SEVERE,
"Could not access L&F", ex);
    }
    finally {
        // You should register the look and feel to get full class encapsulation.
        // See http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
        try {
            UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());
        }
        catch (Exception ex) {
            java.util.logging.Logger.getLogger(Main.class).log(java.util.logging.Level.SEVERE,
"Error loading Look and Feel: " + ex.getMessage(), ex);
        }
    }
}

```

```

        }
    }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(Chatapp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Chatapp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Chatapp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Chatapp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

    }
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new Chatapp().setVisible(true);
    }
});
}

// Variables declaration - do not modify
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JScrollPane jScrollPane1;

```

```
private javax.swing.JTextArea msgbox;
private javax.swing.JTextField msginput;
// End of variables declaration }
```

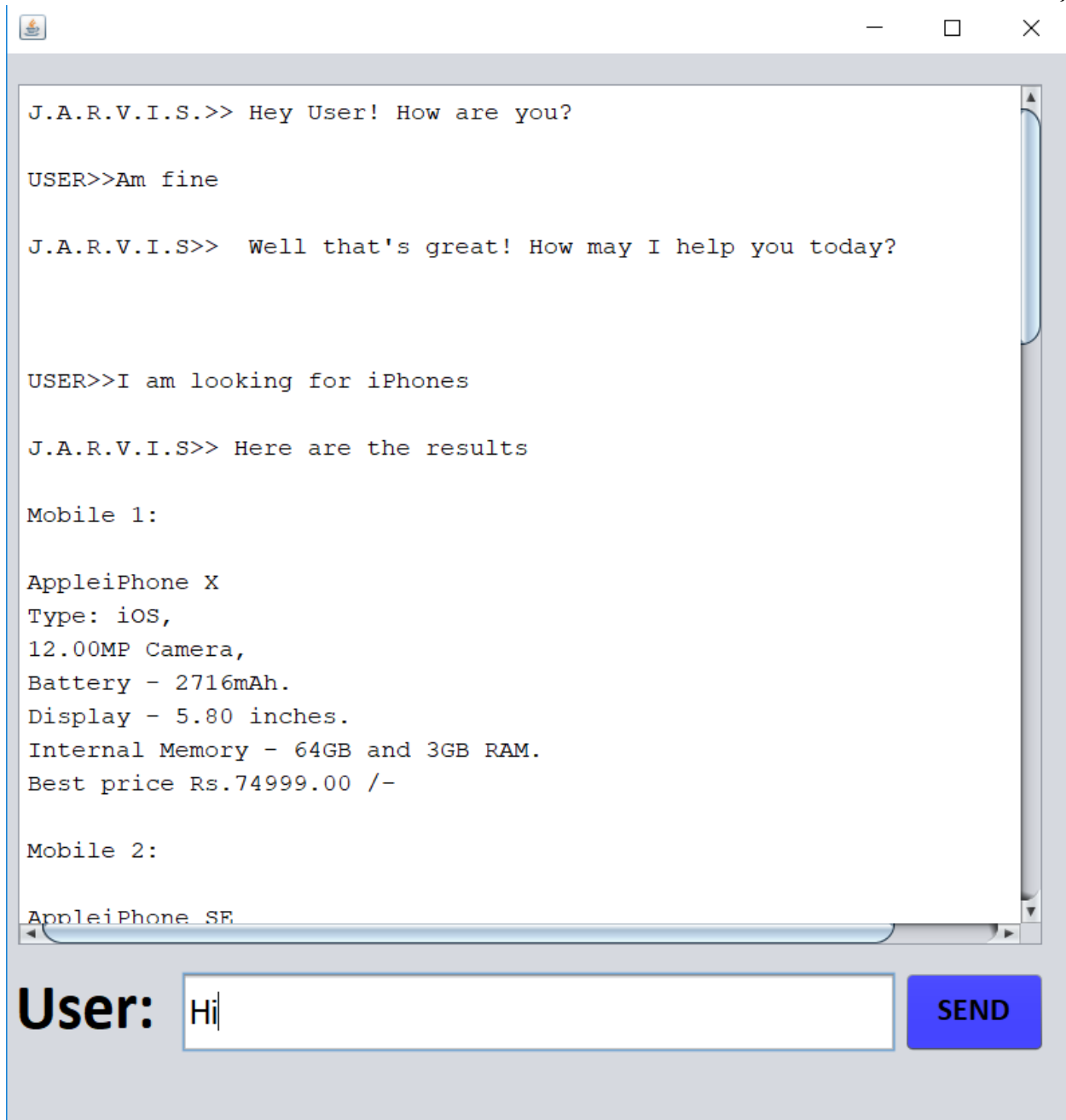


Fig4. Basic layout of chat-app

Payment.java

CODE:

```

import com.sun.speech.freetts.Voice;
import com.sun.speech.freetts.VoiceManager;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import javax.swing.JFrame;
import javax.swing.JOptionPane;
import javax.swing.JPanel;

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

/**
 *
 * @author hp
 */
public class Payment extends javax.swing.JFrame {

    private JFrame frame;

    private static final String jarvis = "kevin16";

    /**
     * Creates new form Payment
     */

```

```

public Payment() {
    initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    bg1 = new javax.swing.ButtonGroup();
    logo = new javax.swing.JLabel();
    jLabel4 = new javax.swing.JLabel();
    jPanel1 = new javax.swing.JPanel();
    jLabel1 = new javax.swing.JLabel();
    t1 = new javax.swing.JTextField();
    jLabel2 = new javax.swing.JLabel();
    t2 = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();
    r1 = new javax.swing.JRadioButton();
    r2 = new javax.swing.JRadioButton();
    r3 = new javax.swing.JRadioButton();
    jLabel6 = new javax.swing.JLabel();

```



```

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

logo.setIcon(new javax.swing.ImageIcon(getClass().getResource("/logo.jpg"))); // NOI18N

jLabel4.setBackground(new java.awt.Color(51, 204, 255));
jLabel4.setFont(new java.awt.Font("BatmanForeverAlternate", 1, 48)); // NOI18N
jLabel4.setText("MOBILE SHOPPE");
jLabel4.setVerticalAlignment(javax.swing.SwingConstants.BOTTOM);

jPanel1.setBackground(new java.awt.Color(153, 204, 255));

jLabel1.setText("E-Mail ID/ Username:");

jLabel2.setText("Mobile Model to Buy:");

jLabel3.setText("Payment Mode:");

jButton1.setText("PROCEED TO PAYMENT");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

r1.setText("PayTM");

r2.setText("Net Banking");

```

```

r3.setText("Credit/Debit Card");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(57, 57, 57)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 145,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(318, Short.MAX_VALUE))
        .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jLabel1)
    .addComponent(jLabel2))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 63,
Short.MAX_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(t2, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 222,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(t1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 222,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(55, 55, 55))))
        .addGroup(jPanel1Layout.createSequentialGroup()

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(175, 175, 175)
        .addComponent(jButton1))
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(86, 86, 86)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(r2)
    .addComponent(r1)
    .addComponent(r3))))
.addGap(0, 0, Short.MAX_VALUE))
);
jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(31, 31, 31)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel1)
    .addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel2)
    .addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

```

```

        .addGap(41, 41, 41)
        .addComponent(jLabel3,      javax.swing.GroupLayout.PREFERRED_SIZE,      28,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(r1)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(r2)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(r3)
        .addGap(54, 54, 54)
        .addComponent(jButton1)
        .addContainerGap(61, Short.MAX_VALUE))
    );

```

```

        jLabel6.setIcon(new      javax.swing.ImageIcon(getClass().getResource("/visa-mastercard-
logo-1.jpg"))); // NOI18N

```

```

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addContainerGap()
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addGroup(layout.createSequentialGroup()
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                .addGroup(layout.createSequentialGroup()
                                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                        .addGroup(layout.createSequentialGroup()
                                            .addGap(117, 117, 117)
                                            .addComponent(jPanel1,      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                                        .addGroup(layout.createSequentialGroup()
                                            .addGroup(layout.createSequentialGroup()

```

```

        .addComponent(logo)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jLabel4)
        .addGap(0, 0, Short.MAX_VALUE))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
        .addGap(0, 0, Short.MAX_VALUE)
        .addComponent(jLabel6)))
        .addContainerGap()
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addContainerGap()

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                .addComponent(logo)
                .addComponent(jLabel4))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,    36,
Short.MAX_VALUE)
            .addComponent(jPanel1,    javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(29, 29, 29)
            .addComponent(jLabel6,    javax.swing.GroupLayout.PREFERRED_SIZE,    123,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap())
        );

    pack();
} // </editor-fold>

```

```

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    Voice iTalk;
    String msg = null;
    VoiceManager iSpeak = VoiceManager.getInstance();
    iTalk = iSpeak.getVoice(jarvis);
    String pay;
    String fname = null;
    String lname = null;
    String Brand = null;
    String Price = null;
    String email = t1.getText();
    if(r1.isSelected() == true)
        pay = "Paytm";
    else if (r2.isSelected() == true)
        pay = "Netbanking";
    else if(r3.isSelected() == true)
        pay = "Card";
    String model = t2.getText();
    String query = "select Brand,Price from phones where model = '"+model+"'";
    try
    {
        Class.forName("java.sql.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nlp", "root", "");
        Statement st = con.createStatement();
        ResultSet rs = st.executeQuery(query);
        while (rs.next()) {
            Brand = rs.getString("Brand");

```

```

        Price = rs.getString("Price");
    }

    ResultSet rs1 = st.executeQuery("select f_name,lname from signup where email =
"+email+""");
    while (rs1.next()) {
        fname = rs1.getString("f_name");
        lname = rs1.getString("lname");
    }
    if(fname==null||lname==null){
        msg="We are sorry! Please enter a valid email_ID or username. Can't grant access to
your account.";
        iTalk.allocate();
        iTalk.speak(msg);
        JOptionPane.showMessageDialog(this, msg);
    }
    else if(Brand==null||Price==null)
    {
        msg = "Am sorry "+fname+"! Your Phone "+model+" is either unavailable or does not
exist. Please check the Model Name and try again.";
        iTalk.allocate();
        iTalk.speak(msg);
        JOptionPane.showMessageDialog(this, msg);
    }
    else{
        msg = "Congratulations "+fname+" "+lname+"! Your Payment for the Phone "+Brand+"
"+model+" of amount Rs. "+Price+" is initiated. Should I proceed?";
        iTalk.allocate();
        iTalk.speak(msg);
        int res = JOptionPane.showConfirmDialog(this, msg);
        if(res==0)

```

```

        { iTalk.allocate();

            iTalk.speak("Payment Successfully Made! You will receive your order within 4-5
Business days");

            JOptionPane.showMessageDialog(this, "Payment Successfully Made! You will
receive your order within4-5 Business days");

        }

    }

    con.close();

    st.close();

}

catch (ClassNotFoundException | SQLException e1) {

    JOptionPane.showMessageDialog(null, e1.getMessage());    // TODO add your handling
code here:

}

// TODO add your handling code here:

}

/**
 * @param args the command line arguments
 */

public static void main(String args[]) {

    /* Set the Nimbus look and feel */

    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">

    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */

```



```

        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
                javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(Payment.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Payment.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Payment.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Payment.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

        }
    }
}
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new Payment().setVisible(true);
    }
}

```

```
    }  
    });  
}  
// Variables declaration - do not modify  
private javax.swing.ButtonGroup bg1;  
private javax.swing.JButton jButton1;  
private javax.swing.JLabel jLabel1;  
private javax.swing.JLabel jLabel2;  
private javax.swing.JLabel jLabel3;  
private javax.swing.JLabel jLabel4;  
private javax.swing.JLabel jLabel6;  
private javax.swing.JPanel jPanel1;  
private javax.swing.JLabel logo;  
private javax.swing.JRadioButton r1;  
private javax.swing.JRadioButton r2;  
private javax.swing.JRadioButton r3;  
private javax.swing.JTextField t1;  
private javax.swing.JTextField t2;  
// End of variables declaration  
}
```



The image shows a web browser window titled "MOBILE SHOPPE". On the left is a circular logo with a shopping cart icon. The main content area is a light blue box containing a payment form. The form has three input fields: "E-Mail ID/ Username:" with the value "rohan@gmail.com", "Mobile Model to Buy:" with the value "5A", and "Payment Mode:" with three radio button options: "PayTM", "Net Banking" (which is selected), and "Credit/Debit Card". Below these fields is a button labeled "PROCEED TO PAYMENT". At the bottom right of the page, there are logos for "MasterCard" and "VISA".

MOBILE SHOPPE

E-Mail ID/ Username: rohan@gmail.com

Mobile Model to Buy: 5A

Payment Mode:

☐ PayTM

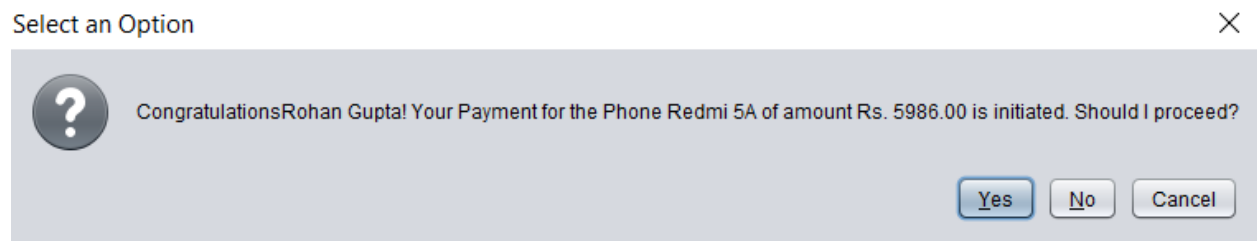
☒ Net Banking

☐ Credit/Debit Card

PROCEED TO PAYMENT

MasterCard VISA

Fig 5.1 Payment Page



The image shows a dialog box titled "Select an Option" with a close button (X) in the top right corner. The dialog contains a question mark icon and a message: "CongratulationsRohan Gupta! Your Payment for the Phone Redmi 5A of amount Rs. 5986.00 is initiated. Should I proceed?". At the bottom right, there are three buttons: "Yes", "No", and "Cancel".

Select an Option

?

CongratulationsRohan Gupta! Your Payment for the Phone Redmi 5A of amount Rs. 5986.00 is initiated. Should I proceed?

Yes No Cancel

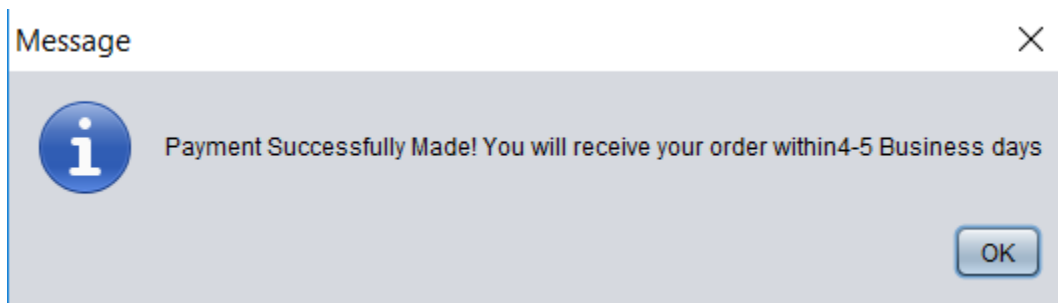













Fig 5.2 and 5.3: The above Dialog Boxes are generated upon confirming the order

Additional Features

- The chat-bot uses text-to-speech conversion as well. Used certain Libraries for the same. The list of libraries with names of each .jar file is mentioned in the adjacent image.
- We use the voice of Kevin Lenzo – **kevin16**

For this I used the following libraries:

.. 	JTattoo-1.6.11.jar
.. 	cmu_time_awb.jar
.. 	cmu_us_kal.jar
.. 	cmudict04.jar
.. 	cmulex.jar
.. 	cmutimelex.jar
.. 	en_us.jar
.. 	freetts-jsapi10.jar
.. 	freetts.jar
.. 	mbrola.jar
.. 	jsapi.jar

Future Scope

This chat-bot here we aim to make is using the most trending technology of natural language processing(NLP) but what we further aim to add a suggestion provider which will suggest user the other queries similar to their question. Until now the bot has been working towards the answering of a query now the bot will post a query and will verify the answer and hence does analysis of that particular user. So our platform with the chat-bot analyses the errors and helps the user in a better way. To get the reverse part started the LSTM neural network should perform in a better way and the attention mechanism shall embellish it. Implementing an attention mechanism with in the chat-bot will make it work in an efficient way. Now the attention mechanism will no longer encode the full input within LSTM, It allows the model to learn which part to be encoded and how the output will be created. A suggestion for future research on the same topic would be to look more on which categories that is most relevant to evaluate regarding human-like behavior

Conclusion:

It is hard to draw any conclusions at all considering that the amount of user tests conducted was small. With better datasets and knowledge base, better results will be showcased by the bot. But since there are some major components where there have been dynamic changes. The IR (information retrieval) process tends to change with time. Different algorithms have been used and with technology evolving the retrieval process including the triggering part is getting faster. Not just IR but also the answering part with the word embedding technique coming into play makes it easier to relate or connect to different words. Such word embedding makes LSTM network more efficient. The tendencies of the results are promising in that a NLP and self-learning techniques would be a good addition to a Chabot as to make it more human-like. Although, further research would be required to make any real conclusions.

References:

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- IV. Dr. John Woods- Survey on Chatbot Design Techniques in Speech Conversation Systems(IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 6, No. 7, 2015
- V. Gobinda G. Chowdhury (2003). “Natural Language Processing” Annual Review of Information Science and Technology, 37 . pp. 51-89

Git-Hub Repository Link:

<https://github.com/rohangupta16feb/Natural-Language-Processing-CSE4022---Chat-Bot-for-E-commerce-Website>