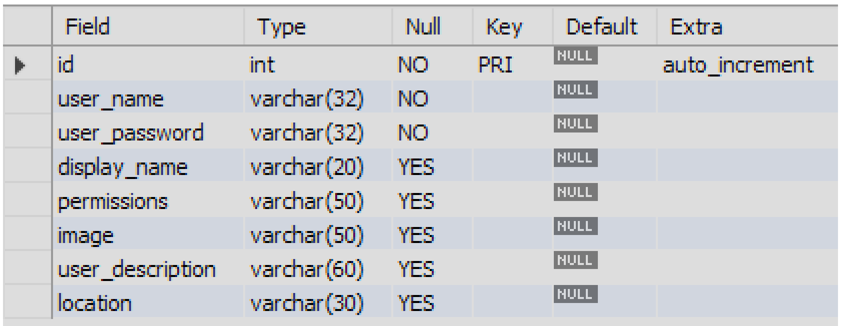
Entrega - Implementación Básica de DAO

He empezado haciendo la aplicación de escritorio, para la administración de la base de datos como root, usando Java y su biblioteca Swing.

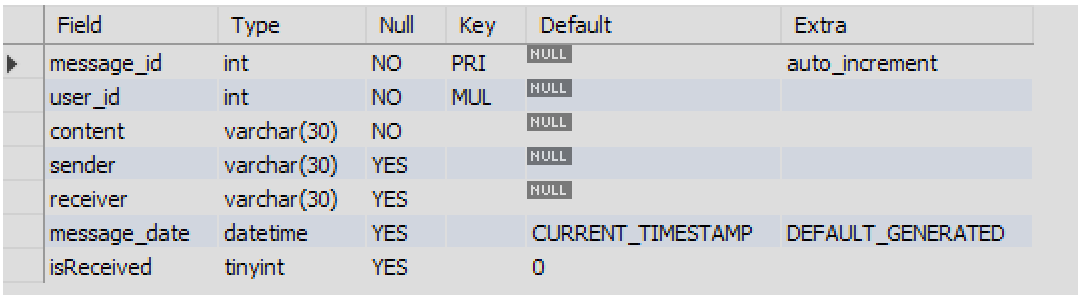
He elegido MYSQL92 como servidor en local y he creado la base de datos con MySQL WORKBENCH 8.0.

Tabla users:



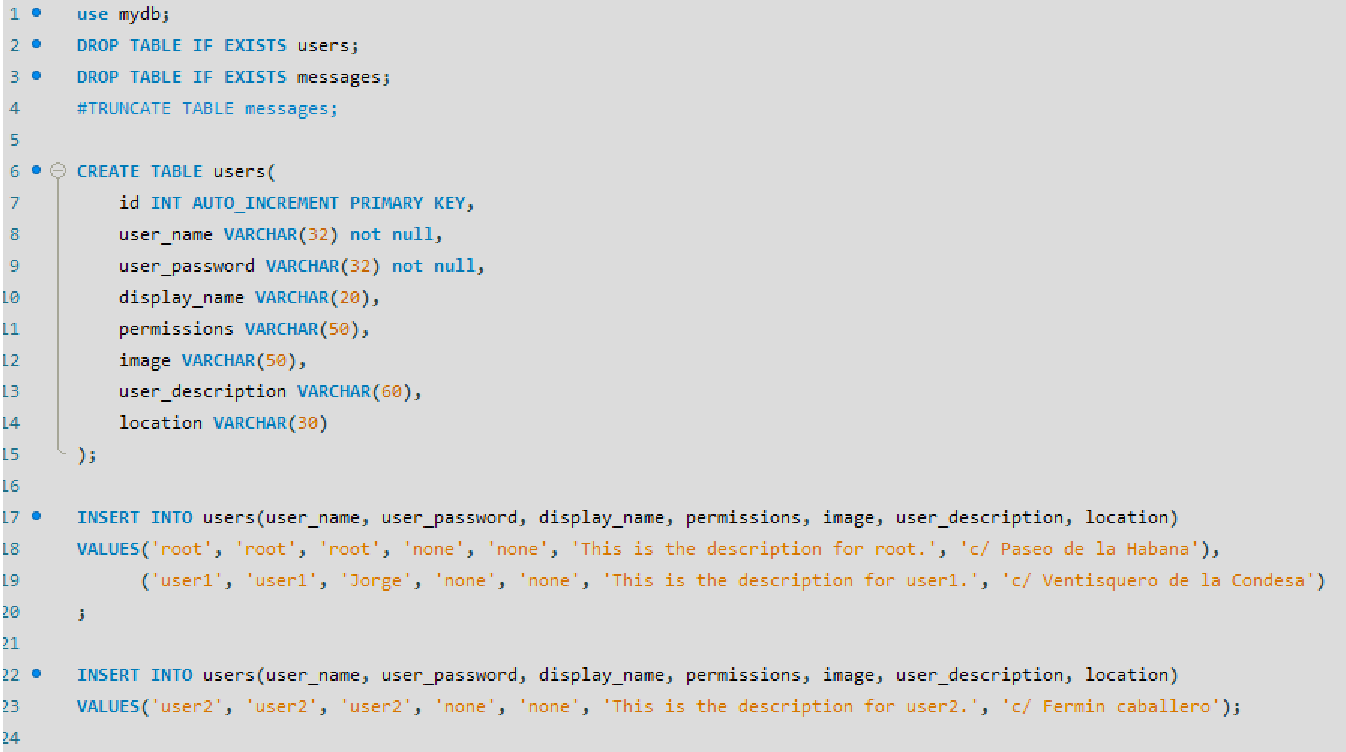
Field	Type	Null	Key	Default	Extra
id	int	NO	PRI	NULL	auto_increment
user_name	varchar(32)	NO		NULL	
user_password	varchar(32)	NO		NULL	
display_name	varchar(20)	YES		NULL	
permissions	varchar(50)	YES		NULL	
image	varchar(50)	YES		NULL	
user_description	varchar(60)	YES		NULL	
location	varchar(30)	YES		NULL	

Tabla messages:

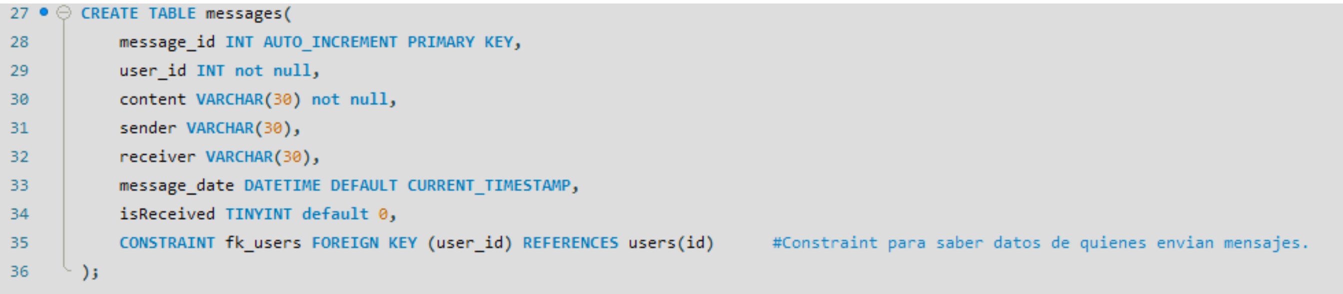


Field	Type	Null	Key	Default	Extra
message_id	int	NO	PRI	NULL	auto_increment
user_id	int	NO	MUL	NULL	
content	varchar(30)	NO		NULL	
sender	varchar(30)	YES		NULL	
receiver	varchar(30)	YES		NULL	
message_date	datetime	YES		CURRENT_TIMESTAMP	DEFAULT_GENERATED
isReceived	tinyint	YES		0	

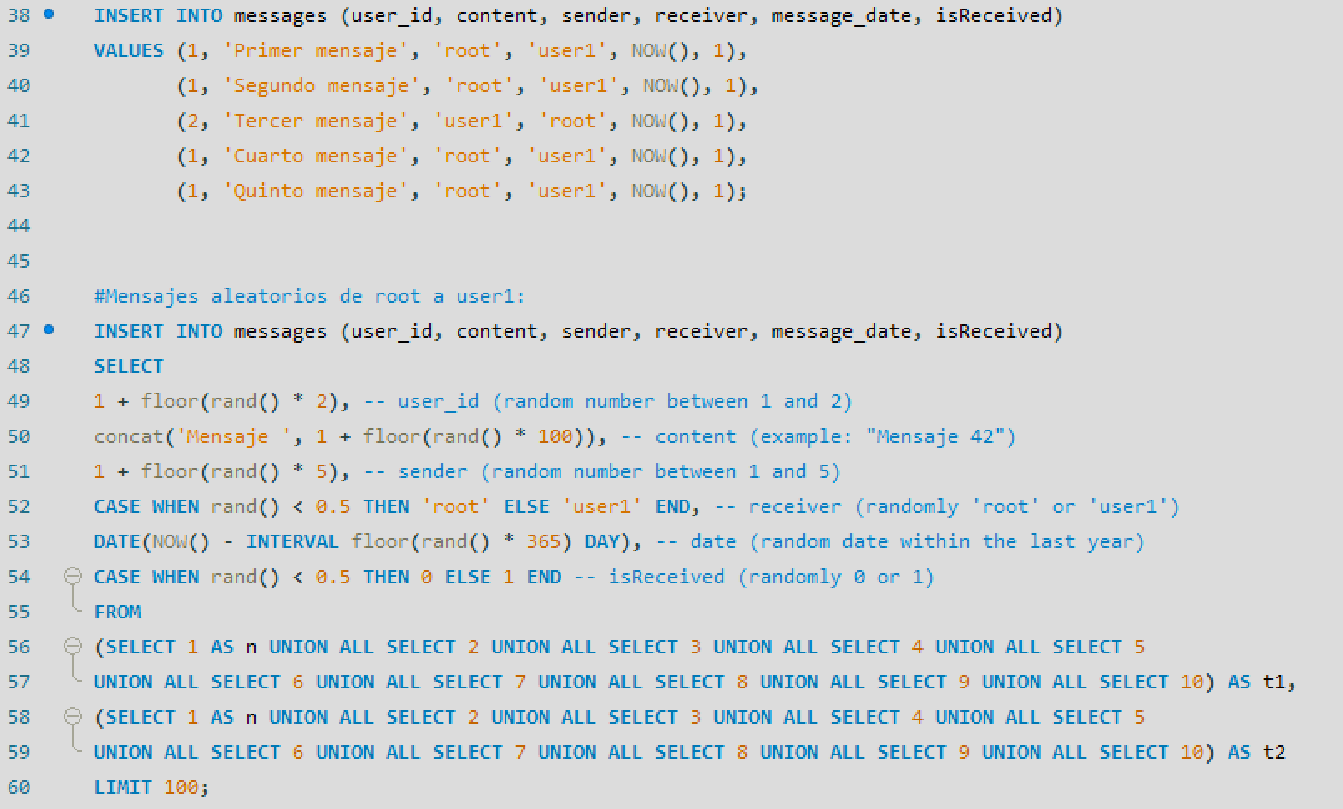
Script para crear las tablas de la base de datos:



```sql
use mydb;
DROP TABLE IF EXISTS users;
DROP TABLE IF EXISTS messages;
#TRUNCATE TABLE messages;

CREATE TABLE users(
    id INT AUTO_INCREMENT PRIMARY KEY,
    user_name VARCHAR(32) not null,
    user_password VARCHAR(32) not null,
    display_name VARCHAR(20),
    permissions VARCHAR(50),
    image VARCHAR(50),
    user_description VARCHAR(60),
    location VARCHAR(30)
);

INSERT INTO users(user_name, user_password, display_name, permissions, image, user_description, location)
VALUES('root', 'root', 'root', 'none', 'none', 'This is the description for root.', 'c/ Paseo de la Habana'),
      ('user1', 'user1', 'Jorge', 'none', 'none', 'This is the description for user1.', 'c/ Ventisquero de la Condesa')
;

INSERT INTO users(user_name, user_password, display_name, permissions, image, user_description, location)
VALUES('user2', 'user2', 'user2', 'none', 'none', 'This is the description for user2.', 'c/ Fermin caballero');
```

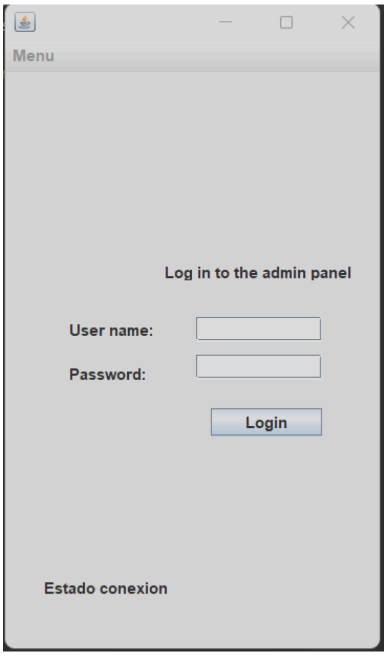


```sql
CREATE TABLE messages(
    message_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT not null,
    content VARCHAR(30) not null,
    sender VARCHAR(30),
    receiver VARCHAR(30),
    message_date DATETIME DEFAULT CURRENT_TIMESTAMP,
    isReceived TINYINT default 0,
    CONSTRAINT fk_users FOREIGN KEY (user_id) REFERENCES users(id)     #Constraint para saber datos de quienes envian mensajes.
);
```



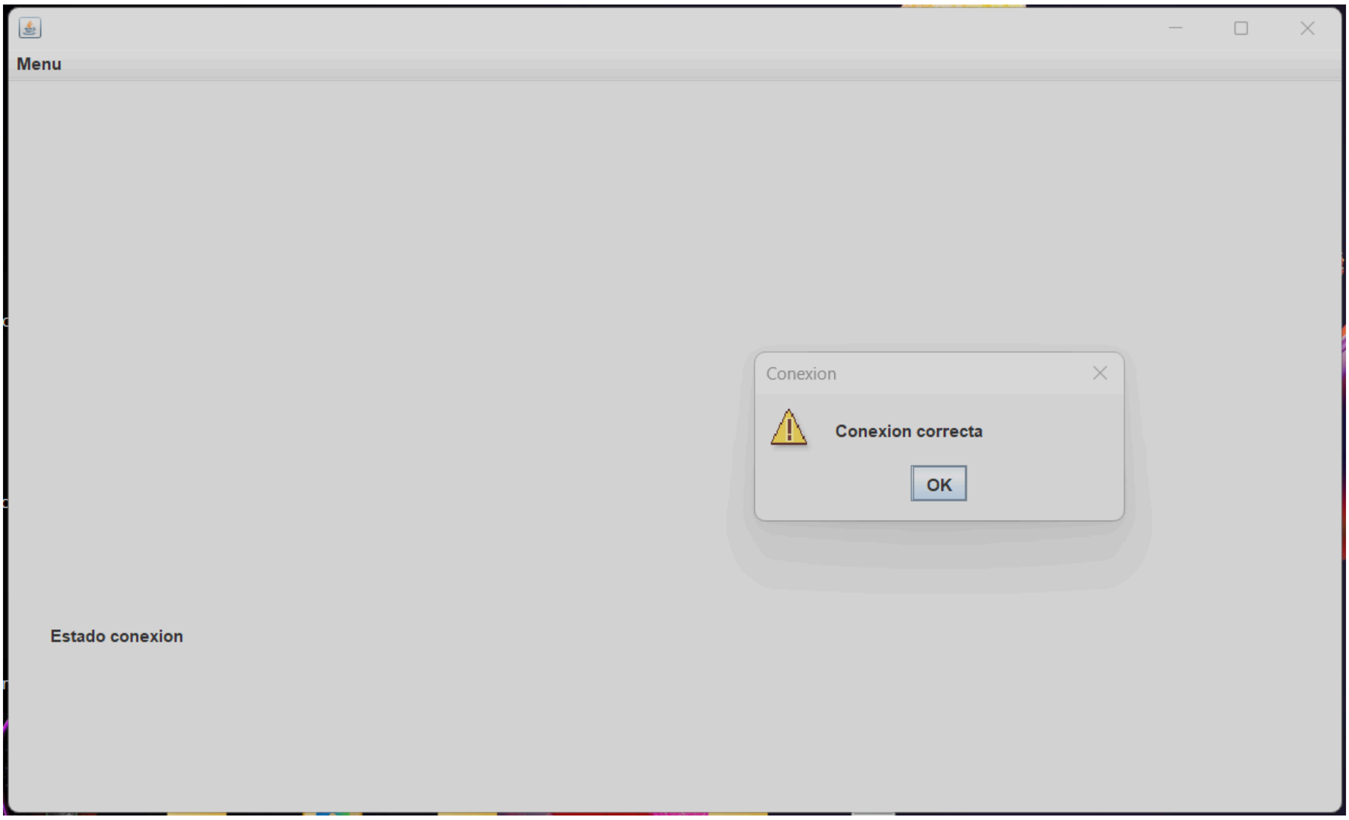
```sql
INSERT INTO messages (user_id, content, sender, receiver, message_date, isReceived)
VALUES (1, 'Primer mensaje', 'root', 'user1', NOW(), 1),
       (1, 'Segundo mensaje', 'root', 'user1', NOW(), 1),
       (2, 'Tercer mensaje', 'user1', 'root', NOW(), 1),
       (1, 'Cuarto mensaje', 'root', 'user1', NOW(), 1),
       (1, 'Quinto mensaje', 'root', 'user1', NOW(), 1);


#Mensajes aleatorios de root a user1:
INSERT INTO messages (user_id, content, sender, receiver, message_date, isReceived)
SELECT
1 + floor(rand() * 2), -- user_id (random number between 1 and 2)
concat('Mensaje ', 1 + floor(rand() * 100)), -- content (example: "Mensaje 42")
1 + floor(rand() * 5), -- sender (random number between 1 and 5)
CASE WHEN rand() < 0.5 THEN 'root' ELSE 'user1' END, -- receiver (randomly 'root' or 'user1')
DATE(NOW() - INTERVAL floor(rand() * 365) DAY), -- date (random date within the last year)
CASE WHEN rand() < 0.5 THEN 0 ELSE 1 END -- isReceived (randomly 0 or 1)
FROM
(SELECT 1 AS n UNION ALL SELECT 2 UNION ALL SELECT 3 UNION ALL SELECT 4 UNION ALL SELECT 5
UNION ALL SELECT 6 UNION ALL SELECT 7 UNION ALL SELECT 8 UNION ALL SELECT 9 UNION ALL SELECT 10) AS t1,
(SELECT 1 AS n UNION ALL SELECT 2 UNION ALL SELECT 3 UNION ALL SELECT 4 UNION ALL SELECT 5
UNION ALL SELECT 6 UNION ALL SELECT 7 UNION ALL SELECT 8 UNION ALL SELECT 9 UNION ALL SELECT 10) AS t2
LIMIT 100;
```

Aplicación en java:

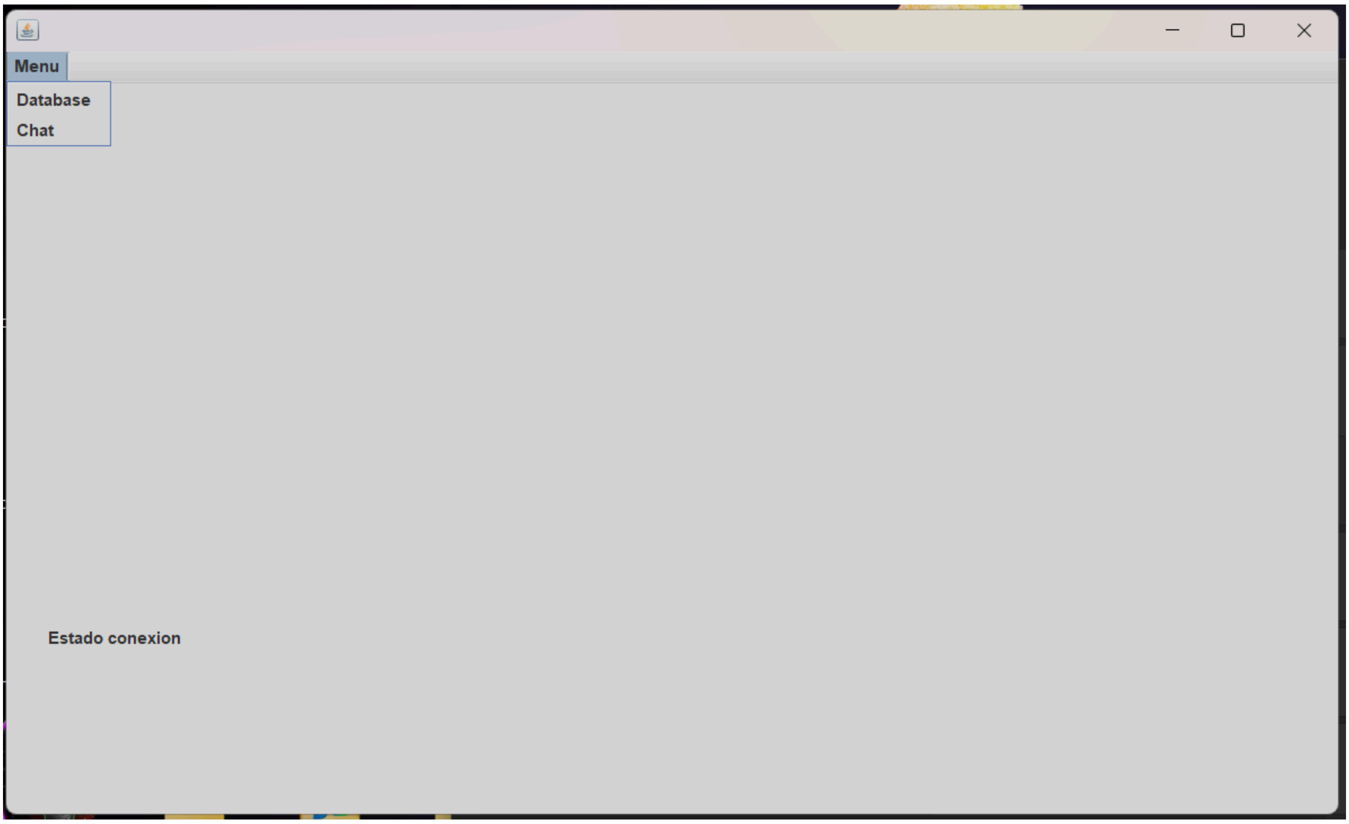


Inicia la app con el login de root. Intentara acceder con el nombre y la contraseña a la base de datos (conexión de la app de java al servidor mysql).

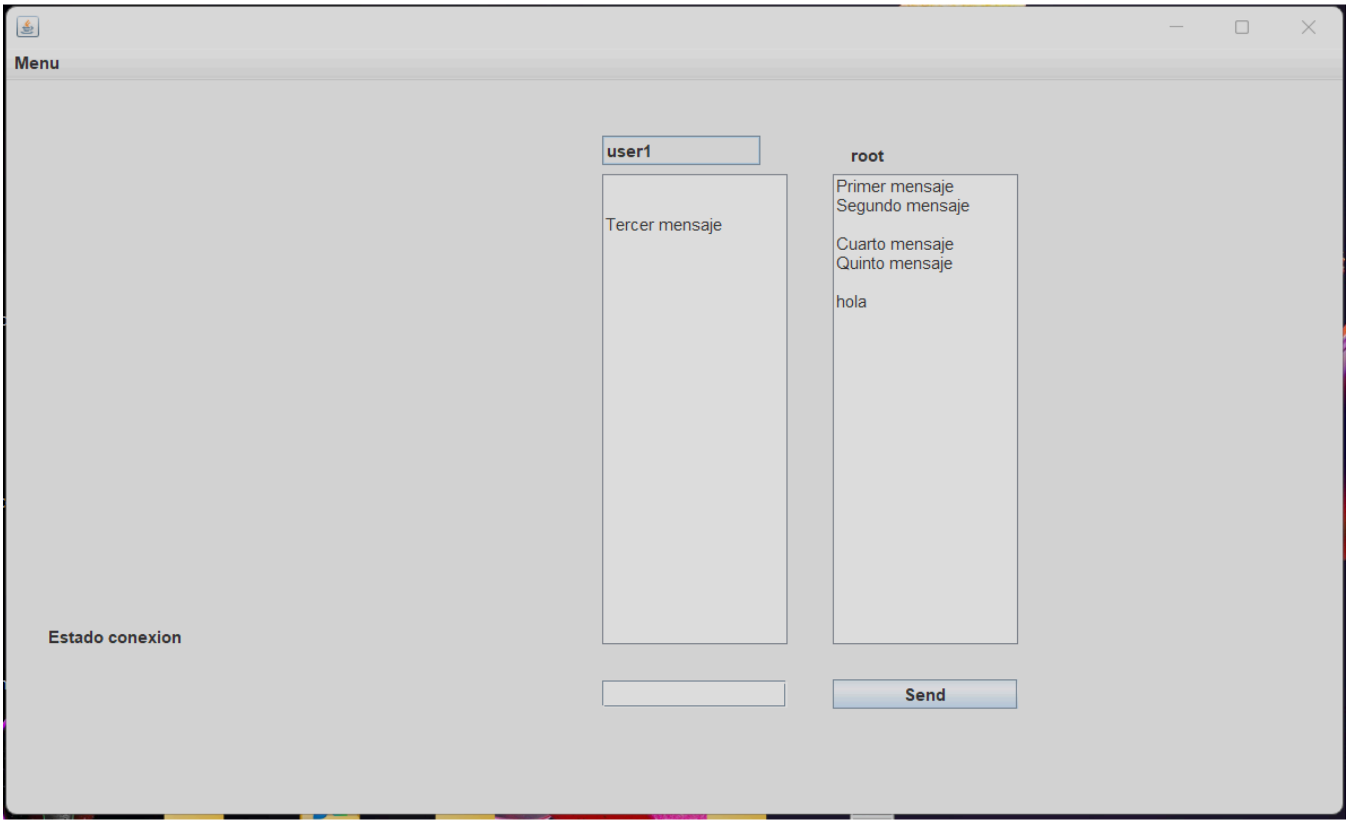
Se conecta a la base de datos ‘mydb’ e informa del estado de la conexión:



Cuando clickemos en Menú nos dejará elegir entre chat y database.



Si clickamos en chat nos abre el chat guardado con user1, el primero con el que se ha intercambiado mensajes 'root':



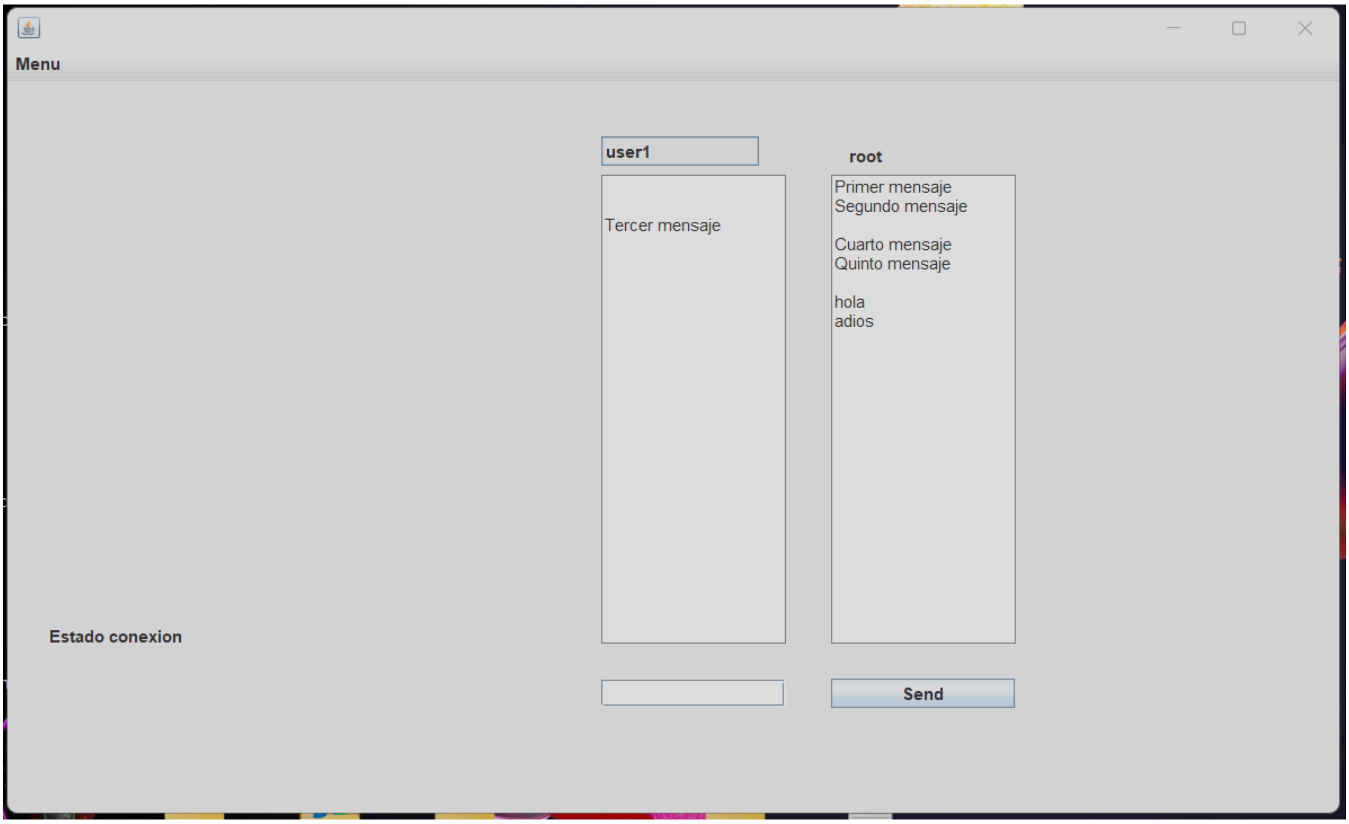
Tercer mensaje

Primer mensaje
Segundo mensaje

Cuarto mensaje
Quinto mensaje

hola

Mando el mensaje 'Adios' a user1:



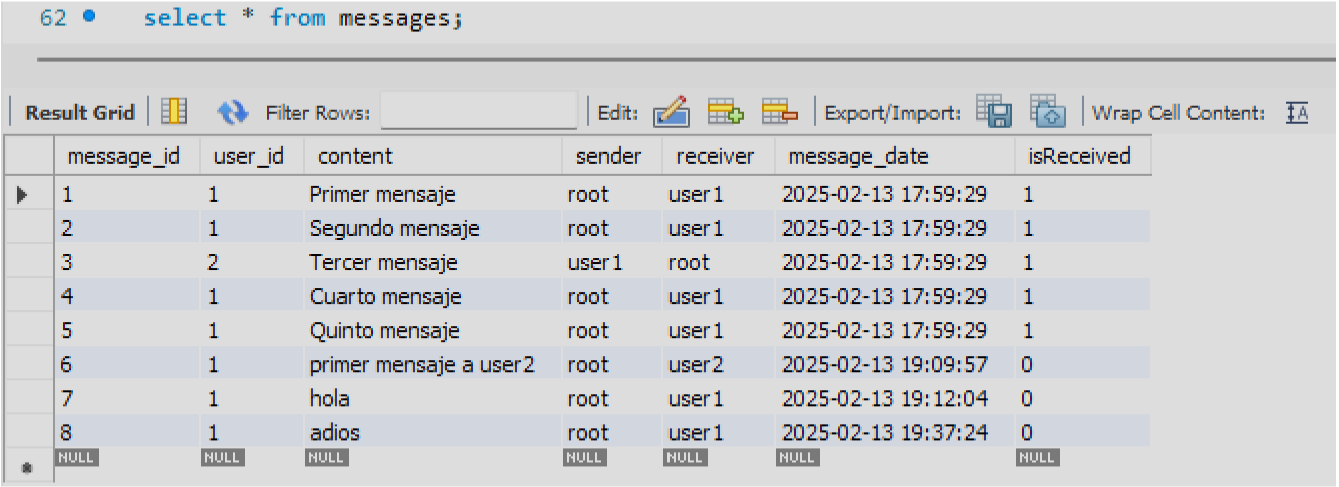
Tercer mensaje

Primer mensaje
Segundo mensaje

Cuarto mensaje
Quinto mensaje

hola
adios

Me guarda el mensaje en la tabla de SQL con la fecha y hora en la que se ha mandado el mensaje:

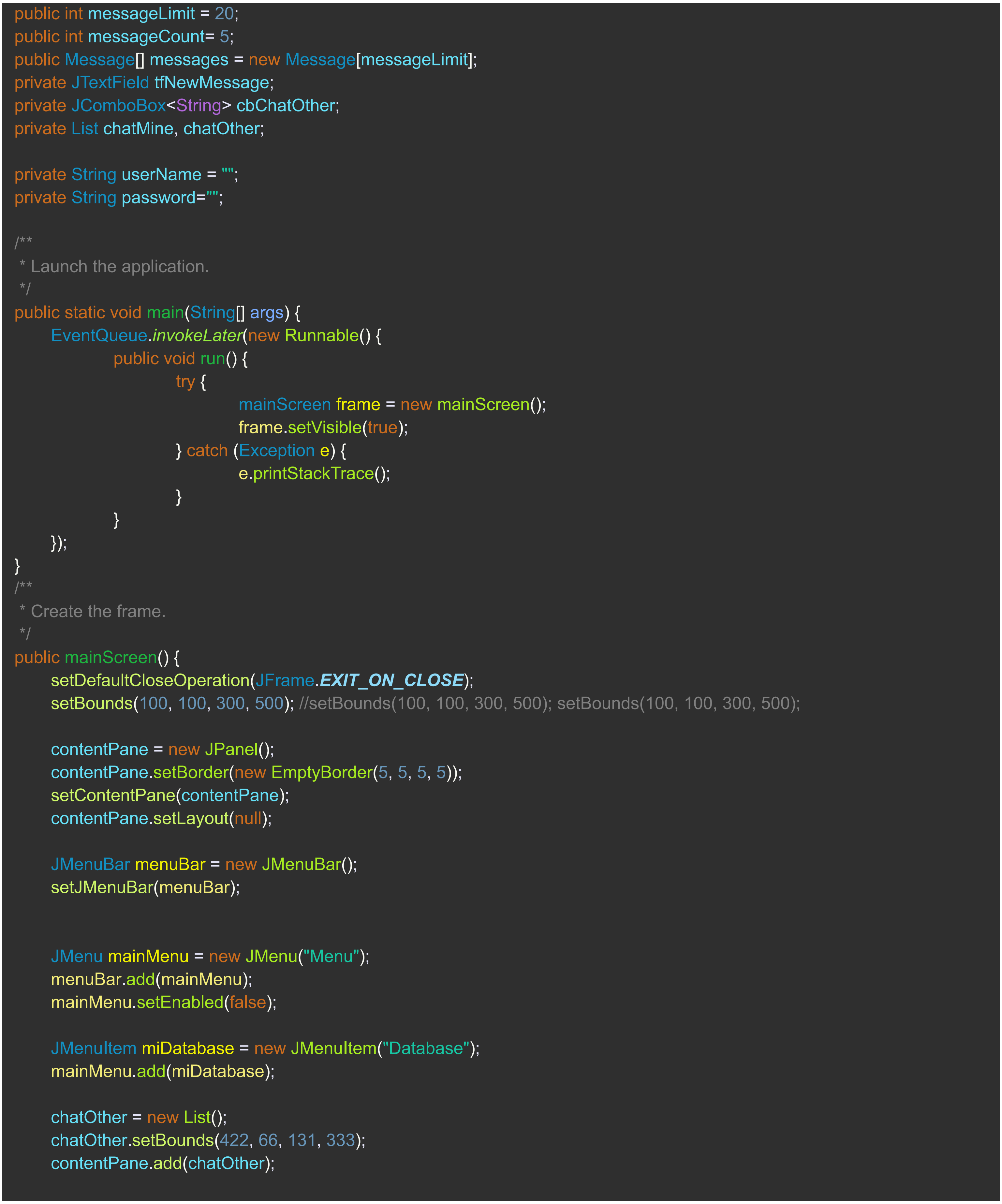


```sql
select * from messages;
```

message_id	user_id	content	sender	receiver	message_date	isReceived
1	1	Primer mensaje	root	user1	2025-02-13 17:59:29	1
2	1	Segundo mensaje	root	user1	2025-02-13 17:59:29	1
3	2	Tercer mensaje	user1	root	2025-02-13 17:59:29	1
4	1	Cuarto mensaje	root	user1	2025-02-13 17:59:29	1
5	1	Quinto mensaje	root	user1	2025-02-13 17:59:29	1
6	1	primer mensaje a user2	root	user2	2025-02-13 19:09:57	0
7	1	hola	root	user1	2025-02-13 19:12:04	0
8	1	adios	root	user1	2025-02-13 19:37:24	0
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Código de mi aplicación de Java:

```java
package Proyecto;
import java.awt.EventQueue;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.border.EmptyBorder;
import Proyecto.databaseObjects.Message;
import javax.swing.JButton;
import java.awt.event.ActionListener;
import java.awt.event.ActionEvent;
import javax.swing.JMenuBar;
import javax.swing.JMenu;
import javax.swing.JMenuItem;
import javax.swing.JOptionPane;
import javax.swing.JTextField;
import javax.swing.JLabel;
import javax.swing.JSplitPane;
import javax.swing.JList;
import java.awt.List;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
import java.sql.SQLException;
import javax.swing.JComboBox;
import java.awt.event.ItemListener;
import java.awt.event.ItemEvent;
public class mainScreen extends JFrame {
  private static final long serialVersionUID = 1L;
  private JPanel contentPane;
  private JTextField tfUserName;
  private JTextField tfPassword;
  private JLabel lblUser, lblPassword, lblLogin, lblSender;
  private JButton btnLogin, btnSend;
```



```
public int messageLimit = 20;
public int messageCount= 5;
public Message[] messages = new Message[messageLimit];
private JTextField tfNewMessage;
private JComboBox<String> cbChatOther;
private List chatMine, chatOther;

private String userName = "";
private String password="";

/**
 * Launch the application.
 */
public static void main(String[] args) {
    EventQueue.invokeLater(new Runnable() {
        public void run() {
            try {
                mainScreen frame = new mainScreen();
                frame.setVisible(true);
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
    });
}
/**
 * Create the frame.
 */
public mainScreen() {
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    setBounds(100, 100, 300, 500); //setBounds(100, 100, 300, 500); setBounds(100, 100, 300, 500);

    contentPane = new JPanel();
    contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
    setContentPane(contentPane);
    contentPane.setLayout(null);

    JMenuBar menuBar = new JMenuBar();
    setJMenuBar(menuBar);


    JMenu mainMenu = new JMenu("Menu");
    menuBar.add(mainMenu);
    mainMenu.setEnabled(false);

    JMenuItem miDatabase = new JMenuItem("Database");
    mainMenu.add(miDatabase);

    chatOther = new List();
    chatOther.setBounds(422, 66, 131, 333);
    contentPane.add(chatOther);
```

```
        chatMine = new List();
        chatMine.setBounds(585, 66, 131, 333);
        contentPane.add(chatMine);

        messages[0] = new Message(0, 0, "Primer mensaje", "root","user1", "13-02-2025", true);
        messages[1] = new Message(1, 0, "Segundo mensaje", "root","user1", "13-02-2025", true);
        messages[2] = new Message(2, 1, "Tercer mensaje", "user1","root", "13-02-2025", true);
        messages[3] = new Message(3, 0, "Cuarto mensaje", "root","user1", "13-02-2025", true);
        messages[4] = new Message(4, 1, "Quinto mensaje", "root","user1", "13-02-2025", false);



        cbChatOther = new JComboBox<>();
        cbChatOther.addItemListener(new ItemListener() {
            @Override
            public void itemStateChanged(ItemEvent e) {
                if (e.getStateChange() == ItemEvent.SELECTED) {
                    String selectedItem = (String) cbChatOther.getSelectedItem();
                    System.out.println("Item seleccionado: " + selectedItem);

                                        chatOther.removeAll();
                                        chatMine.removeAll();

                                        String otherUser = cbChatOther.getSelectedItem().toString();
                                        System.out.println(otherUser);
                                        try {

                                                Connection
conexion=DriverManager.getConnection("jdbc:mysql://localhost/mydb",userName,password);
                                                Statement sentencia= conexion.createStatement();
                                                ResultSet registro=sentencia.executeQuery("SELECT * FROM messages WHERE sender
= '"+userName+"' AND receiver ='"+otherUser+"';");

                                                int jump=0;
                                                int prevMes = 0;
                                                while(registro.next()) {

                                                        System.out.println(registro.getString("content"));

                                                        if(registro.getInt("message_id") == prevMes + 1) {
                                                                chatMine.add(registro.getString("content"));
                                                        }else {

                                                                jump = registro.getInt("message_id") - prevMes;
                                                                for(int x =0; x<=jump-2;x++) {
                                                                        chatMine.add(" ");
                                                                }

                                                        chatMine.add(registro.getString("content"));

                                                        }
                    prevMes = registro.getInt("message_id");
                    }

                    prevMes = 0;
                    jump=0;

                    Statement sentencia2= conexion.createStatement();
                    ResultSet registro2=sentencia2.executeQuery("SELECT * FROM messages WHERE
sender = '"+otherUser+"' AND receiver = '"+userName+"';");

                    while(registro2.next()) {

                        if(registro2.getInt("message_id") == prevMes + 1) {
                            chatOther.add(registro2.getString("content"));
                        }else {

                            jump = registro2.getInt("message_id") - prevMes;
                            for(int x =0; x<=jump-2;x++) {
                                chatOther.add(" ");
                            }

                            chatOther.add(registro2.getString("content"));

                        }

                    prevMes = registro2.getInt("message_id");

                    }

                    conexion.close();


                }catch(SQLException e1) {
                    e1.printStackTrace();
                }

      }
     }
    });

    cbChatOther.setBounds(422, 39, 131, 21);
    contentPane.add(cbChatOther);

    JMenuItem miChat = new JMenuItem("Chat");
    miChat.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {
            cbChatOther.removeAll();
            cbChatOther.addItem("user1");
            cbChatOther.addItem("user2");

            cbChatOther.setVisible(true);
            chatOther.setVisible(true);
```

```
                        chatMine.setVisible(true);
                        btnSend.setVisible(true);
                        lblSender.setVisible(true);
                        tfNewMessage.setVisible(true);


                }
        });
        mainMenu.add(miChat);

        tfUserName = new JTextField();
        tfUserName.setToolTipText("login");
        tfUserName.setBounds(146, 187, 96, 19);
        contentPane.add(tfUserName);
        tfUserName.setColumns(10);

        tfPassword = new JTextField();
        tfPassword.setBounds(146, 216, 96, 19);
        contentPane.add(tfPassword);
        tfPassword.setColumns(10);


        JLabel lblConnection = new JLabel("Estado conexion");
        lblConnection.setBounds(30, 328, 212, 131);
        contentPane.add(lblConnection);

        btnLogin = new JButton("Login");
        btnLogin.addActionListener(new ActionListener() {
                public void actionPerformed(ActionEvent e) {

                        userName = tfUserName.getText().toString();
                        password = tfPassword.getText().toString();

                        if(userName.equals("root") && password.equals("root")) {

                                try {

                                        Connection
conexion=DriverManager.getConnection("jdbc:mysql://localhost/mydb",userName,password);
                                        Statement sentencia= conexion.createStatement();
                                        ResultSet registro=sentencia.executeQuery("SELECT * FROM users;");

                                        while(registro.next()) {
                                                System.out.println("Hecho");
                                        }

                                        conexion.close();


                                        System.out.println("Login correcto");

                                        tfPassword.setVisible(false);
```

```
                    tfUserName.setVisible(false);
                    lblUser.setVisible(false);
                    lblPassword.setVisible(false);
                    lblLogin.setVisible(false);
                    btnLogin.setVisible(false);

                    mainMenu.setEnabled(true);
                    setBounds(100, 100, 960, 579);
                    JOptionPane.showMessageDialog(null, "Conexion correcta", "Conexion", JOptionPane.WARNING_MESSAGE);

                }catch(SQLException SQLe) {

                    SQLe.printStackTrace();
                    lblConnection.setText("No conectado");
                }

            }else {
                System.out.println("Login incorrecto");
            }

        }
    });
    btnLogin.setBounds(157, 257, 85, 21);
    contentPane.add(btnLogin);


    lblUser = new JLabel("User name:");
    lblUser.setBounds(49, 190, 69, 13);
    contentPane.add(lblUser);

    lblPassword = new JLabel("Password:");
    lblPassword.setBounds(49, 224, 69, 13);
    contentPane.add(lblPassword);

    lblLogin = new JLabel("Log in to the admin panel");
    lblLogin.setBounds(122, 146, 196, 13);
    contentPane.add(lblLogin);

    tfNewMessage = new JTextField();
    tfNewMessage.setBounds(422, 425, 131, 19);
    contentPane.add(tfNewMessage);
    tfNewMessage.setColumns(10);

    btnSend = new JButton("Send");
    btnSend.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {

            String sender =userName;
            String receiver=cbChatOther.getSelectedItem().toString();
            String content = tfNewMessage.getText().toString();
            int user_id = 1;
            if(!(content.equals(""))) {

                chatMine.add(content);

                tfNewMessage.setText("");

                try {
                    Connection
  conexion=DriverManager.getConnection("jdbc:mysql://localhost/mydb",userName,password);
                    Statement stmt = conexion.createStatement();
                    int rs = stmt.executeUpdate("INSERT INTO messages (user_id, content, sender, receiver)
  VALUES("+user_id+", '"+content+"', '"+sender+"', '"+receiver+"');");
                    if(rs>0) {
                        System.out.println("Insertado");
                    }
                } catch (SQLException e1) {
                    // TODO Auto-generated catch block
                    e1.printStackTrace();
                }


                System.out.println("Mensaje enviado");

                messageCount++;
            }else {
                System.out.println("Mensaje no enviado");
            }
        }
    });
    btnSend.setBounds(585, 424, 131, 21);
    contentPane.add(btnSend);

    lblSender = new JLabel("root");
    lblSender.setBounds(598, 46, 45, 13);
    contentPane.add(lblSender);

    cbChatOther.setVisible(false);
    chatOther.setVisible(false);
    chatMine.setVisible(false);
    btnSend.setVisible(false);
    lblSender.setVisible(false);
    tfNewMessage.setVisible(false);




  }
}
```

Hecho por Jorge Varela Zamora, de 2º del C.F.G.S. de D.A.M, curso 2024-2025, I.E.S. Vista Alegre