

ADVANCED JAVA PROGRAMS

PRACTICAL 1

Objective

Write a program to create a frame using AWT. Implement mouseClicked(), mouseEntered() and mouseExited() events. Frame should become visible when mouse enters it.

```
/***/ Main.java */*/
import java.awt.*;
import java.awt.event.*;
public class Main extends Frame implements MouseListener {
    Label l;
    Main() {
        super("AWT Frame");
        l = new Label ();
        l.setBounds(25, 60, 250, 30);
        l.setAlignment(Label.CENTER);
        this.add(l);
        this.setSize(300, 300);
        this.setLayout(null);
        this.setVisible(true);
        this.addMouseListener(this);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
    public static void main(String[] args) {
        new Main();
    }
    @Override
    public void mouseClicked(MouseEvent e) {
        l.setText("Mouse Clicked");
    }
    @Override
    public void mousePressed(MouseEvent e) {

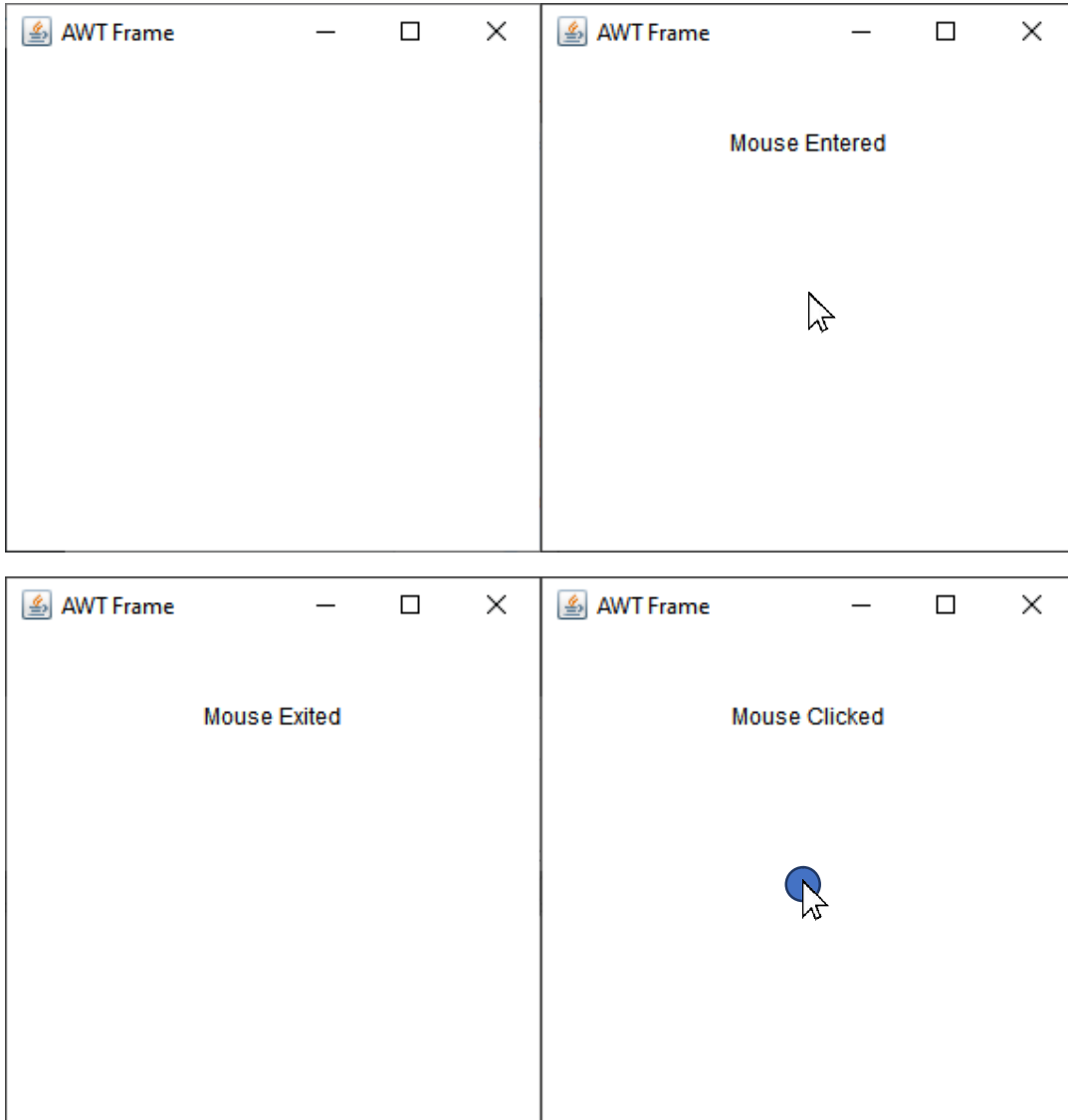
    }

    @Override
    public void mouseReleased(MouseEvent e) {

    }
    @Override
    public void mouseEntered(MouseEvent e) {
        l.setText("Mouse Entered");
    }
}
```

```
}  
@Override  
public void mouseExited(MouseEvent e) {  
    l.setText("Mouse Exited");  
}  
}
```

Output



PRACTICAL 2

Objective

Using AWT, write a program to display a string in frame window with pink colour as background.

```
/*** Main.java ***/
import java.awt.*;
import java.awt.event.*;

public class Main extends Frame {
    Label l;
    Main() {
        super("AWT Pink");
        l = new Label("This is a Label");
        l.setBounds(25, 50, 250, 30);
        l.setAlignment(Label.CENTER);
        this.add(l);
        this.setBackground(Color.PINK);
        this.setSize(300, 100);
        this.setLayout(null);
        this.setVisible(true);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
    public static void main(String[] args) {
        new Main();
    }
}
```

Output



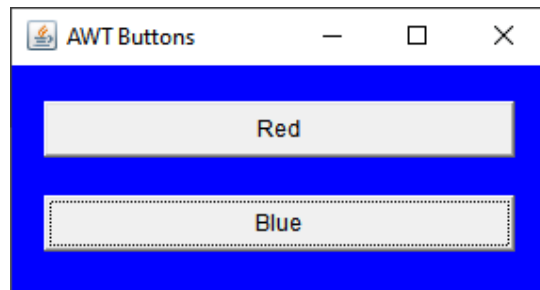
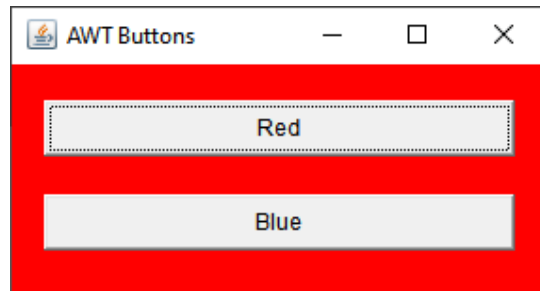
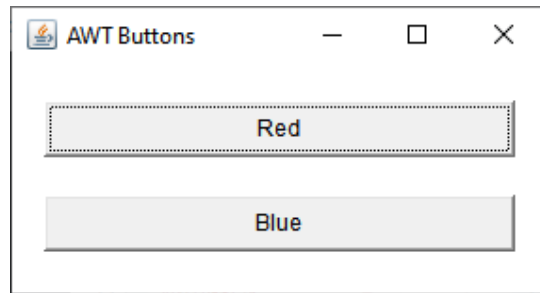
PRACTICAL 3

Objective

Using AWT, write a program to create two buttons named "Red" and "Blue". When a button is pressed the background colour should be set to the colour named by the button's label.

```
/*** Main.java ***/
import java.awt.*;
import java.awt.event.*;
public class Main extends Frame implements ActionListener {
    Button btnRed, btnBlue;
    Main() {
        super("AWT Buttons");
        btnRed = new Button("Red");
        btnRed.setBounds(25, 50, 250, 30);
        btnRed.addActionListener(this);
        this.add(btnRed);
        btnBlue = new Button("Blue");
        btnBlue.setBounds(25, 100, 250, 30);
        btnBlue.addActionListener(this);
        this.add(btnBlue);
        this.setSize(300, 160);
        this.setLayout(null);
        this.setVisible(true);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
    public static void main(String[] args) {
        new Main();
    }
    @Override
    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == btnRed) {
            this.setBackground(Color.RED);
        } else if (e.getSource() == btnBlue) {
            this.setBackground(Color.BLUE);
        }
    }
}
```

Output



PRACTICAL 4

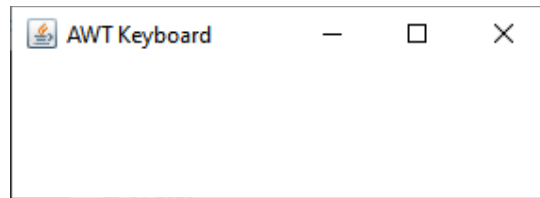
Objective

Using AWT, write a program which responds to KEY_TYPED event and updates the status window with message ("Typed character is: X"). Use adapter class for other two events.

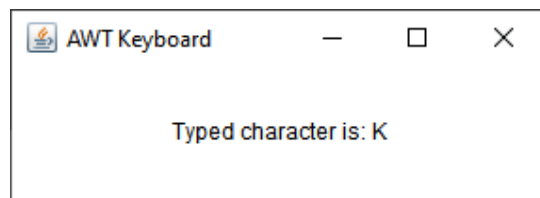
```
/***/ Main.java *****/
import java.awt.*;
import java.awt.event.*;
class KbdAdapter extends KeyAdapter {
    Label l;
    KbdAdapter(Label l) {
        this.l = l;
    }
    @Override
    public void keyTyped(KeyEvent e) {
        l.setText("Typed character is: " + e.getKeyChar());
    }
    @Override
    public void keyPressed(KeyEvent e) {
        System.out.println("Pressed character is: " + e.getKeyChar());
    }
    @Override
    public void keyReleased(KeyEvent e) {
        System.out.println("Released character is: " + e.getKeyChar());
    }
}
public class Main extends Frame {
    Label l;
    Main() {
        super("AWT Keyboard");
        l = new Label("");
        l.setBounds(25, 50, 250, 30);
        l.setAlignment(Label.CENTER);
        this.addKeyListener(new KbdAdapter(l));
        this.add(l);
        this.setSize(300, 110);
        this.setLayout(null);
        this.setVisible(true);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
    public static void main(String[] args) {
        new Main();
    }
}
```

}

Output



Pressed character is: K
Released character is: K



PRACTICAL 5

Objective

Using AWT, write a program to create two buttons labelled 'A' and 'B'. When button 'A' is pressed, it displays your personal information (Name, Course, Roll No, College) and when button 'B' is pressed, it displays your CGPA in previous semester.

```
/*** Main.java ***/
import java.awt.*;
import java.awt.event.*;
public class Main extends Frame implements ActionListener {
    Button btnInfo, btnCGPA;
    Main() {
        super("Student Details");
        btnInfo = new Button("A");
        btnInfo.setBounds(25, 125, 450, 100);
        btnInfo.addActionListener(this);
        this.add(btnInfo);
        btnCGPA = new Button("B");
        btnCGPA.setBounds(25, 300, 450, 100);
        btnCGPA.addActionListener(this);
        this.add(btnCGPA);
        this.setSize(500, 500);
        this.setLayout(null);
        this.setVisible(true);
        this.setLocationRelativeTo(null);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
    public static void main(String[] args) {
        new Main();
    }
    @Override
    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == btnInfo) {
            new Information(
                "SUDIPTO GHOSH",
                "BSc (Hons) Computer Science",
                "19/78003",
                "ARSD College"
            );
        } else if (e.getSource() == btnCGPA) {
            new CGPA("9.73");
        }
    }
}
```



```

}

/**** Information.java *****/
import java.awt.*;
import java.awt.event.*;
class Information extends Frame {
    Button btnClose;
    Panel panelForm;
    Label labelName, labelCourse, labelRollNo, labelCollege;
    TextField fieldName, fieldCourse, fieldRollNo, fieldCollege;
    Information(String name, String course, String rollNo, String college) {
        super("Personal Information");
        labelName = new Label("Name:");
        labelName.setBounds(20, 20, 80, 30);
        labelCourse = new Label("Course:");
        labelCourse.setBounds(20, 50, 80, 30);
        labelRollNo = new Label("Roll No.");
        labelRollNo.setBounds(20, 80, 80, 30);
        labelCollege = new Label("College:");
        labelCollege.setBounds(20, 110, 80, 30);
        fieldName = new TextField(name);
        fieldName.setBounds(100, 22, 200, 24);
        fieldName.setEditable(false);
        fieldCourse = new TextField(course);
        fieldCourse.setBounds(100, 52, 200, 24);
        fieldCourse.setEditable(false);
        fieldRollNo = new TextField(rollNo);
        fieldRollNo.setBounds(100, 82, 200, 24);
        fieldRollNo.setEditable(false);
        fieldCollege = new TextField(college);
        fieldCollege.setBounds(100, 112, 200, 24);
        fieldCollege.setEditable(false);
        btnClose = new Button("Close");
        btnClose.setBounds(100, 150, 125, 30);
        btnClose.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                dispose();
            }
        });
        panelForm = new Panel();
        panelForm.setLayout(null);
        panelForm.add(labelName);
        panelForm.add(fieldName);
        panelForm.add(labelCourse);
        panelForm.add(fieldCourse);
        panelForm.add(labelRollNo);
        panelForm.add(fieldRollNo);
    }
}

```

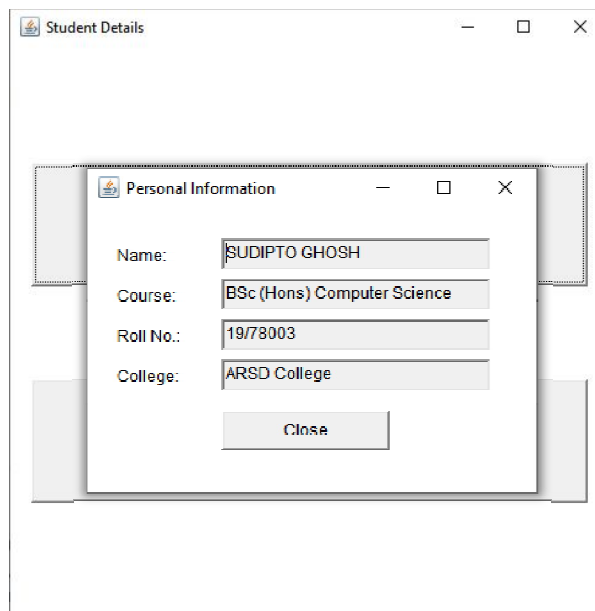
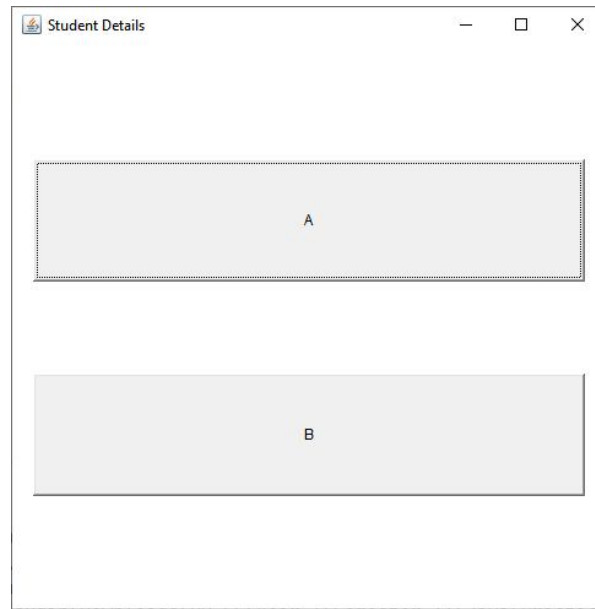
```

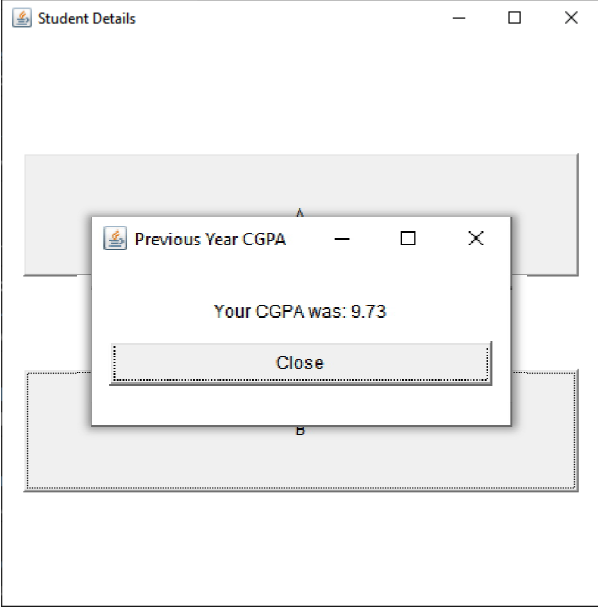
        panelForm.add(labelCollege);
        panelForm.add(fieldCollege);
        panelForm.add(btnClose);
        this.add(panelForm);
        this.setSize(350, 250);
        this.setVisible(true);
        this.setLayout(null);
        this.setLocationRelativeTo(null);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
}

/**** CGPA.java ****/
import java.awt.*;
import java.awt.event.*;
class CGPA extends Frame {
    Label l;
    Button btnClose;
    CGPA(String cgpa) {
        super("Previous Year CGPA");
        l = new Label("Your CGPA was: " + cgpa);
        l.setBounds(10, 50, 280, 30);
        l.setAlignment(Label.CENTER);
        btnClose = new Button("Close");
        btnClose.setBounds(20, 85, 260, 30);
        btnClose.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                dispose();
            }
        });
        this.add(l);
        this.add(btnClose);
        this.setSize(300, 150);
        this.setLayout(null);
        this.setVisible(true);
        this.setLocationRelativeTo(null);
        this.addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });
    }
}
}

```

Output





References/Resources:

1. Balaguruswamy, E. (2014). Programming with JAVA: A Primer. 5th edition. India: McGraw Hill Education
2. Horstmann, C. S. (2017). Core Java - Vol. I – Fundamentals (Vol. 10). Pearson Education
3. Schildt, H. (2018). Java: The Complete Reference. 10th edition. McGraw-Hill Education.

NOTE: Please go through the above programs carefully and practice them (on machine if possible).