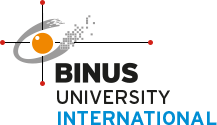
Odd Semester (2023)



**BINUS UNIVERSITY**

**BINUS INTERNATIONAL**

**Assignment Cover Letter**

**(Individual Work)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | |  | |  | |  |
| **Student Information**: **Surname** | | | | | **Given Names**    **Bently** | | **Student ID Number**  **2301894590** | |  |
| 1. | | **Edyson** |  | |  |
|  |  |  |
| **Course Code** | **: COMP6510** |  |  | | **Course Name** | | **: Introduction to Programming** | |  |
| **Class** | **: L2AC** |  |  | | **Name of Lecturer(s)** | | **: Jude Joseph Lamug Martinez** | |  |
|  |  |  |  | |  | |  | |  |
| **Major** | **: CS** |  |  | |  | |  | |  |
| **Title of Assignment**  (if any) | : - | |  |  | |  | |  | |
| **Type of Assignment**    **Submission Pattern** | **: Final Project** |  |  | |  | |  | |  |
| **Due Date** | **: 20-06-2020** |  |  | | **Submission Date** | | **: 20-06-2020** | |  |

The assignment should meet the below requirements.

1. Assignment (hard copy) is required to be submitted on clean paper, and (soft copy) as per lecturer’s instructions.
2. Soft copy assignment also requires the signed (hardcopy) submission of this form, which automatically validates the softcopy submission.
3. The above information is complete and legible.
4. Compiled pages are firmly stapled.
5. Assignment has been copied (soft copy and hard copy) for each student ahead of the submission.

# Plagiarism/Cheating

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# Declaration of Originality

By signing this assignment, I understand, accept and consent to Binus International terms and policy on plagiarism. Herewith I declare that the work contained in this assignment is my own work and has not been submitted for the use of assessment in another course or class, except where this has been notified and accepted in advance.

Signature of Student: (Name of Student)

1. Bently Edyson

**Name : Bently Edyson**

**ID : 2301894590**

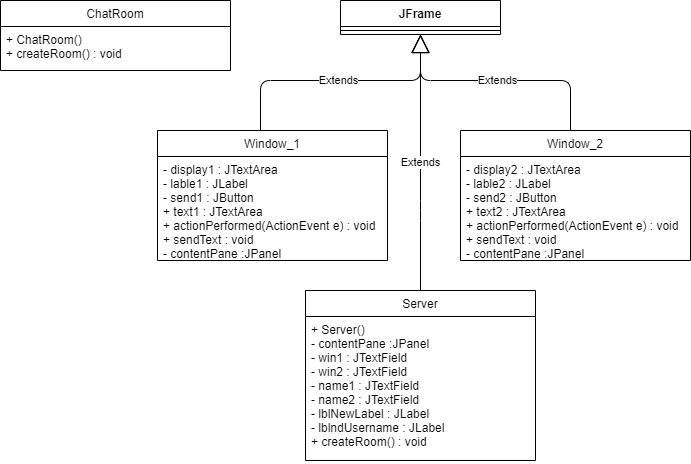
1. **Description**

**The function of this program:**

The purpose of this program is to create a local GUI chat application in order enable users to chat among one another. By using JFrame, it is the foundation for creating Graphical Java application without the frame, so that you can’t perform any interactions. When you create a new instance of the JFrame, you can pass at title to the constructor or simply create an empty frame.

**II. Design/Plan**

**Project’s UML**



**III.a. Lessons that Have Been Learned**

setLocationRelativeTo(**null**);

* **Sets the location of the window relative to the specified component if the component is not currently showing, or ( the component ) is null, the window is centered on the screen.**

setVisible(**true**);

* **Shows or hides this component depending on the value of the parameter.**
* **In a JFrame window you can add buttons or labels and use setVisible method to show or hide the component.**

setLocation( x , y );

* **A point representing a location ( x , y ) coordinate space, specified in integer precision.**

**Imported library**

import java.awt.BorderLayout;

import java.awt.EventQueue;

import javax.swing.JFrame;

import javax.swing.JPanel;

import javax.swing.border.EmptyBorder;

import javax.swing.JTextArea;

import javax.swing.JButton;

import javax.swing.JLabel;

import java.awt.event.ActionListener;

import java.awt.event.ActionEvent;

**III.b. Problem that Have Been Overcome**

Creating this program is quite hard because playing around with the JFrame and Javax at the same time with the swing, I need to be able to create functions in order for the GUI chat to work for example on how to append what’s is type in Window\_1 to be there also in the Window\_2 Text field so that both Window have the same text or messages send, and also how to make the text field empty once the user send their text. Plus, using new method such as setRelativeTo and setLocation, in order for the window or the GUI to be clean and in the right place according to the coordinates.

**Resources :**

* <https://www.youtube.com/watch?v=706Ye4ubtEY>
* <https://www.udemy.com/course/java-for-beginners-with-17-hands-on-projects/?utm_source=adwords&utm_medium=udemyads&utm_campaign=LongTail_la.EN_cc.ROW&utm_content=deal4584&utm_term=_._ag_77879424134_._ad_437497333833_._kw__._de_c_._dm__._pl__._ti_dsa-1007766171312_._li_1007710_._pd__._&matchtype=b&gclid=CjwKCAjw26H3BRB2EiwAy32zhTpVyLbjkueDMwz9rRI30SdrorFKz62_W_6yj5ba7DHPFfhK8rUw1BoCJcsQAvD_BwE>
* <https://www.udemy.com/topic/Java/?gclid=CjwKCAjw26H3BRB2EiwAy32zhWAExetRwcw0z2Bqc80IZcE4fGzVtwb-soKRkxNfV8hIqLQNZrvOzRoC02oQAvD_BwE&matchtype=b&utm_campaign=Java_v.PROF_la.EN_cc.ROW_ti.6336&utm_content=deal4584&utm_medium=udemyads&utm_source=adwords&utm_term=_._ag_79708683014_._ad_392368935971_._kw_%2Bjava%20%2Blearn_._de_c_._dm__._pl__._ti_kwd-331330515513_._li_1007710_._pd__._>
* <https://www.ntu.edu.sg/home/ehchua/programming/java/J4a_GUI.html>

**V. Source Code**

***ChatRoom.java***

public class ChatRoom {

    static Window\_1 win1;

    static Window\_2 win2;

    static Server server;

    public ChatRoom() {

        server = new Server();

        server.setLocationRelativeTo(null);

        server.setVisible(true);

    }

    public static void createRoom() {

        win1 = new Window\_1();

        win2 = new Window\_2();

        win1.setLocation(500,200);

        win2.setLocation(900,200);

        win1.setVisible(true);

        win2.setVisible(true);

        server.setVisible(false);

    }

    public static void main(String[] args) {

        ChatRoom chatRoom = new ChatRoom();

    }

}

***Window\_1.java***

import java.awt.BorderLayout;

import java.awt.EventQueue;

import javax.swing.JFrame;

import javax.swing.JPanel;

import javax.swing.border.EmptyBorder;

import javax.swing.JTextArea;

import javax.swing.JButton;

import javax.swing.JLabel;

import java.awt.event.ActionListener;

import java.awt.event.ActionEvent;

public class Window\_1 extends JFrame {

    static String username1;

    //variable (declare)

    private javax.swing.JLabel label1;

    private static javax.swing.JTextArea display1;

    private javax.swing.JButton send1;

    public static javax.swing.JTextArea text1;

    private JPanel contentPane;

    /\*\*

     \* Launch the application.

     \*/

    public static void main(String[] args) {

        EventQueue.invokeLater(new Runnable() {

            public void run() {

                try {

                    Window\_1 frame = new Window\_1();

                    frame.setVisible(true);

                } catch (Exception e) {

                    e.printStackTrace();

                }

            }

        });

    }

    /\*\*

     \* Create the frame.

     \*/

    public Window\_1() {

        setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

        setBounds(100, 100, 385, 421);

        contentPane = new JPanel();

        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));

        setContentPane(contentPane);

        contentPane.setLayout(null);

        display1 = new JTextArea();

        display1.setBounds(10, 44, 351, 279);

        contentPane.add(display1);

        text1 = new JTextArea();

        text1.setBounds(10, 333, 277, 41);

        contentPane.add(text1);

        send1 = new JButton("SEND");

        send1.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                    String s = text1.getText();

                    if(s.equals("")) {

                        return;

                    }

                    display1.append(username1 + ": " + s + "\n");

                    Window\_2.sendText();

                    text1.setText("");

                    }

            // this function above get the text from the field where we type and put it in a String

            // if it's empty, the program does nothing

            // if not empty, the code runs, append the text in our own display and then pass the text to the window\_2

            // set text1 to empty, so the messages box is clear when we send it

        });

        send1.setBounds(297, 335, 64, 39);

        contentPane.add(send1);

        label1 = new JLabel("Chat window for:" + username1 );

        label1.setBounds(10, 10, 262, 24);

        contentPane.add(label1);

        JButton clear = new JButton("CLEAR");

        clear.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                display1.setText("");

            }

            // this above code is to set the text in the text box to be cleared when it's pressed

        });

        clear.setBounds(276, 13, 85, 21);

        contentPane.add(clear);

    }

    // s is messages

    public static void sendText() {

        String s = Window\_2.text2.getText();// this code makes new String and get the text from Window\_2, when you type something in the Window\_2 text area, it will display what it written there

        if(s.equals("")) {//if it is empty or nothing, it returns means doesn't do anything, if not empty

            return;

        }

        display1.append(Window\_2.username2 + ": " + s + "\n");//append or add the text to other window

        }

}

***Window\_2.java***

import java.awt.BorderLayout;

import java.awt.EventQueue;

import javax.swing.JFrame;

import javax.swing.JPanel;

import javax.swing.border.EmptyBorder;

import javax.swing.JTextArea;

import javax.swing.JButton;

import javax.swing.JLabel;

import java.awt.event.ActionListener;

import java.awt.event.ActionEvent;

public class Window\_2 extends JFrame {

    static String username2;

    //variable

    private javax.swing.JLabel label2;

    private static javax.swing.JTextArea display2;

    private javax.swing.JButton send2;

    public static javax.swing.JTextArea text2;

    private JPanel contentPane;

    /\*\*

     \* Launch the application.

     \*/

    public static void main(String[] args) {

        EventQueue.invokeLater(new Runnable() {

            public void run() {

                try {

                    Window\_2 frame = new Window\_2();

                    frame.setVisible(true);

                } catch (Exception e) {

                    e.printStackTrace();

                }

            }

        });

    }

    /\*\*

     \* Create the frame.

     \*/

    //constructor

    public Window\_2() {

        setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

        setBounds(100, 100, 385, 421);

        contentPane = new JPanel();

        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));

        setContentPane(contentPane);

        contentPane.setLayout(null);

        display2 = new JTextArea();

        display2.setBounds(10, 44, 351, 279);

        contentPane.add(display2);

        text2 = new JTextArea();

        text2.setBounds(10, 333, 277, 41);

        contentPane.add(text2);

        send2 = new JButton("SEND");

        send2.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                String s = text2.getText();

                if(s.equals("")) {

                    return;

                }

                display2.append(username2 + ": " + s + "\n");

                Window\_1.sendText();

                text2.setText("");

                }

    // this function above get the text from the field where we type and put it in a String

    // if it's empty, the program does nothing

    // if not empty, the code runs, append the text in our own display and then pass the text to the window\_2

    // set text1 to empty, so the messages box is clear when we send it

        });

        send2.setBounds(297, 335, 64, 39);

        contentPane.add(send2);

        JButton clear = new JButton("CLEAR");

        clear.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                display2.setText("");

            }

        });

        // this above code is to set the text in the text box to be cleared when it's pressed

        clear.setBounds(276, 13, 85, 21);

        contentPane.add(clear);

        label2 = new JLabel("Chat window for: " + username2);

        label2.setBounds(10, 10, 261, 24);

        contentPane.add(label2);

    }

    public static void sendText() {

        String s = Window\_1.text1.getText(); // this code makes new String and get the text from Window\_2, when you type something in the Window\_2 text area, it will display what it written there

        if(s.equals("")) {//if it is empty or nothing, it returns means doesn't do anything, if not empty

            return;

        }

        display2.append(Window\_1.username1 + ": " + s + "\n");//append or add the text to other window

        }

}

***Server.java***

import java.awt.BorderLayout;

import java.awt.EventQueue;

import javax.swing.JFrame;

import javax.swing.JPanel;

import javax.swing.border.EmptyBorder;

import javax.swing.JTextField;

import javax.swing.JButton;

import javax.swing.JLabel;

import javax.swing.JOptionPane;

import java.awt.Font;

import java.awt.event.ActionListener;

import java.awt.event.ActionEvent;

public class Server extends JFrame {

    //

    private JPanel contentPane;

    private JTextField win1;

    private JTextField win2;

    private JTextField name1;

    private JTextField name2;

    private JLabel lblNewLabel;

    private JLabel lblndUsername;

    /\*\*

     \* Launch the application.

     \*/

    public static void main(String[] args) {

        EventQueue.invokeLater(new Runnable() {

            public void run() {

                try {

                    Server frame = new Server();

                    frame.setVisible(true);

                } catch (Exception e) {

                    e.printStackTrace();

                }

            }

        });

    }

    /\*\*

     \* Create the frame.

     \*/

    public Server() {

        setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

        setBounds(100, 100, 450, 300);

        contentPane = new JPanel();

        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));

        setContentPane(contentPane);

        contentPane.setLayout(null);

        name1 = new JTextField();

        name1.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                createRoom();

            }

        });

        name1.setBounds(110, 51, 229, 34);

        contentPane.add(name1);

        name1.setColumns(10);

        name2 = new JTextField();

        name2.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                createRoom();

            }

            //creation of the room

        });

        name2.setColumns(10);

        name2.setBounds(110, 128, 229, 34);

        contentPane.add(name2);

        JButton btnNewButton = new JButton("JOIN CHAT");

        btnNewButton.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent e) {

                createRoom();

            }

        });

        btnNewButton.setBounds(173, 198, 110, 33);

        contentPane.add(btnNewButton);

        lblNewLabel = new JLabel("1st username");

        lblNewLabel.setFont(new Font("Tahoma", Font.PLAIN, 18));

        lblNewLabel.setBounds(110, 22, 229, 23);

        contentPane.add(lblNewLabel);

        lblndUsername = new JLabel("2nd username");

        lblndUsername.setFont(new Font("Tahoma", Font.PLAIN, 18));

        lblndUsername.setBounds(110, 95, 229, 23);

        contentPane.add(lblndUsername);

    }

    //

    private void createRoom() {

        String p1,p2; // this 2 String act as our username

        p1 = name1.getText();

        p2 = name2.getText();

        // get the text according to the field in design page

        if(p1.equals("") || p2.equals("")) {

            JOptionPane.showMessageDialog(null, "Please enter a valid username  ");

            return;

        // if either of them equals to empty, we ran into a problem and the program

        // returns ( does nothing ) before that the messageDialog will say the messages above

        }

        Window\_1.username1 = name1.getText();

        Window\_2.username2 = name2.getText();

        ChatRoom.createRoom();

    }

}