Solution to Lab week 4

1) /*
   A person is represented by the name and a birth year.
*/
public class Person
{
   /**
       Construct a Person object.
       @param n the name of the person
       @param byear the birth year
   */
   public Person(String n, int byear)
   {
      name = n;
      birthYear = byear;
   }

   /**
       Returns the string representation of the object.
       @return a string representation of the object
   */
   public String toString()
   {
      return "Person[name=\" + name + ",birthYear=\" + birthYear + \"]\";
   }
   private String name;
   private int birthYear;
}

/**
   A student is represented by the name, birth year, and major.
*/
public class Student extends Person
{
   /**
       Construct a Student object.
       @param n the name of the student
       @param byear the birth year
       @param m the major
   */
   public Student(String n, int byear, String m)
   {
      super(n, byear);
      major = m;
   }

   /**
       Returns the string representation of the object.
       @return a string representation of the object
   */
   public String toString()
   {
      return "Student[super=\" + super.toString() + ",major=\" + major + \"]\";
   }
   private String major;
/**
 * An instructor is represented by a name, a birth year, and a salary.
 */
public class Instructor extends Person {

  /**
   * Construct an Instructor object.
   * @param n the name of the instructor
   * @param byear the birth year
   * @param s the salary
   */
  public Instructor(String n, int byear, double s) {
    super(n, byear);
    salary = s;
  }

  /**
   * Returns the string representation of the object.
   * @return a string representation of the object
   */
  public String toString() {
    return "Instructor[super=" + super.toString() + ",salary=" + salary + "]";
  }

  private double salary;
}
2)
Inside area for Rectangle.
Area is 45.0
Inside area for Triangle.
Area is 40.0
Inside area for Figure.
Area is -1.0
Inside area for Rectangle.
Area is 69.0
Inside area for Triangle.
Area is 34.5

3)
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.util.Calendar;

class MyClock extends JFrame {
    private JTextField timeField;
    private static final int FRAME_WIDTH=300;
    private static final int FRAME_HEIGHT=100;

    //=============constructor
    public MyClock() {
        //Set characteristics of text field that shows the time.
        timeField = new JTextField(5);
        timeField.setEditable(false);
        timeField.setFont(new Font("sansserif", Font.PLAIN, 48));
        JPanel content = new JPanel();
        content.add(timeField);
        add(content);
        setTitle("Current Time");
        setLocationRelativeTo(null);
        setResizable(false);
        Timer t = new Timer(1000, new ClockListener());
        t.start();
    }

    //inner class ClockListener
    class ClockListener implements ActionListener {
        public void actionPerformed(ActionEvent e) {
            //... Whenever this is called, get the current time and
            //   display it in the textfield.
            Calendar now = Calendar.getInstance();
            int h = now.get(Calendar.HOUR_OF_DAY);
int m = now.get(Calendar.MINUTE);
int s = now.get(Calendar.SECOND);
timeField.setText("" + h + ":" + m + ":" + s);

// public static void main(String[] args)
{
    JFrame clock = new MyClock();
    clock.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    clock.setSize(FRAME_WIDTH, FRAME_HEIGHT);
    clock.setVisible(true);
}