Code:

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
public class Health {
    private JFrame frame;
    private JPanel panel;
    private JTextField idField, nameField, sodiumField, potassiumField, lactoseField;
    private JButton checkButton;
    private JTextArea chatArea;
    private JTextField userInput;
// Database credentials
    private static final String URL
="jdbc:mysql://localhost:3306/HEALTHs?serverTimezone=UTC";
    private static final String USER = "root";
    private static final String PASSWORD = "1410";

 // Constructor to initialize GUI
    public Health() {
        frame = new JFrame("Health Data Entry"); // Main application window
        frame.setSize(1200, 700);
        frame.setLocationRelativeTo(null);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setResizable(false);
       panel = new JPanel();
        panel.setLayout(new GridLayout(7, 2, 10, 10)); // Setting layout for input fields
        panel.setBackground(new Color(240, 248, 255));
```

```
// Adding labels and input fields
        panel.add(createLabel("Enter ID:"));
        idField = createTextField();
        panel.add(idField);
        panel.add(createLabel("Enter Name:"));
        nameField = createTextField();
        panel.add(nameField);

        panel.add(createLabel("Enter Sodium Level (mg/L):"));
        sodiumField = createTextField();
        panel.add(sodiumField);

        panel.add(createLabel("Enter Potassium Level (mg/L):"));
        potassiumField = createTextField();
        panel.add(potassiumField);

        panel.add(createLabel("Enter Lactose Level (mg/L):"));
        lactoseField = createTextField();
        panel.add(lactoseField);
        checkButton = new JButton("Check");
        styleButton(checkButton, new Color(255, 182, 193));
        panel.add(new JLabel("")); // Empty label for alignment
        panel.add(checkButton);
         frame.add(panel);
        frame.setVisible(true);

        checkButton.addActionListener(e -> calculateAndSave());
    }
```

```
// Method to create a styled label
    private JLabel createLabel(String text) {
        JLabel label = new JLabel(text);
        label.setFont(new Font("Arial", Font.BOLD, 22));
        label.setForeground(Color.BLACK);
        return label;
    }
// Method to create a text field with styling
    private JTextField createTextField() {
        JTextField textField = new JTextField();
        textField.setFont(new Font("Arial", Font.BOLD, 20));
        return textField;
    }

// Method to style a button
    private void styleButton(JButton button, Color color) {
        button.setBackground(color);
        button.setForeground(Color.WHITE);
        button.setFont(new Font("Arial", Font.BOLD, 20));
    }
// Method to calculate health values and store them in the database
    private void calculateAndSave() {
        try {
            int id = Integer.parseInt(idField.getText());
            String name = nameField.getText();
            float sodium = Float.parseFloat(sodiumField.getText());
            float potassium = Float.parseFloat(potassiumField.getText());
            float lactose = Float.parseFloat(lactoseField.getText());
```

```
// Health calculations based on formulas
        float glucose = (sodium * 1.5f) + (potassium * 2) + (lactose * 0.5f);
        float hemoglobin = (sodium * 0.8f) + (potassium * 1.2f);
        float cholesterol = (sodium * 2) + (lactose * 1.5f);

// Save data to database
        saveToDatabase(id, name, sodium, potassium, lactose, glucose, hemoglobin, cholesterol);

// Display results in a new window
        showResults(glucose, hemoglobin, cholesterol);
      } catch (Exception ex) {
        JOptionPane.showMessageDialog(frame, "❌ Invalid Input! Please enter correct values.", "Error", JOptionPane.ERROR_MESSAGE);
      }
   }
// Method to display health results in a new window
   private void showResults(float glucose, float hemoglobin, float cholesterol) {
      JFrame resultFrame = new JFrame("Health Results");
      resultFrame.setSize(600, 400);
      resultFrame.setLocationRelativeTo(null);
       JPanel resultPanel = new JPanel(new GridLayout(4, 3, 10, 10));
      resultPanel.setBackground(new Color(230, 255, 230));

 // Displaying calculated values
      resultPanel.add(createLabel("Glucose Level (mg/L):"));
      resultPanel.add(createResultField(glucose, 70, 140));
      resultPanel.add(createLabel("Normal: 70-140 mg/L"));
```

```
        resultPanel.add(createLabel("Hemoglobin Level (g/L):"));
        resultPanel.add(createResultField(hemoglobin, 12, 17));
        resultPanel.add(createLabel("Normal: 12-17 g/L"));

        resultPanel.add(createLabel("Cholesterol Level (mg/L):"));
        resultPanel.add(createResultField(cholesterol, 125, 200));
        resultPanel.add(createLabel("Normal: 125-200 mg/L"));

        resultFrame.add(resultPanel);
        resultFrame.setVisible(true);
    }
// Method to save health data in the database
    private void saveToDatabase(int id, String name, float sodium, float potassium, float
lactose, float glucose, float hemoglobin, float cholesterol) {
        try {
            Connection conn = DriverManager.getConnection(URL, USER, PASSWORD);
            String query = "INSERT INTO health_data (id, name, sodium, potassium, lactose,
glucose, hemoglobin, cholesterol) VALUES (?, ?, ?, ?, ?, ?, ?, ?)";
            PreparedStatement stmt = conn.prepareStatement(query);
            stmt.setInt(1, id);
            stmt.setString(2, name);
            stmt.setFloat(3, sodium);
            stmt.setFloat(4, potassium);
            stmt.setFloat(5, lactose);
            stmt.setFloat(6, glucose);
            stmt.setFloat(7, hemoglobin);
            stmt.setFloat(8, cholesterol);
            stmt.executeUpdate();
            stmt.close();
```

```
            conn.close();
JOptionPane.showMessageDialog(frame, " ✅ Data Saved Successfully!", "Success",
JOptionPane.INFORMATION_MESSAGE);
        } catch (SQLException e) {
            JOptionPane.showMessageDialog(frame, " ❌ Database Error: " + e.getMessage(),
"Error", JOptionPane.ERROR_MESSAGE);
        }
    }
//Chatbot phase
private void processUserInput() {
    // Get user input, convert it to lowercase for case-insensitive matching
    String input = userInput.getText().toLowerCase();
    userInput.setText(""); // Clear the input field after reading
    chatArea.append("You: " + input + "\n"); // Display user input in chat area
    String response; // Variable to store the bot's response

    // Check for keywords in user input and provide appropriate responses
    if (input.contains("diet")) {
        response = "Maintain a balanced diet with whole grains, proteins, and healthy fats.";
    } else if (input.contains("exercise")) {
        response = "Regular exercise helps improve overall health. Try a 30-minute walk daily.";
    } else if (input.contains("glucose")) {
        response = "Normal glucose levels range from 70-140 mg/L. Consume fiber-rich foods to
regulate levels.";
    } else if (input.contains("cholesterol")) {
        response = "Normal cholesterol is 125-200 mg/L. Reduce saturated fats for better
health.";
    } else if (input.contains("hemoglobin")) {
```

```
        response = "Normal hemoglobin is 12-17 g/L. Consume iron-rich foods like spinach and lentils.";
    } else {
  // Default response for unrecognized inputs
        response = "I'm here to help! Ask about diet, glucose, cholesterol, or general health tips.";
    }
// Display bot's response in chat area
    chatArea.append("Bot: " + response + "\n");
}
// Main method to run the application
    public static void main(String[] args) {
        new Health();
    }
}
```

Technologies Used:

- Java – programming language.
- Swing (GUI) – Utilized to make buttons, text fields, and windows.
- MySQL (Database) – Keeps health data.
- JDBC (Database Connection) – Bridges Java and MySQL.
- NLP Simple Chatbot – Makes use of keywords such as "exercise" and "diet" to provide health advice.