16.How to create jbutton, font style and size, foreground and background, set different curson for jbutton

17. How to set image on JButton

18. How to set actionListener on JButton

19. How to create a login frame

20. How to open one frame to another

21. How to create JTextArea, font size, set forground and background color, line wraping. add scrollbar

22. How to create multiplication table

23. How to create JRadioActiveButton, create ButtonGroup, font size and style, select JRadioButton internally, disable JRadioButton, add actionlistener

24. How to create JCheckBox, create ButtonGroup. set internally. add actionlistener

25. How to create JCheckBox, and addItemListener

26. How to create JComboBox, add actionlistener in jcombobox or button

27. Add action listener method-3

28. Keylistener

29. Keylistener and count number of vowel
30. MouseListener
31. MouseMotionListener

1. Show Message Dialog

| Icon | Code | IDE Value |
|---|---|---|
| No icon | JOptionPane.PLAIN_MESSAGE | -1 |
| ❌ | JOptionPane.ERROR_MESSAGE | 0 |
| ℹ | JOptionPane.INFORMATION_MESSAGE | 1 |
| ⚠ | JOptionPane.WARNING_MESSAGE | 2 |
| | JOptionPane.QUESTION_MESSAGE | 3 |

*we can also use IDE value instead of Code.

```java
/*First, I need to write this code in any text editor. Then run this code
using cmd.*/

import javax.swing.JOptionPane;

class MessageDialog{

    public static void main(String[] args){

        //JOptionPane.showMessageDialog(null, "Wrong password");

        JOptionPane.showMessageDialog(null, "Wrong password", "Warning",
JOptionPane.ERROR_MESSAGE);


    }
}



/*For this code I need to create a new folder and inside this folder I save
the java file which is given below. Next copy any image and paste it inside
the same folder. Then run the code using cmd*/

import javax.swing.JOptionPane;

import javax.swing.ImageIcon;

class MessageDialog{

    public static void main(String[] args){

        ImageIcon img = new ImageIcon("pata.png");

        JOptionPane.showMessageDialog(null, "Wrong password", "Warning",
JOptionPane.PLAIN_MESSAGE, img);


    }
}
```

2. Show input dialog

**Just run this two-code using NetBeans**

```java
package udemy;

import javax.swing.JOptionPane;

public class Gone {


    public static void main(String[] args) {

        String name = JOptionPane.showInputDialog("Enter your name: ");

        JOptionPane.showMessageDialog(null, name + " welcome to jswing");

    }

}
```

```java
package udemy;

import javax.swing.JOptionPane;

public class Hone {

    public static void main(String[] args) {

        String fName = JOptionPane.showInputDialog(null, "Enter your first
name ", "This is title", JOptionPane.QUESTION_MESSAGE);

        String lName = JOptionPane.showInputDialog("Enter your last name ");


        String name = fName + " " + lName;

        JOptionPane.showMessageDialog(null, "You full name is " + name);

    }

}
```

3. Show confirm dialog

```java
package udemy;

import javax.swing.JOptionPane;

public class Hone {

    public static void main(String[] args) {

        int choice = JOptionPane.showConfirmDialog(null, "Do you want to
quit?", "Title", JOptionPane.YES_NO_OPTION);

        if (choice == JOptionPane.YES_OPTION) {

            System.exit(0);

        } else {

            System.out.println("You click no option");

        }

    }

}
```

4. Create and setting a JFrame

1. setVisible( )

2. setDefaultCloseOperation( )

3. setSize( )

4. setLocation( )

5. setLocationRelativeTo( )

6. setBounds( )

7. setTitle( )

8. setResizable( )

```java
package udemy;

import javax.swing.JFrame;

public class Hone {

    public static void main(String[] args) {
        JFrame f = new JFrame();
        f.setVisible(true);
        //Orthat click korar saty saty frame ta close hoye jaby.
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        //f.setSize(400, 300);
        // f.setLocationRelativeTo(null);
        //f.setLocale(200, 50); uporer null dily ayta deyar r dorkar nai.
        f.setBounds(200, 50, 400, 300);//left, upor, length, width.
        f.setTitle("Frame demo");
        //f.setResizable(false);
    }
}

/*Same code using constructor*/
package udemy;

import javax.swing.JFrame;

public class Hone extends JFrame {

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        //Orthat click korar saty saty frame ta close hoye jaby.
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        //f.setSize(400, 300);
        // f.setLocationRelativeTo(null);
        //f.setLocale(200, 50); uporer null dily ayta deyar r dorkar nai.
        f.setBounds(200, 50, 400, 300);//left, upor, length, width.
        f.setTitle("Frame demo");
        //f.setResizable(false);
    }
}
```

5. Create and setting a JFrame method-2

```java
package udemy;
import javax.swing.JFrame;
public class Hone extends JFrame {
    //f object ta Hone class theky accessable na. Tai j na dileo hoby.
    Hone() {
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setBounds(200, 50, 400, 300);
        setTitle("Frame demo");
        setResizable(false);
    }


    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);


    }
}
```

1. Need an icon
2. Make an object of ImageIcon class
3. getClass( )
4. getResource( )
5. setIconImage( )
6. getImage( )

```java
package udemy;

import javax.swing.ImageIcon;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private ImageIcon icon;

    Hone() {

        kibria();
    }

    public void kibria() {
        icon = new ImageIcon(getClass().getResource("download.png"));
      /*frame er moddy image ta dekanor jonno nicher statement likha
        hoyechy. this. dara mulotw f. dei bujano hoyechy. cuz f object k ay
        class a direct likha jaby na. tai this diye likhychi ja mulotw f kei
        bujay. */
        this.setIconImage(icon.getImage());

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 400, 300);
        f.setTitle("Frame demo");
        f.setResizable(false);

    }
}

*akta image copy cory ay package a paste kory dity hoby.
```

7. Change background color

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.ImageIcon;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private ImageIcon icon;
    private Container c;

    Hone() {

        kibria();
    }

    public void kibria() {
        //frame er j contentpane asy seta choly ascy c er moddy.
        tai c er color change kory dilei hoye jaby.
        c = this.getContentPane();
        c.setBackground(Color.DARK_GRAY);

        icon = new ImageIcon(getClass().getResource("download.png"));
        this.setIconImage(icon.getImage());
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 400, 300);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

8.How to create a JLabel

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {


    private Container c;
    private JLabel userLabel;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        /*JLabel dara mulotw frame er moddy text and image iadd  kora  hoy.
      userLabel variable ta akany liklam & JLable object ta toiri korlam. */
        userLabel = new JLabel();
        userLabel.setText("Enter your username: ");
        userLabel.setBounds(50, 20, 150, 50);
        c.add(userLabel);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 400, 300);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

9.Create multiple JLabel, set font style and size, set forground and background, how to add tips.

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {


    private Container c;
    private JLabel userLabel, secondLabel;
    private Font f;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        userLabel = new JLabel();
        userLabel.setText("Enter your username: ");
        userLabel.setBounds(50, 20, 200, 50);
        userLabel.setFont(f);
        userLabel.setForeground(Color.BLUE);
        /*Background normally flase deya thaky. jar jonno color chnage kora
                jay na. Tai background taky enable kory nilam true er
maddomy*/
        userLabel.setOpaque(true);
        userLabel.setBackground(Color.yellow);
        userLabel.setToolTipText("Enter your username.");
        c.add(userLabel);

        //System.out.println(" "+userLabel.getText());
        String s = userLabel.getToolTipText();
        System.out.println(" "+s);

        secondLabel = new JLabel("Enter your password: ");
        secondLabel.setBounds(50, 80, 200, 50);
        secondLabel.setFont(f);
```

```java
        c.add(secondLabel);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 400, 300);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

10.How to add image on JLabel
```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.ImageIcon;

import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {

    private Container c;
    private JLabel imageLable;
    private ImageIcon imgIcon;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        imgIcon = new ImageIcon(getClass().getResource("download.png"));
        imageLable = new JLabel(imgIcon);
        //imageLable.setBounds(50, 30, 200, 150);
        imageLable.setBounds(50, 30, imgIcon.getIconWidth(),
imgIcon.getIconHeight());
        c.add(imageLable);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

11.How to create JTextField, set Font style and size for JTexrField

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;

import javax.swing.JFrame;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf1, tf2;
    private Font f;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.ITALIC+Font.BOLD, 18);

        tf1 = new JTextField();
        tf1.setBounds(50, 50, 200, 50);
        tf1.setFont(f);
        c.add(tf1);

        tf2 = new JTextField();
        tf2.setText("Kibria");
        tf2.setBounds(50, 110, 200, 50);
        tf2.setFont(f);
        c.add(tf2);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

12.How to create JTextField, set Font style and size, set forground and background, set align for JTexrField

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import javax.swing.JFrame;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf1, tf2;
    private Font f;

    Hone() {

        kibria();
    }
    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.ITALIC+Font.BOLD, 18);

        tf1 = new JTextField();
        tf1.setBounds(50, 50, 200, 50);
        tf1.setFont(f);
        tf1.setForeground(Color.WHITE);
        tf1.setBackground(Color.black);
        tf1.setHorizontalAlignment(JTextField.CENTER);
        c.add(tf1);

        tf2 = new JTextField();
        tf2.setText("Kibria");
        tf2.setBounds(50, 110, 200, 50);
        tf2.setFont(f);
        c.add(tf2);
    }
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

## 13.How to add actionlistener in JTexrField method-1

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.JFrame;
import javax.swing.JOptionPane;
import javax.swing.JTextField;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf1, tf2;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        tf1 = new JTextField();
        tf1.setBounds(50, 50, 200, 50);
        c.add(tf1);

        tf2 = new JTextField();
        tf2.setText("Kibria");
        tf2.setBounds(50, 110, 200, 50);
        c.add(tf2);

        tf1.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                String s = tf1.getText();
                if (s.isEmpty()) {
                    JOptionPane.showMessageDialog(null, "You didn't enter
anything");
                } else {
                    JOptionPane.showMessageDialog(null, "tf1 = " + s);
                }
            }
        });

    }

    public static void main(String[] args) {
```

```java
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

14.How to add actionlistener in JTexrField method-2

```java
package udemy;

import java.awt.Color;
import java.awt.Container;

import javax.swing.JFrame;
import javax.swing.JOptionPane;
import javax.swing.JTextField;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf1, tf2;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        tf1 = new JTextField();
        tf1.setBounds(50, 50, 200, 50);
        c.add(tf1);

        tf2 = new JTextField();
        tf2.setText("Kibria");
        tf2.setBounds(50, 110, 200, 50);
        c.add(tf2);

        Handler h = new Handler();
        tf1.addActionListener(h);
        tf2.addActionListener(h);
    }

    class Handler implements ActionListener {

        public void actionPerformed(ActionEvent e) {
            //Action ta e er moddy choly asby then getSource er maddomy amra
check korteci kon testfield theky enter press kora hoyechy.
            if (e.getSource() == tf1) {
                String s = tf1.getText();
                if (s.isEmpty()) {
```

```java
                    JOptionPane.showMessageDialog(null, "You didn't enter
anything");
                } else {
                    JOptionPane.showMessageDialog(null, "tf1 = " + s);
                }
            } else {
                String s = tf2.getText();
                if (s.isEmpty()) {
                    JOptionPane.showMessageDialog(null, "You didn't enter
anything");
                } else {
                    JOptionPane.showMessageDialog(null, "tf2 = " + s);
                }
            }
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

15.How to create jpasswordfield, font style and size for jpasswordfield. set forground
and background for jpasswordfield

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import javax.swing.JFrame;
import javax.swing.JPasswordField;

public class Hone extends JFrame {

    private Container c;
    private JPasswordField pf;
    private Font f;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 20);

        pf = new JPasswordField();
        pf.setBounds(50, 50, 200, 50);
        pf.setFont(f);
        pf.setEchoChar('*');
        pf.setForeground(Color.GREEN);
        pf.setBackground(Color.RED);
        c.add(pf);

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

16.How to create jbutton, font style and size, foreground and background, set different curson for jbutton

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Cursor;
import java.awt.Font;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    private JButton b1, b2;
    private Font f;
    private Cursor cr;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 20);
        cr = new Cursor(Cursor.HAND_CURSOR);

        b1 = new JButton("Submit");
        b1.setBounds(50, 50, 200, 50);
        b1.setFont(f);
        b1.setForeground(Color.yellow);
        b1.setBackground(Color.BLACK);
        b1.setCursor(cr);
        c.add(b1);

        b2 = new JButton("Clear");
        b2.setBounds(50, 110, 200, 50);
        b2.setFont(f);
        b2.setForeground(Color.yellow);
        b2.setBackground(Color.BLACK);
        b2.setCursor(cr);
        c.add(b2);

    }
```

```java
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

## 17. How to set image on JButton

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Cursor;
import java.awt.Font;
import javax.swing.ImageIcon;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    private JButton b1, b2;
    private Font f;
    private Cursor cr;
    private ImageIcon img1, img2;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 20);
        cr = new Cursor(Cursor.HAND_CURSOR);

        img1 = new ImageIcon(getClass().getResource("l.jpg"));
        img2 = new ImageIcon(getClass().getResource("C.jpg"));

        b1 = new JButton(img1);
        b1.setBounds(50, 50, 200, 50);
        b1.setFont(f);
        b1.setCursor(cr);
        c.add(b1);

        b2 = new JButton(img2);
        b2.setBounds(50, 110, 200, 50);
        b2.setFont(f);
        b2.setCursor(cr);
        c.add(b2);

    }

    public static void main(String[] args) {
```

```java
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

18. How to set actionListener on JButton

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JButton b1;
    private JTextField tf;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        tf = new JTextField();
        tf.setBounds(50, 50, 200, 50);
        c.add(tf);

        b1 = new JButton("Clear");
        b1.setBounds(50, 110, 200, 50);
        c.add(b1);

        b1.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                //setText k empty kory dibo tai double quotation dilam.
                tf.setText("");
            }
        });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
```

```
        f.setResizable(true);
    }
}
```

## 19. How to create a login frame

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.JPasswordField;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private JLabel uLabel, pLabel;
    private JTextField tf;
    private JPasswordField pf;
    private JButton login, clear;
    private Container c;
    private Font f;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 18);

        uLabel = new JLabel("Username: ");
        uLabel.setBounds(50, 50, 150, 50);
        uLabel.setFont(f);
        c.add(uLabel);
        tf = new JTextField();
        tf.setBounds(170, 65, 230, 25);
        tf.setFont(f);
        c.add(tf);

        pLabel = new JLabel("Password: ");
        pLabel.setBounds(50, 100, 150, 50);
        pLabel.setFont(f);
        c.add(pLabel);
        pf = new JPasswordField();
```

```java
        pf.setBounds(170, 115, 230, 25);
        pf.setFont(f);
        //pf.setEchoChar('*');
        c.add(pf);

        login = new JButton("Log in");
        login.setBounds(170, 160, 100, 35);
        login.setFont(f);
        c.add(login);
        clear = new JButton("Clear");
        clear.setBounds(300, 160, 100, 35);
        clear.setFont(f);
        c.add(clear);

        clear.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                tf.setText("");
                pf.setText("");
            }
        });
        login.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                String userName = tf.getText();
                String userPass = pf.getText();

                if (userName.equals("Kibria") && userPass.equals("3435")) {
                    JOptionPane.showMessageDialog(null, "You are successfully
login");
                } else {
                    JOptionPane.showMessageDialog(null, "Invalid username or
password");
                }
            }
        });

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

## 20. How to open one frame to another

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.JPasswordField;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private JLabel uLabel, pLabel;
    private JTextField tf;
    private JPasswordField pf;
    private JButton login, clear;
    private Container c;
    private Font f;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 18);

        uLabel = new JLabel("Username: ");
        uLabel.setBounds(50, 50, 150, 50);
        uLabel.setFont(f);
        c.add(uLabel);
        tf = new JTextField();
        tf.setBounds(170, 65, 230, 25);
        tf.setFont(f);
        c.add(tf);

        pLabel = new JLabel("Password: ");
        pLabel.setBounds(50, 100, 150, 50);
        pLabel.setFont(f);
        c.add(pLabel);
        pf = new JPasswordField();
```

```java
        pf.setBounds(170, 115, 230, 25);
        pf.setFont(f);
        //pf.setEchoChar('*');
        c.add(pf);

        login = new JButton("Log in");
        login.setBounds(170, 160, 100, 35);
        login.setFont(f);
        c.add(login);
        clear = new JButton("Clear");
        clear.setBounds(300, 160, 100, 35);
        clear.setFont(f);
        c.add(clear);

        clear.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                tf.setText("");
                pf.setText("");
            }
        });
        login.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                String userName = tf.getText();
                String userPass = pf.getText();

                if (userName.equals("Kibria") && userPass.equals("3435")) {
                    JOptionPane.showMessageDialog(null, "You are successfully
login");

                    //dispose(); login frame taky disapper kory deyar jonno
                    /*J frame ta open korbo tar object toiri kory nity hoby*/
                    NewFrame fr = new NewFrame();
                    fr.setVisible(true);
                } else {
                    JOptionPane.showMessageDialog(null, "Invalid username or
password");
                }
            }
        });

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
```

```java
        }
}

//class-2 er code. Cuz total dui ta class lagby
package udemy;

import java.awt.Color;
import java.awt.Container;

import javax.swing.JFrame;
import javax.swing.JLabel;

public class NewFrame extends JFrame {
    private Container c;
    private JLabel label;

    NewFrame() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        label = new JLabel("Welcome to new frame");
        label.setBounds(50, 50, 200, 150);
        c.add(label);
    }

    public static void main(String[] args) {
        NewFrame fr = new NewFrame();
        fr.setVisible(true);
        fr.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        //fr.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);
        fr.setBounds(200, 50, 500, 500);
        fr.setTitle("New frame");
        fr.setResizable(true);
    }
}
```

21. How to create JTextArea, font size, set forground and background color, line wraping. add scrollbar

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import javax.swing.JFrame;
import javax.swing.JScrollPane;
import javax.swing.JTextArea;


public class Hone extends JFrame {

    private Container c;
    private JTextArea ta;
    private Font f;
    private JScrollPane scroll;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 18);

        ta = new JTextArea("");
        //ta.setBounds(50, 50, 300, 300); //jscrollpane use korly ayta darkar nai
        ta.setFont(f);
        ta.setLineWrap(true);
        ta.setWrapStyleWord(true);
        ta.setForeground(Color.yellow);
        ta.setBackground(Color.BLACK);
        //c.add(ta);  //jscrollpane use korly ayta darkar nai

        scroll = new JScrollPane(ta);
        //scroll = new JScrollPane(ta, JScrollPane.VERTICAL_SCROLLBAR_NEEDED, JScrollPane.HORIZONTAL_SCROLLBAR_ALWAYS);
        scroll.setBounds(50, 50, 300, 300);
        c.add(scroll);
    }
```

```java
public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(200, 50, 500, 500);
        f.setTitle("Frame demo");
        f.setResizable(true);
    }
}
```

## 22. How to create multiplication table

```java
package table;

import java.awt.Color;
import java.awt.Container;
import java.awt.Cursor;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.ImageIcon;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.JTextArea;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextArea ta;
    private Font f;
    private JLabel imgLabel, textLabel, textLabel2;
    private JTextField tf;
    private JButton clear;
    private ImageIcon img;
    private Cursor cur;

    Hone() {

        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 18);
        cur = new Cursor(Cursor.HAND_CURSOR);

        img = new ImageIcon(getClass().getResource("ml.jpg"));

        imgLabel = new JLabel(img);
        imgLabel.setBounds(70, 10, img.getIconWidth(), img.getIconHeight());
        c.add(imgLabel);
        textLabel = new JLabel("Enter any number: ");
        textLabel.setBounds(25, 250, 200, 50);
        //textLabel.setForeground(Color.yellow);
        textLabel.setFont(f);
```

```java
        c.add(textLabel);

        tf = new JTextField();
        tf.setBounds(200, 260, 100, 30);
        tf.setBackground(Color.orange);
        tf.setHorizontalAlignment(JTextField.CENTER);
        tf.setFont(f);
        c.add(tf);

        clear = new JButton("Clear");
        clear.setBounds(200, 300, 100, 40);
        //clear.setBackground(Color.BLACK);
        clear.setCursor(cur);
        clear.setFont(f);
        c.add(clear);

        ta = new JTextArea();
        ta.setBounds(20, 370, 300, 250);
        ta.setBackground(Color.ORANGE);
        ta.setFont(f);
        c.add(ta);

        textLabel2 = new JLabel("© Golam Kibria Ezaz");
        textLabel2.setBounds(20, 620, 200, 50);
        //textLabel.setForeground(Color.yellow);
        textLabel2.setFont(f);
        c.add(textLabel2);

        tf.addActionListener(new ActionListener() {

            public void actionPerformed(ActionEvent ae) {
                //textfield a always stirng thaky tai string taky niye nicci
str er madomy
                String str = tf.getText();
                if (str.isEmpty()) {
                    JOptionPane.showMessageDialog(null, "You didn't put any
number");
                } else {
                    ta.setText("");
                    //getText holo string tai parseInt er maddomy ataky int a
convery kory nilam
                    int num = Integer.parseInt(tf.getText());
                    for (int i = 1; i <= 10; i++) {
                        int result = num * i;

                        //jehetu textfield a output dekabo tai value gulo k
textfield a niye jacci.
                        //text field a jehetu string niye kaj hou tai int to
stirng a type cast kory nicci.
                        String r = String.valueOf(result);
```

```java
                    String n = String.valueOf(num);
                    String increment = String.valueOf(i);

                    ta.append(n + " x " + i + " = " + r + "\n");

                }
            }
        }

    });

    clear.addActionListener(new ActionListener() {

        public void actionPerformed(ActionEvent ae) {
            ta.setText("");
        }
    });
}

public static void main(String[] args) {
    Hone f = new Hone();
    f.setVisible(true);
    f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    f.setBounds(300, 20, 360, 700);
    f.setTitle("Multiplication Table");
    f.setResizable(true);
}
}
```

23. How to create JRadioActiveButton, create ButtonGroup, font size and style, select JRadioButton internally, disable JRadioButton, add actionlistener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.ButtonGroup;
import javax.swing.JFrame;
import javax.swing.JRadioButton;
import javax.swing.JTextArea;

public class Hone extends JFrame {

    private Container c;
    private JRadioButton male, female;
    private ButtonGroup grp;
    private JTextArea ta;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 14);
        grp = new ButtonGroup();

        male = new JRadioButton("Male");
        male.setBounds(10, 50, 90, 25);
        male.setFont(f);
        male.setBackground(Color.LIGHT_GRAY);
        //male.setSelected(true);
        c.add(male);

        female = new JRadioButton("Female");
        female.setBounds(120, 50, 90, 25);
        female.setFont(f);
        female.setBackground(Color.LIGHT_GRAY);
        //female.setEnabled(false);
        c.add(female);
```

```java
        grp.add(male); //orthat akta select korly onno aktao select kora jaby
na
        grp.add(female);

        ta = new JTextArea();
        ta.setBounds(10, 100, 250, 50);
        ta.setFont(f);
        c.add(ta);

        Handler h = new Handler();
        male.addActionListener(h);
        female.addActionListener(h);

    }

    class Handler implements ActionListener {

        public void actionPerformed(ActionEvent ae) {

            //or, if(male.isSelected() ayta dileo hoto
            if (ae.getSource()==male) {
                ta.append("You have selected male.\n");
                //ta.setText("You have selected male");
            } else {
                ta.append("You have selected female.\n");
                //ta.setText("You have selected female");
            }
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Radioactive Button");
        f.setResizable(true);
    }
}
```

24. How to create JCheckBox, create ButtonGroup. set internally. add actionlistener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.ButtonGroup;
import javax.swing.JCheckBox;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {

    private Container c;
    private JCheckBox jCB, cCB, pCB;
    private ButtonGroup grp;
    private JLabel label;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);
        grp = new ButtonGroup();

        jCB = new JCheckBox("Java");
        jCB.setBounds(20, 50, 80, 25);
        jCB.setBackground(Color.LIGHT_GRAY);
        jCB.setFont(f);
        c.add(jCB);

        cCB = new JCheckBox("C");
        cCB.setBounds(110, 50, 80, 25);
        cCB.setBackground(Color.LIGHT_GRAY);
        cCB.setFont(f);
        c.add(cCB);

        pCB = new JCheckBox("Python");
        //pCB = new JCheckBox("Python", true); ayta use korly nicher true ta
r deyar dorkar nai.
```

```java
        pCB.setBounds(200, 50, 80, 25);
        pCB.setBackground(Color.LIGHT_GRAY);
        //pCB.setSelected(true);
        pCB.setFont(f);
        c.add(pCB);

        grp.add(jCB);
        grp.add(cCB);
        grp.add(pCB);

        label = new JLabel("You have not selected anything");
        label.setBounds(20, 70, 300, 100);
        label.setFont(f);
        c.add(label);

        Handler h = new Handler();
        jCB.addActionListener(h);
        cCB.addActionListener(h);
        pCB.addActionListener(h);
    }

    class Handler implements ActionListener {

        public void actionPerformed(ActionEvent ae) {
            //if(ae.getSource()==jCB)
            if (jCB.isSelected()) {
                label.setText("You have selected Java");
            } else if (cCB.isSelected()) {
                label.setText("You have selected C");
            } else {
                label.setText("You have selected Python");
            }
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Check Box Demo");
        f.setResizable(true);
    }
}
```

## 25. How to create JCheckBox, and addItemListener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ItemEvent;
import java.awt.event.ItemListener;

import javax.swing.ButtonGroup;
import javax.swing.JCheckBox;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {

    private Container c;
    private JCheckBox jCB, cCB, pCB;
    private ButtonGroup grp;
    private JLabel label;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);
        grp = new ButtonGroup();

        jCB = new JCheckBox("Java");
        jCB.setBounds(20, 50, 80, 25);
        jCB.setBackground(Color.LIGHT_GRAY);
        jCB.setFont(f);
        c.add(jCB);

        cCB = new JCheckBox("C");
        cCB.setBounds(110, 50, 80, 25);
        cCB.setBackground(Color.LIGHT_GRAY);
        cCB.setFont(f);
        c.add(cCB);

        pCB = new JCheckBox("Python");
```

```java
        //pCB = new JCheckBox("Python", true); ayta use korly nicher true ta
r deyar dorkar nai.
        pCB.setBounds(200, 50, 80, 25);
        pCB.setBackground(Color.LIGHT_GRAY);
        //pCB.setSelected(true);
        pCB.setFont(f);
        c.add(pCB);

        grp.add(jCB);
        grp.add(cCB);
        grp.add(pCB);

        label = new JLabel("You have not selected anything");
        label.setBounds(20, 70, 300, 100);
        label.setFont(f);
        c.add(label);

        Handler h = new Handler();
        jCB.addItemListener(h);
        cCB.addItemListener(h);
        pCB.addItemListener(h);
    }

    class Handler implements ItemListener {

        public void itemStateChanged(ItemEvent ie) {
            if (ie.getSource() == jCB) {
                label.setText("You have selected Java");
            } else if (ie.getSource() == cCB) {
                label.setText("You have selected C");
            } else {
                label.setText("You have selected Python");
            }
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Check Box Demo");
        f.setResizable(true);
    }
}
```

26. How to create JComboBox, add actionlistener in jcombobox or button

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JComboBox;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {

    private Container c;
    private JComboBox cb;
    private String[] str = {"Kibria", "Munna", "Amit", "Sihab"};
    private JLabel label;
    private JButton b;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        cb = new JComboBox(str);
        cb.setBounds(20, 100, 200, 50);
        cb.setEditable(true);
        //cb.setSelectedIndex(2); nicher ta dily ayta deyar darkar nai
        cb.setSelectedItem("Amit");
        cb.addItem("Jahid");
        //cb.removeItem("Amit");
        //cb.removeItemAt(2);
        //cb.removeAll();
        cb.setFont(f);
        c.add(cb);

        b = new JButton("Show");
        b.setBounds(20, 200, 100, 50);
        b.setFont(f);
```

```java
        c.add(b);

        label=new JLabel();
        label.setBounds(20, 20, 300, 50);
        label.setFont(f);
        c.add(label);
        //System.out.println("Total item = "+cb.getItemCount());

        /*cb.addActionListener(new ActionListener() nicher ta button er saty
add korci.
            jodi combobox er saty add kortam tokom just b er jaygay cb
dilei hoto. baki sob same.*/
        b.addActionListener(new ActionListener(){
            public void actionPerformed(ActionEvent ae) {
                String s = cb.getSelectedItem().toString();
                label.setText("You have selected - "+s);
            }
        });
    }



    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Check Box Demo");
        f.setResizable(true);
    }
}
```

## 27. Add action listener method-3

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JButton b1, b2, b3;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        b1 = new JButton("Dhaka");
        b1.setBounds(20, 30, 100, 50);
        b1.setFont(f);
        c.add(b1);

        b2 = new JButton("Badda");
        b2.setBounds(20, 100, 100, 50);
        b2.setFont(f);
        c.add(b2);

        b3 = new JButton("Cumilla");
        b3.setBounds(20, 170, 100, 50);
        b3.setFont(f);
        c.add(b3);

        b1.addActionListener(this);
        b2.addActionListener(this);
        b3.addActionListener(this);

        /*b1.addActionListener(new ActionListener(){ ata old method
```

```java
            public void actionPerformed(ActionEvent ae) {
                c.setBackground(Color.yellow);
                b1.setBackground(Color.yellow);
                }
            });*/
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == b1) {
            c.setBackground(Color.yellow);
        } else if (ae.getSource() == b2) {
            c.setBackground(Color.RED);
        } else {
            c.setBackground(Color.BLUE);
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Check Box Demo");
        f.setResizable(true);
    }
}
```

28. Keylistener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.KeyEvent;
import java.awt.event.KeyListener;
import javax.swing.JFrame;
import javax.swing.JTextArea;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf;
    private JTextArea ta;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        tf = new JTextField();
        tf.setBounds(20, 30, 250, 50);
        tf.setFont(f);
        c.add(tf);

        ta = new JTextArea();
        ta.setBounds(20, 100, 250, 200);
        ta.setFont(f);
        c.add(ta);

        tf.addKeyListener(new KeyListener() {
            public void keyTyped(KeyEvent ke) {
                ta.append("Key typed : " + ke.getKeyChar() + "\n");
            }

            public void keyPressed(KeyEvent ke) {
                ta.append("Key pressed : " + ke.getKeyChar() + "\n");
            }
```

```java
        public void keyReleased(KeyEvent ke) {
            ta.append("Key release : " + ke.getKeyChar() + "\n");
        }

    });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 400, 400);
        f.setTitle("Check Box Demo");
        f.setResizable(true);
    }
}
```

## 29. Keylistener and count number of vowel

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.KeyEvent;
import java.awt.event.KeyListener;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JScrollPane;
import javax.swing.JTextArea;

public class Hone extends JFrame {

    private Container c;
    private JTextArea ta;
    private JLabel pLabel, vLabel, aLabel, eLabel, iLabel, oLabel, uLabel;
    private JScrollPane sp;
    private Font f;

    int totalVowel = 0;
    int letter_a = 0;
    int letter_e = 0;
    int letter_i = 0;
    int letter_o = 0;
    int letter_u = 0;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        pLabel = new JLabel("Enter some text");
        pLabel.setBounds(10, 10, 200, 20);
        pLabel.setFont(f);
        c.add(pLabel);

        ta = new JTextArea();
        ta.setLineWrap(true);
        ta.setWrapStyleWord(true);
        ta.setFont(f);
```

```java
sp = new JScrollPane(ta);
sp.setBounds(10, 35, 400, 100);
c.add(sp);

vLabel = new JLabel();
vLabel.setBounds(10, 140, 200, 20);
vLabel.setFont(f);
c.add(vLabel);

aLabel = new JLabel();
aLabel.setBounds(10, 170, 200, 20);
aLabel.setFont(f);
c.add(aLabel);

eLabel = new JLabel();
eLabel.setBounds(10, 200, 200, 20);
eLabel.setFont(f);
c.add(eLabel);

iLabel = new JLabel();
iLabel.setBounds(10, 230, 200, 20);
iLabel.setFont(f);
c.add(iLabel);

oLabel = new JLabel();
oLabel.setBounds(10, 260, 200, 20);
oLabel.setFont(f);
c.add(oLabel);

uLabel = new JLabel();
uLabel.setBounds(10, 290, 200, 20);
uLabel.setFont(f);
c.add(uLabel);

ta.addKeyListener(new KeyListener() {
    public void keyTyped(KeyEvent ke) {
    }

    public void keyPressed(KeyEvent ke) {
        if (ke.getSource() == ta) {
            if (ke.VK_A == ke.getKeyCode()) {
                letter_a++;
                totalVowel++;
            }
            if (ke.VK_E == ke.getKeyCode()) {
                letter_e++;
                totalVowel++;
            }
            if (ke.VK_I == ke.getKeyCode()) {
                letter_i++;
```

```java
                    totalVowel++;
                }
                if (ke.VK_O == ke.getKeyCode()) {
                    letter_o++;
                    totalVowel++;
                }
                if (ke.VK_U == ke.getKeyCode()) {
                    letter_u++;
                    totalVowel++;
                }
            }
            vLabel.setText("Total number of Vowel: "+totalVowel);
            aLabel.setText("Total number of a: "+letter_a);
            eLabel.setText("Total number of e: "+letter_e);
            iLabel.setText("Total number of i: "+letter_i);
            oLabel.setText("Total number of o: "+letter_o);
            uLabel.setText("Total number of u: "+letter_u);
        }

        public void keyReleased(KeyEvent ke) {
        }
    });
}

public static void main(String[] args) {
    Hone f = new Hone();
    f.setVisible(true);
    f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    f.setBounds(300, 20, 600, 500);
    f.setTitle("Counting Vowel APP");
    f.setResizable(true);
}
}
```

## 30. MouseListener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.MouseEvent;
import java.awt.event.MouseListener;
import javax.swing.JFrame;
import javax.swing.JScrollPane;
import javax.swing.JTextArea;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf;
    private JTextArea ta;
    private JScrollPane sp;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        tf = new JTextField();
        tf.setBounds(20, 20, 200, 50);
        tf.setFont(f);
        c.add(tf);

        ta = new JTextArea();
        //ta.setBounds(20, 130, 300, 300);
        ta.setFont(f);
        //c.add(ta);

        sp = new JScrollPane(ta);
        sp.setBounds(20, 130, 300, 300);
        c.add(sp);

        tf.addMouseListener(new MouseListener() {
            public void mouseClicked(MouseEvent me) {
```

```java
                ta.append("Mouse Clicked\n");
            }

            public void mousePressed(MouseEvent me) {
                ta.append("Mouse Pressed\n");
            }

            public void mouseReleased(MouseEvent me) {
                ta.append("Mouse Released\n");
            }

            public void mouseEntered(MouseEvent me) {
                ta.append("Mouse Entered\n");
            }

            public void mouseExited(MouseEvent me) {
                ta.append("Mouse Exited\n");
            }
        });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("MouseListener");
        f.setResizable(true);
    }
}
```

## 31. MouseMotionListener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.MouseEvent;
import java.awt.event.MouseMotionListener;
import javax.swing.JFrame;
import javax.swing.JTextArea;
import javax.swing.JTextField;

public class Hone extends JFrame {

    private Container c;
    private JTextField tf;
    private JTextArea ta;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        tf = new JTextField();
        tf.setBounds(350, 50, 200, 50);
        tf.setFont(f);
        c.add(tf);

        ta = new JTextArea();
        ta.setBounds(20, 50, 300, 300);
        ta.setFont(f);
        c.add(ta);

        ta.addMouseMotionListener(new MouseMotionListener(){

            public void mouseDragged(MouseEvent me) {
                tf.setText("Mouse Dregged: "+me.getX()+", "+me.getY());
            }

            public void mouseMoved(MouseEvent me) {
                tf.setText("Mouse Moved: "+me.getX()+", "+me.getY());
```

```java
            }

        });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("MouseListener");
        f.setResizable(true);
    }
}
```

## 32. FocusListener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.FocusEvent;
import java.awt.event.FocusListener;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JTextArea;

public class Hone extends JFrame {

    private Container c;
    private JTextArea ta;
    private JButton b;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        f = new Font("Arrial", Font.BOLD, 16);

        b = new JButton("Button");
        b.setBounds(20, 20, 100, 35);
        b.setFont(f);
        c.add(b);

        ta = new JTextArea();
        ta.setBounds(150, 20, 300, 300);
        ta.setFont(f);
        c.add(ta);

        b.addFocusListener(new FocusListener(){
            public void focusGained(FocusEvent fe) {
                ta.setText("Focus Gained");
            }

            public void focusLost(FocusEvent fe) {
                ta.setText("Focus Lost");
            }
```

```java
            });
        }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("FocusListener");
        f.setResizable(true);
    }
}
```

33. WindowListener

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.event.WindowEvent;
import java.awt.event.WindowListener;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        this.addWindowListener(new WindowListener() {

            public void windowOpened(WindowEvent we) {
                System.out.println("windowOpened");
            }

            public void windowClosing(WindowEvent we) {
                System.out.println("windowClosing");
            }

            public void windowClosed(WindowEvent we) {
                System.out.println("windowClosed");
            }

            public void windowIconified(WindowEvent we) {
                System.out.println("windowIconified");
            }

            public void windowDeiconified(WindowEvent we) {
                System.out.println("windowDeiconified");
            }

            public void windowActivated(WindowEvent we) {
                System.out.println("windowActivated");
            }
```

```java
            public void windowDeactivated(WindowEvent we) {
                System.out.println("windowDeactivated");
            }

        });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("WindowListener");
        f.setResizable(true);
    }
}
```

34. Add image and text in JLabel

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.ImageIcon;
import javax.swing.JFrame;
import javax.swing.JLabel;

public class Hone extends JFrame {

    private Container c;
    private JLabel label;
    private ImageIcon img;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        img = new ImageIcon(getClass().getResource("1.jpg"));

        label = new JLabel("Kibria", img, JLabel.RIGHT);
        label.setBounds(30, 50, 400, 100);
        c.add(label);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("WindowListener");
        f.setResizable(true);
    }
}
```

## 35. JPanel

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;

public class Hone extends JFrame {

    private Container c;
    private JPanel p1, p2;
    private JButton b1, b2, b3;
    private JLabel label;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        label = new JLabel("JPanel Program");
        label.setBounds(10, -4, 100, 30);
        c.add(label);

        b1 = new JButton("Dhaka");
        b2 = new JButton("Badda");
        b3 = new JButton("Cumilla");

        p1 = new JPanel();
        p1.setBounds(10, 20, 250, 400);
        p1.setBackground(Color.RED);
        c.add(p1);

        p2 = new JPanel();
        p2.setBounds(300, 20, 250, 400);
        p2.setBackground(Color.yellow);
        c.add(p2);

        p1.add(b1);
        p1.add(b3);
        p2.add(b2);
    }
```

```java
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("JPannel");
        f.setResizable(true);
    }
}

/*
    JPanel is a Container class. A container can contain light weight
component.
    JPanel is a light weight component.

    JFrame holo heavyweight component and jbutton holo lightweight component.
    heavyweight a lightwave add kora jay.
*/
```
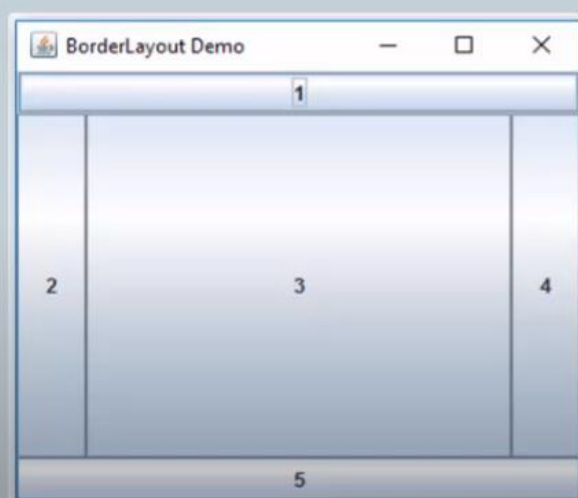
## LayoutManagers ?
arrange components in a particular manner in Jframe or window.

- Name of some Layouts:
1. BorderLayout
2. FlowLayout
3. BoxLayout
4. GridLayout
5. CardLayout
6. GridBagLayout
7. GroupLayout
8. SpringLayout etc

## 1. BorderLayout

- The BorderLayout is used to arrange the components in five regions: north, south, east, west and center.

- It is the default layout of frame or window.

- setHgap( )
- setVgap( )

## 36. BorderLayout

```java
package udemy;
import java.awt.BorderLayout;
import java.awt.Container;
import javax.swing.JButton;
import javax.swing.JFrame;
public class Hone extends JFrame {

    private Container c;
    private JButton b1, b2, b3, b4, b5;
    private BorderLayout bL;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        bL = new BorderLayout();
        //bL = new BorderLayout(10, 5);
        //bL.setHgap(10);
        //bL.setVgap(10);
        c.setLayout(bL);

        b1 = new JButton("One");
        b2 = new JButton("Two");
        b3 = new JButton("Three");
        b4 = new JButton("Four");
        b5 = new JButton("Five");

        c.add(b1, BorderLayout.NORTH);
        c.add(b2, BorderLayout.WEST);
        c.add(b3, BorderLayout.CENTER);
        c.add(b4, BorderLayout.EAST);
        c.add(b5, BorderLayout.SOUTH);

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("BorderLayout Demo");
        f.setResizable(true);
    }
}
//Frame or window er jonno default layout holo border layout.
```

## 37. FlowLayout

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.FlowLayout;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    //private JButton b1, b2, b3, b4, b5;
    private JButton b[];
    private FlowLayout fL;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setBackground(Color.LIGHT_GRAY);
        fL = new FlowLayout();
        //fL = new FlowLayout(FlowLayout.LEFT, 10, 10);
        //fL = new FlowLayout(FlowLayout.LEFT);
        //fL.setHgap(10);
        //fL.setVgap(10);
        c.setLayout(fL);

        b = new JButton[9];
        for (int i = 0; i < 9; i++) {
            b[i] = new JButton(""+(i+1));
            c.add(b[i]);
        }

        /*
                b1 = new JButton("One");
                b2 = new JButton("Two");
                b3 = new JButton("Three");
                b4 = new JButton("Four");
                b5 = new JButton("Five");

                c.add(b1);
                c.add(b2);
                c.add(b3);
                c.add(b4);
                c.add(b5);
```

```java
        */

    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("BorderLayout Demo");
        f.setResizable(true);
    }
}
//JPanel er jonno default layout holo border layout.
```

## 38. BoxLayout

```java
package udemy;
import java.awt.Color;
import java.awt.Container;
import javax.swing.Box;
import javax.swing.BoxLayout;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    private JButton b1, b2, b3, b4, b5;
    private BoxLayout box;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setBackground(Color.LIGHT_GRAY);
        box = new BoxLayout(c, BoxLayout.X_AXIS);
        c.setLayout(box);

        b1 = new JButton("One");
        b2 = new JButton("Two");
        b3 = new JButton("Three");
        b4 = new JButton("Four");
        b5 = new JButton("Five");

        c.add(b1);
        c.add(Box.createHorizontalStrut(10));
        c.add(b2);
        c.add(b3);
        c.add(b4);
        c.add(b5);

    }
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("BoxLayout Demo");
        f.setResizable(true);
    }
}
```

## 39. GridLayout

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.GridLayout;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    private JButton b1, b2, b3, b4, b5, b6, b7, b8, b9;
    private GridLayout grid;
    private Font f;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setBackground(Color.LIGHT_GRAY);
        //row, column, hori, vertical
        grid = new GridLayout(3, 3, 5, 5);
        c.setLayout(grid);

        //f = new Font("Arrial", Font.BOLD, 16);

        b1 = new JButton("One");
        //b1.setFont(f);
        b2 = new JButton("Two");
        b3 = new JButton("Three");
        b4 = new JButton("Four");
        b5 = new JButton("Five");
        b6 = new JButton("Six");
        b7 = new JButton("Seven");
        b8 = new JButton("Eight");
        b9 = new JButton("Nine");

        c.add(b1);
        c.add(b2);
        c.add(b3);
        c.add(b4);
        c.add(b5);
        c.add(b6);
        c.add(b7);
```

```java
        c.add(b8);
        c.add(b9);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("GridLayout Demo");
        f.setResizable(true);
    }
}
```

## 40. CardLayout

```java
package udemy;

import java.awt.CardLayout;
import java.awt.Color;
import java.awt.Container;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JFrame;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JButton b1, b2, b3, b4, b5;
    private CardLayout cL;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setBackground(Color.LIGHT_GRAY);
        //hori, vertical
        cL = new CardLayout();
        //cL = new CardLayout(10, 10);
        //cL.setHgap(10);
        //cL.setVgap(10);
        c.setLayout(cL);

        b1 = new JButton("One");
        b2 = new JButton("Two");
        b3 = new JButton("Three");
        b4 = new JButton("Four");
        b5 = new JButton("Five");

        //ay stirng tar maddomy button gulaky unick baby identify korty parbo
        c.add(b1, "First");
        c.add(b2, "Second");
        c.add(b3, "Third");
        c.add(b4, "Forth");
        c.add(b5, "Five");

        b1.addActionListener(this);
        b2.addActionListener(this);
        b3.addActionListener(this);
        b4.addActionListener(this);
```

```java
        b5.addActionListener(this);
    }

    public void actionPerformed(ActionEvent ae) {
        cL.next(c);
        //cL.previous(c);
        //cL.show(c, "Third"); at statement ta c.add er nicheo deya jaby
        //cL.first(c);
        //cL.last(c);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("CardLayout Demo");
        f.setResizable(true);
    }
}
```

## 41. SlideLayout

```java
package udemy;

import java.awt.CardLayout;
import java.awt.Color;
import java.awt.Container;
import java.awt.Image;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.ImageIcon;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JButton pre, next;
    private CardLayout cL;
    private JPanel p;
    private ImageIcon icon;
    private JLabel label;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        cL = new CardLayout();

        p = new JPanel(cL);
        p.setBounds(40, 20, 500, 300);
        c.add(p);

        pre = new JButton("Previous");
        pre.setBounds(40, 340, 100, 25);
        c.add(pre);
        next = new JButton("Next");
        next.setBounds(440, 340, 100, 25);
        c.add(next);

        String[] imgName = {"1.PNG", "2.PNG", "3.PNG"};
        for (String x : imgName) {
```

```java
            icon = new ImageIcon("src/image/" + x);

            //Resizeing the image
            Image img = icon.getImage();
            Image img2 = img.getScaledInstance(p.getWidth(), p.getHeight(),
        Image.SCALE_SMOOTH);
            icon = new ImageIcon(img2);

            label = new JLabel(icon);
            p.add(label);
        }

        pre.addActionListener(this);
        next.addActionListener(this);
    }

    public void actionPerformed(ActionEvent ae) {

        if (ae.getSource() == pre) {
            cL.next(p);
        }
        if (ae.getSource() == next) {
            cL.previous(p);
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("SlideLayout Demo");
        f.setResizable(true);
    }

}
```

## 42. ToggleButton

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JToggleButton;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JToggleButton tB;
    private JLabel label;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        tB = new JToggleButton("OFF");
        tB.setBounds(30, 30, 100, 100);
        c.add(tB);

        label = new JLabel("Hi Kibria");
        label.setVisible(false);
        label.setBounds(30, 150, 200, 50);
        c.add(label);

        tB.addActionListener(this);
    }

    public void actionPerformed(ActionEvent ae) {
        if (tB.isSelected()) {
            tB.setText("ON");
            label.setVisible(true);
        } else {
            tB.setText("OFF");
            label.setVisible(false);
        }
    }
```

```java
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("ToggleButton Demo");
        f.setResizable(true);
    }
}
```

43. ToggleButton add image.

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.ImageIcon;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JToggleButton;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JToggleButton tB;
    private JLabel label;
    private ImageIcon onIcon, offIcon;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);

        onIcon = new ImageIcon("src/image/1.PNG");
        offIcon = new ImageIcon("src/image/2.PNG");

        tB = new JToggleButton(offIcon);
        tB.setBounds(30, 30, 100, 100);
        c.add(tB);

        label = new JLabel("Hi Kibria");
        label.setVisible(false);
        label.setBounds(30, 150, 200, 50);
        c.add(label);

        tB.addActionListener(this);
    }

    public void actionPerformed(ActionEvent ae) {
        if (tB.isSelected()) {
            tB.setIcon(onIcon);
            label.setVisible(true);
        } else {
```

```java
            tB.setIcon(offIcon);
            label.setVisible(false);
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("ToggleButton Demo");
        f.setResizable(true);
    }
}
```

## 44. JSlider.

```java
package udemy;

import java.awt.Container;
import javax.swing.JFrame;
import javax.swing.JSlider;

public class Hone extends JFrame {

    private Container c;
    private JSlider slider;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        //c.setBackground(Color.LIGHT_GRAY);

        //minimum value, maximum value, jeikhany thakby
        slider = new JSlider(0, 20, 0);
        //slider = new JSlider(JSlider.VERTICAL,0, 20, 0);
        slider.setBounds(40, 50, 300, 50);
        slider.setMinorTickSpacing(1);
        slider.setMajorTickSpacing(5);
        slider.setPaintTicks(true);
        slider.setPaintLabels(true);
        c.add(slider);
    }


    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 600, 500);
        f.setTitle("JSlider Demo");
        f.setResizable(true);
    }
}
```

45. JSlider project color making

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JSlider;
import javax.swing.JTextField;
import javax.swing.event.ChangeEvent;
import javax.swing.event.ChangeListener;

public class Hone extends JFrame implements ChangeListener {

    private Container c;
    private JSlider slider1, slider2, slider3;
    private JTextField redtf, greentf, bluetf;
    private JLabel redL, greenL, blueL, preview;
    private JPanel jP;

    Hone() {

        kibria();

    }
    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        //c.setBackground(Color.LIGHT_GRAY);

        redL = new JLabel("Red");
        redL.setBounds(40, 70, 50, 25);
        c.add(redL);
        //minimum, maximum, slider_er_obstan
        slider1 = new JSlider(0, 250, 0);
        slider1.setBounds(100, 70, 300, 25);
        c.add(slider1);
        redtf = new JTextField();
        redtf.setBounds(430, 70, 70, 30);
        redtf.setHorizontalAlignment(JTextField.CENTER);
        c.add(redtf);

        greenL = new JLabel("Green");
        greenL.setBounds(40, 110, 50, 25);
        c.add(greenL);
        slider2 = new JSlider(0, 250, 0);
        slider2.setBounds(100, 120, 300, 25);
        c.add(slider2);
        greentf = new JTextField();
```

```java
            greentf.setBounds(430, 120, 70, 30);
            greentf.setHorizontalAlignment(JTextField.CENTER);
            c.add(greentf);

            blueL = new JLabel("Blue");
            blueL.setBounds(40, 160, 50, 25);
            c.add(blueL);
            slider3 = new JSlider(0, 250, 0);
            slider3.setBounds(100, 170, 300, 25);
            c.add(slider3);
            bluetf = new JTextField();
            bluetf.setBounds(430, 170, 70, 30);
            bluetf.setHorizontalAlignment(JTextField.CENTER);
            c.add(bluetf);

            jP = new JPanel();
            jP.setBounds(520, 70, 200, 130);
            jP.setBackground(Color.yellow);
            c.add(jP);

            preview = new JLabel("Preview");
            preview.setBounds(590, 170, 100, 100);
            c.add(preview);

            slider1.addChangeListener(this);
            slider2.addChangeListener(this);
            slider3.addChangeListener(this);
    }
    public void stateChanged(ChangeEvent e) {
        int redValue = slider1.getValue();
        int greenValue = slider2.getValue();
        int blueValue = slider3.getValue();

        redtf.setText(""+redValue);
        greentf.setText(""+greenValue);
        bluetf.setText(""+blueValue);

        //RGB value ta dekbo tai atra korychi
        Color colr = new Color(redValue, greenValue, blueValue);
        jP.setBackground(colr);
    }
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 800, 500);
        f.setTitle("JSlider Demo");
        f.setResizable(true);
    }
}
```

## 46. JSpinner

```java
package udemy;

import java.awt.Container;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JSpinner;
import javax.swing.SpinnerNumberModel;
import javax.swing.event.ChangeEvent;
import javax.swing.event.ChangeListener;


public class Hone extends JFrame implements ChangeListener{

    private Container c;
    private JSpinner spinner;
    private JLabel label;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        //c.setBackground(Color.LIGHT_GRAY);

        //default koto thakby, minimum, maximum, babodan
        SpinnerNumberModel value = new SpinnerNumberModel(10, 0, 30, 1);

        spinner = new JSpinner(value);
        spinner.setBounds(100, 100, 200, 100);
        c.add(spinner);

        label = new JLabel("Current Value: 10");
        label.setBounds(100, 220, 100, 25);
        c.add(label);

        spinner.addChangeListener(this);
    }

    public void stateChanged(ChangeEvent e) {
        //ata akta object return korby tai string hoicy
        String str = spinner.getValue().toString();

        int value = Integer.parseInt(str);
        label.setText("Current Value: "+value);
    }
```

```java
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 800, 500);
        f.setTitle("JSpinner Demo");
        f.setResizable(true);
    }
}
```

47. JTabbedPane

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import javax.swing.ImageIcon;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JTabbedPane;

public class Hone extends JFrame {

    private Container c;
    private JTabbedPane tP;
    private JPanel p1, p2, p3;
    private JLabel label1, label2, label3;
    private ImageIcon img1, img2, img3;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        //c.setBackground(Color.LIGHT_GRAY);

        tP = new JTabbedPane();
        //tP = new JTabbedPane(JTabbedPane.BOTTOM);
        tP.setBounds(20, 50, 600, 350);
        //tP.setTabPlacement(JTabbedPane.BOTTOM);
        c.add(tP);

        img1 = new ImageIcon("src/image/3.png");
        img2 = new ImageIcon("src/image/B.png");
        img3 = new ImageIcon("src/image/sw.png");

        label1 = new JLabel("This is level one");
        label2 = new JLabel("This is level two");
        label3 = new JLabel("This is level three");

        //JPanel toiri kory JTabbedPane a add kory dibo.
        p1 = new JPanel();
        p1.setBackground(Color.yellow);
        p1.add(label1);
        p2 = new JPanel();
        p2.setBackground(Color.GREEN);
```

```java
        p2.add(label2);
        p3 = new JPanel();
        p3.setBackground(Color.LIGHT_GRAY);
        p3.add(label3);

        //hello ayta holo tool tip text
        tP.addTab("Home", img1, p1, "Hello I am Kibria");
        tP.addTab("Insert", p2);
        tP.addTab("Help", p3);
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 800, 500);
        f.setTitle("JTabbedPane Demo");
        f.setResizable(true);
    }
}
```

## 48. JColorChooser

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JColorChooser;
import javax.swing.JFrame;

public class Hone extends JFrame {

    private Container c;
    private JButton b;

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        //c.setBackground(Color.LIGHT_GRAY);

        b = new JButton("Choose a color");
        b.setBounds(20, 20, 150, 25);
        c.add(b);

        b.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent ae) {
                Color colr = JColorChooser.showDialog(null, "Select a color",
Color.YELLOW);
                c.setBackground(colr);
            }
        });
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 800, 500);
        f.setTitle("JColorChooser Demo");
        f.setResizable(true);
    }
}
```

## 49. JTable

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JScrollPane;
import javax.swing.JTable;

public class Hone extends JFrame {

    private Container c;
    private JLabel label;
    private Font f;
    private JTable t;
    private JScrollPane scroll;

    private String[] col = {"NAME", "ID", "GPA"};
    private String[][] row = {
        {"Kibria", "10", "4"},
        {"Rahim", "11", "3"},
        {"Karim", "12", "2"},
        {"Abul", "13", "1"},};

    Hone() {

        kibria();

    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.LIGHT_GRAY);
        Font f = new Font("Arrial", Font.BOLD, 16);
        label = new JLabel("Student Records");
        label.setBounds(350, 30, 150, 25);
        label.setFont(f);
        c.add(label);

        t = new JTable(row, col);
        //t.setEnabled(false); bcolor dily ayta deyar dorkar nai
        t.setSelectionBackground(Color.yellow);

        scroll = new JScrollPane(t);
        scroll.setBounds(220, 70, 400, 100);
        c.add(scroll);
    }
```

```java
    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 20, 800, 500);
        f.setTitle("JTable Demo");
        f.setResizable(true);
    }
}
```

50. Student registration profect

```java
package udemy;

import java.awt.Color;
import java.awt.Container;
import java.awt.Font;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.event.MouseAdapter;
import java.awt.event.MouseEvent;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.JScrollPane;
import javax.swing.JTable;
import javax.swing.JTextField;
import javax.swing.table.DefaultTableModel;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JLabel titleL, fLabel, lLabel, pLabel, gpaLabel;
    private JTextField fName, lName, pNumber, gpa;
    private JButton addB, updateB, deleteB, clearB;
    private JTable table;
    private DefaultTableModel model;
    private JScrollPane scroll;
    private Font f;

    private String[] col = {"First name", "Last name", "Phone number",
"GPA"};
    private String[] row = new String[4];

    Hone() {
        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.PINK);

        f = new Font("Arrial", Font.BOLD, 16);

        titleL = new JLabel("Student Registration");
        titleL.setBounds(130, 10, 250, 50);
        titleL.setFont(f);
        c.add(titleL);
```

```java
fLabel = new JLabel("First name ");
fLabel.setBounds(10, 80, 140, 30);
fLabel.setFont(f);
c.add(fLabel);
fName = new JTextField();
fName.setBounds(110, 80, 200, 30);
fName.setFont(f);
c.add(fName);
addB = new JButton("Add");
addB.setBounds(400, 80, 100, 30);
addB.setFont(f);
c.add(addB);

lLabel = new JLabel("Last name ");
lLabel.setBounds(10, 130, 150, 30);
lLabel.setFont(f);
c.add(lLabel);
lName = new JTextField();
lName.setBounds(110, 130, 200, 30);
lName.setFont(f);
c.add(lName);
updateB = new JButton("Update");
updateB.setBounds(400, 130, 100, 30);
updateB.setFont(f);
c.add(updateB);

pLabel = new JLabel("Phone no ");
pLabel.setBounds(10, 180, 150, 30);
pLabel.setFont(f);
c.add(pLabel);
pNumber = new JTextField();
pNumber.setBounds(110, 180, 200, 30);
pNumber.setFont(f);
c.add(pNumber);
deleteB = new JButton("Delete");
deleteB.setBounds(400, 180, 100, 30);
deleteB.setFont(f);
c.add(deleteB);

gpaLabel = new JLabel("GPA ");
gpaLabel.setBounds(10, 230, 100, 30);
gpaLabel.setFont(f);
c.add(gpaLabel);
gpa = new JTextField();
gpa.setBounds(110, 230, 200, 30);
gpa.setFont(f);
c.add(gpa);
clearB = new JButton("Clear ");
clearB.setBounds(400, 230, 100, 30);
clearB.setFont(f);
```

```java
        c.add(clearB);

        table = new JTable();
        //table toiri korty parbo jetay kono row and column thakby na. icca
moto row col torii kora jaby
        model = new DefaultTableModel();
        model.setColumnIdentifiers(col);
        table.setModel(model);
        table.setFont(f);
        table.setSelectionBackground(Color.GREEN);
        table.setBackground(Color.WHITE);
        table.setRowHeight(30);

        scroll = new JScrollPane(table);
        scroll.setBounds(10, 360, 740, 265);
        c.add(scroll);

        addB.addActionListener(this);
        clearB.addActionListener(this);
        deleteB.addActionListener(this);
        updateB.addActionListener(this);
        //mouselistener er 5 at method but amader atogulo darkar nai. tai
just mouseadapter diyechi.
        table.addMouseListener(new MouseAdapter() {
            public void mouseClicked(MouseEvent e) {
                int sRow = table.getSelectedRow();

                //selected row holo sRow, 0 holo oi row er 0 tomo column.
getvalueat jehetu akta obj return korby tai obboisoi tostring add korty hoby.
                String firstName = model.getValueAt(sRow, 0).toString();
                String lastName = model.getValueAt(sRow, 1).toString();
                String phnNumber = model.getValueAt(sRow, 2).toString();
                String gpA = model.getValueAt(sRow, 3).toString();

                //row er info gulo abar textfield a show korby tai ata
korychi
                fName.setText(firstName);
                lName.setText(lastName);
                pNumber.setText(phnNumber);
                gpa.setText(gpA);
            }
        });
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == addB) {

            row[0] = fName.getText();
            row[1] = lName.getText();
            row[2] = pNumber.getText();
```

```java
                row[3] = gpa.getText();
                //Table er saty row taky add korteci
                model.addRow(row);

        } else if (ae.getSource() == clearB) {

                fName.setText("");//orthat null kory dicci
                lName.setText("");
                pNumber.setText("");
                gpa.setText("");

        } else if (ae.getSource() == deleteB) {

                int selectedRow = table.getSelectedRow(); //cuz ata int value
return korby.
                if (selectedRow >= 0) {
                    model.removeRow(selectedRow);
                } else {
                    JOptionPane.showMessageDialog(null, "No row has been selected
or no row exits");
                }

        } else if (ae.getSource() == updateB) {
                int selRow = table.getSelectedRow();

                String f_Name = fName.getText();
                String l_Name = lName.getText();
                String p_number = pNumber.getText();
                String gp_A = gpa.getText();

                model.setValueAt(f_Name, selRow, 0);
                model.setValueAt(l_Name, selRow, 1);
                model.setValueAt(p_number, selRow, 2);
                model.setValueAt(gp_A, selRow, 3);
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        //f.setBounds(300, 20, 800, 500);
        f.setSize(780, 990);
        f.setTitle("Student Demo");
        f.setResizable(true);
    }
}
```

## 51. MenuCreate

```java
package udemy;

import com.sun.glass.events.KeyEvent;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.*;

public class Hone extends JFrame implements ActionListener {

    private Container c;
    private JMenuBar menubar;
    private JMenu file, edit, view;
    private JMenuItem newItem, openItem, exitItem, cutItem, copyItem,
pasteItem, selectItem;
    private ImageIcon cut, fileIcon;
    private Font f;

    Hone() {
        kibria();
    }

    public void kibria() {
        c = this.getContentPane();
        c.setLayout(null);
        c.setBackground(Color.PINK);

        cut = new ImageIcon("src/images/cut.png");
        fileIcon = new ImageIcon("src/images/folder.png");

        menubar = new JMenuBar();
        this.setJMenuBar(menubar);//frame er saty menu bar taky add korlam

        file = new JMenu("File");
        edit = new JMenu("Edit");
        view = new JMenu("View");

        menubar.add(file);
        menubar.add(edit);
        menubar.add(view);

        newItem = new JMenuItem("New");
        newItem.setIcon(fileIcon);
        //orthat ctrl & N aksaty click korty hoby
        newItem.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_N,
ActionEvent.CTRL_MASK));
        openItem = new JMenuItem("Open");
        exitItem = new JMenuItem("Exit");
        cutItem = new JMenuItem("Cut");
```

```java
        cutItem.setIcon(cut);
        copyItem = new JMenuItem("Copy");
        pasteItem = new JMenuItem("Paste");
        selectItem = new JMenuItem("Select");

        file.add(newItem);
        file.add(openItem);
        file.add(exitItem);
        edit.add(cutItem);
        edit.addSeparator();
        edit.add(copyItem);
        edit.add(pasteItem);
        view.add(selectItem);

        newItem.addActionListener(this);
        exitItem.addActionListener(this);
    }

    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == newItem) {
            JFrame f = new JFrame();
            f.setVisible(true);
            //f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE); exit on close
dily dui ta frame e close hoye jay tai dispose diye korlam.
            f.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);
            f.setBounds(20, 40, 400, 300);
            f.setTitle("New Frame");
        } else if (e.getSource() == exitItem) {
            System.exit(0);
        }
    }

    public static void main(String[] args) {
        Hone f = new Hone();
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        f.setBounds(300, 100, 600, 500);
        f.setTitle("Menu Demo");
        f.setResizable(true);
    }
}
```