//Advanced Java Lab Experiments

//Experiment 1 – TreeSet

```
import java.util.*;

public class Exp1_TreeSetExample {
   public static void main(String[] args) {
      // TreeSet of Numbers
      TreeSet<Integer> numbers = new TreeSet<>();
      numbers.add(50);
      numbers.add(10);
      numbers.add(40);
      numbers.add(20);
      numbers.add(30);

      System.out.println("Numbers in TreeSet (sorted): " + numbers);
      System.out.println("First Number: " + numbers.first());
      System.out.println("Last Number: " + numbers.last());

      numbers.remove(30);
      System.out.println("After Removing 30: " + numbers);

      System.out.println("\n------------------------------\n");

      // TreeSet of Strings
      TreeSet<String> names = new TreeSet<>();
      names.add("Riya");
      names.add("Amit");
```

```
        names.add("Sohan");
        names.add("Neha");

        System.out.println("Names in TreeSet (sorted): " + names);
        System.out.println("First Name: " + names.first());
        System.out.println("Last Name: " + names.last());

        names.remove("Sohan");
        System.out.println("After Removing 'Sohan': " + names);
    }
}
```

//Experiment 2 – Sort and Reverse LinkedList

```
import java.util.*;
public class LinkedListExample{
   public static void main(String[] args){
      LinkedList<Integer> list = new LinkedList<>();
      list.add(20);
      list.add(30);
      list.add(40);
      list.add(50);
      list.add(60);
      list.add(70);
      list.add(20);
      System.out.println("LinkedList: "+ list);
      list.remove(Integer.valueOf(40));
      System.out.println("LinkedList removing 40: "+ list);
      Collections.sort(list);
      System.out.println("Sorted: "+ list);

      Collections.reverse(list);
      System.out.println("Reversed: "+ list);
   }
}
```

//Experiment 3 – Keyboard Event Handling (AWT)

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

public class KeyboardEvent extends Frame implements KeyListener{
   Label l;
   TextField tf;

   KeyboardEvent(){
      l = new Label("Type in the box below: ");
      l.setBounds(50,60,200,30);

      tf = new TextField();
      tf.setBounds(50,120,200,30);
      tf.addKeyListener(this);

      add(l);
      add(tf);
      setSize(350,250);
      setLayout(null);
      setVisible(true);

      addWindowListener(new WindowAdapter(){
         public void windowClosing(WindowEvent e){
            dispose();
         }
      });
```

```
    }
        public void keyPressed(KeyEvent e){
           l.setText("Key Pressed: " + e.getKeyChar());
        }

        public void keyTyped(KeyEvent e){
           l.setText("Key Typed: " + e.getKeyChar());
        }

        public void keyReleased(KeyEvent e){
           l.setText("Key Released: " + e.getKeyChar());
        }

        public static void main(String[] args){

          new KeyboardEvent();
        }
}
```

//Experiment 4 – Mouse Event Handling (AWT)

```
import java.awt.*;
import java.awt.event.*;
public class MouseEventExample extends Frame implements MouseListener{
   Label l;

   MouseEventExample(){
      l = new Label("MOUSE ACTIONS WILL BE HERE: ");
      l.setBounds(50,60,200,30);

      add(l);
      addMouseListener(this);
      setSize(350,250);
      setLayout(null);
      setVisible(true);
   }
   public void mouseClicked(MouseEvent e) {l.setText("Mouse Clicked");}
   public void mousePressed(MouseEvent e) {l.setText("Mouse Pressed");}
   public void mouseReleased(MouseEvent e) {l.setText("Mouse Released");}
   public void mouseEntered(MouseEvent e) {l.setText("Mouse Entered");}
   public void mouseExited(MouseEvent e) {l.setText("Mouse Exited");}

   public static void main(String[] args){
      new MouseEventExample();
   }}
```

//Experiment 5 – Display 'AllTheBest' in 5 Colors (AWT)

```
import java.awt.*;
public class AWTDisplay extends Frame{
   AWTDisplay(){
      setSize(300,400);
      setVisible(true);
   }

   public void paint(Graphics g){
      g.setColor(Color.RED);
      g.drawString("ALL THE BEST",100,100);
      g.setColor(Color.BLUE);
      g.drawString("ALL THE BEST",100,120);
      g.setColor(Color.GREEN);
      g.drawString("ALL THE BEST",100,140);
      g.setColor(Color.BLACK);
      g.drawString("ALL THE BEST",100,160);
      g.setColor(Color.MAGENTA);
      g.drawString("ALL THE BEST",100,180);
   }

   public static void main(String[] args)
   {
      new AWTDisplay();
   }
}
```

//Experiment 6 – Swing: Previous & Next Number

```
import javax.swing.*;
import java.awt.event.*;

public class SwingNumber extends JFrame implements ActionListener {
   JTextField t1, t2, t3;

   SwingNumber() {
      JLabel l1 = new JLabel("Enter Number:");
      l1.setBounds(30, 30, 100, 30);
      add(l1);

      t1 = new JTextField();
      t1.setBounds(140, 30, 100, 30);
      add(t1);

      t2 = new JTextField("Prev");
      t2.setBounds(30, 80, 100, 30);
      add(t2);

      t3 = new JTextField("Next");
      t3.setBounds(140, 80, 100, 30);
      add(t3);

      t1.addActionListener(this);
```

```
        setSize(300, 200);
        setLayout(null);
        setVisible(true);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }
    public void actionPerformed(ActionEvent e) {
        int n = Integer.parseInt(t1.getText());
        t2.setText(String.valueOf(n - 1));
        t3.setText(String.valueOf(n + 1));
    }
    public static void main(String[] args) {
        new SwingNumber();
}}
```