Code for Assignment #4

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Problem #1

```
public class Student {

		private String lastName;
		private static int score1;
		private static int score2;
		private static int score3;
		private static int average;
		private String firstName;
		private Address homeAddress, schoolAddress;
		public Student(String first, String last, int score_1,int  score_2,int
score_3){
			this.firstName = first;
			this.lastName = last;
			score1 = score_1;
			score2 =score_2;
			score3= score_3;


		}
		public String toString()
		{
			String result;
			result = firstName + "" +lastName + "\n";
			result +="Home Address: \n" + homeAddress+ "\n";
			result +="School Address: \n" +schoolAddress;
			result += "TEST Scores : \n" + score1+
"\n"+score2+"\n"+score3+"\n";
			result += "Average: \n"+average;

			return result;
		}
		public void setTestScore(int Test, int score){
			if (Test==1 ){
				score1 = score;

			}
			else if (Test ==2){
				score2 = score;
			}
			else{
				score3 = score;
			}
		}
		public static int setAverage (){
			average = (score1+ score2+ score3)/3;
			return average;
```

```
		}

		public String getLastName() {
			return lastName;
			}

			public void setLastName(String lastName) {
			this.lastName = lastName;
			}

			public String getFirstName() {
			return firstName;
			}

			public void setFirstName(String firstName) {
			this.firstName = firstName;
			}
}


public class Driver {

		public static void main(String[] args)
		{
			Course course = new Course("CS");
			course.addStudent(new Student("Eric", "Dockery", 84,95,76));
			int x = Student.setAverage();
			course.addStudent(new Student("Joe", "Schmo", 88,99,100));
			int y = Student.setAverage();
			course.addStudent(new Student("Fred", "Jones", 88,45,76));
			int z = Student.setAverage();
			course.addStudent(new Student("Arlan", "Dock", 0,0,0));
			int w = Student.setAverage();
			course.addStudent(new Student("Andrew", "Geni", 100,100,100));
			int e = Student.setAverage();
			course.Roll();
			int Exams= course.Total_Average( x, y, z, w, e);
			System.out.println("Test Average "+ Exams);
			course.addStudent(new Student("Andrew", "Geni", 100,100,100));
			course.Roll();
		}
}


import java.util.ArrayList;
import java.util.List;
public class Course {
	private String This_Class;
	private List<Student> students;
	public int Test_Average;
	private int num= 0;
	Course(String Course){

		this.This_Class = Course;
```

```
		students = new ArrayList<Student>();
	}


	public void addStudent( Student student)
	{
		students.add(student);
		num++;
	}


	public void Roll(){
		System.out.println("Course: " +This_Class );
		System.out.println("Students");
		if (num <= 5){


		for(Student student: students){
			System.out.println(student.getFirstName()+"
"+student.getLastName());
		}
		}
		else
		{
			System.out.println("There have been too many students added");
		}

	}
	public int Total_Average(int studenttestaverage1, int studenttestaverage2, int
studenttestaverage3, int studenttestaverage4, int studenttestaverage5){
		Test_Average = (studenttestaverage1 +studenttestaverage2
+studenttestaverage3+studenttestaverage4+studenttestaverage5)/5;
		return Test_Average;
	}
}
```

Problem #2

```
public class PriorityDriver {
	public static void main(String[] args){
		Task This_Task = new Task();
		This_Task.setPriority(1);
		System.out.println("The priority for sleep is "+
This_Task.getPriority());
		Task New_Task = new Task();
		New_Task.setPriority(-2);
		System.out.println("The priority for classwork is "+
New_Task.getPriority());


	}
}
```

```
public class Task implements Priority{
	private int Priority_Level;


	public void setPriority(int priority) {
		Priority_Level = priority +3;


	}

	public int getPriority() {
		return Priority_Level;
	}

}

public interface Priority{
	public void setPriority(int priority);
	public int getPriority();

}
```

Problem #3

```
import javax.swing.JFrame;

public class PigLatin {

	public static void main(String[] args){
		//pig latin program
		JFrame frame = new JFrame("PIG LATIN TRANSLATOR");
		frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

		frame.getContentPane().add(new TranslatorGUI());
		frame.pack();
		frame.setVisible(true);
	}
}


import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.util.Scanner;




import javax.swing.*;

@SuppressWarnings("serial")
```

```
public class TranslatorGUI extends JPanel{
	private JButton To_Pig_Latin;
	private JLabel PIG_Latin_Label;
	private JTextField THIS_TO_PIG_LATIN;
	public TranslatorGUI(){
		// gui for pig latin program
		setLayout(new BoxLayout(this, BoxLayout.Y_AXIS));
		setBackground(Color.pink);
		// Prompt of what the program does

		JLabel Prompt = new JLabel ("Enter a sentence (no punctuation):");
		// Text field that will be translated

		THIS_TO_PIG_LATIN = new JTextField(50);
		THIS_TO_PIG_LATIN.setEditable(true);
		THIS_TO_PIG_LATIN.setBorder(BorderFactory.createLoweredBevelBorder());

		// Button to change the Translation Label to correct information
		To_Pig_Latin = new JButton("TO Pig Latin!!");
		To_Pig_Latin.addActionListener(new Pig_Listener());


		PIG_Latin_Label= new JLabel();

		//adding the fields and buttons to the gui
		add(Prompt);
		add(THIS_TO_PIG_LATIN);
		add(To_Pig_Latin);
		add(PIG_Latin_Label);
		add(Box.createRigidArea(new Dimension(0,20)));
		}
	public class Pig_Listener implements ActionListener {

		@Override
		public void actionPerformed(ActionEvent event) {
			if (event.getSource() == To_Pig_Latin);
			String text = THIS_TO_PIG_LATIN.getText();
			text=text.trim();
			text=text.toLowerCase();

			PIG_Latin_Label.setText(PigLatinTranslator(text));
		}

		private String PigLatinTranslator(String sentence) {
			// TODO Auto-generated method stub

			String result ="";
			sentence= sentence.toLowerCase();
			@SuppressWarnings("resource")
			Scanner scan = new Scanner (sentence);

			while (scan.hasNext()){
				result +=translateWord (scan.next());
				result += "";
			}
```

```
                return result;
        }
        private String translateWord(String word){
                String result ="";
                if (beginsWithVowel(word)){
                        result = word +"yay";

                }
                else if (beginsWithBlend(word)){
                        result =word.substring(2)+word.substring(0,2)+ "ay";

                }
                else{
                        result = word.substring(1) +word.charAt(0)+"ay";
                }
                return result;
        }
        private boolean beginsWithVowel (String word){
                String vowels = "aeiou";
                char letter = word.charAt(0);
                return(vowels.indexOf(letter) != -1);
        }
        private boolean beginsWithBlend( String word){

        return(word.startsWith("bl")||word.startsWith("sc")||word.startsWith("br")||wo
rd.startsWith("sh")||word.startsWith("ch")||word.startsWith("sk")||word.startsWith("c
l")||word.startsWith("sl")||word.startsWith("cr")||word.startsWith("sn")||word.starts
With("dr")||word.startsWith("sm")||word.startsWith("dw")||word.startsWith("sp")||word
.startsWith("fl")||word.startsWith("sq")||word.startsWith("fr")||word.startsWith("st"
)||word.startsWith("gl")||word.startsWith("sw")||word.startsWith("gr")||word.startsWi
th("th")||word.startsWith("kl")||word.startsWith("tr")||word.startsWith("ph")||word.s
tartsWith("tw")||word.startsWith("pl")||word.startsWith("wh")||word.startsWith("pr")|
|word.startsWith("wr"));

                }
        }
}
```

Problem #4

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

import javax.swing.*;
@SuppressWarnings("serial")

public class Keypad extends JPanel{

        // build private JPanel for each object
        private JPanel keys = new JPanel();
        private String Entered_Numbers= "";
        // private build keys for all methods
        private JButton end_key = new JButton("End");
```

```
	private JButton call_key = new JButton ("Call");
	private JButton delete_key = new JButton("Clear");
	private JButton one_key = new JButton("1");
	private JButton two_key = new JButton("2");
	private JButton three_key = new JButton("3");
	private JButton four_key = new JButton("4");
	private JButton five_key = new JButton("5");
	private JButton six_key = new JButton("6");
	private JButton seven_key = new JButton("7");
	private JButton eight_key = new JButton("8");
	private JButton nine_key = new JButton("9");
	private JButton zero_key = new JButton("0");
	private JButton astr_key = new JButton("*");
	private JButton pound_key = new JButton("#");
	// private text field length of (20)
	private JTextField displayTextField = new JTextField(20);

	public Keypad()
	{
		setLayout( new BorderLayout());
		setBackground(Color.DARK_GRAY);
		//add keys to border
		Keys();
		//add display to border

	displayTextField.setBorder(BorderFactory.createLineBorder(Color.DARK_GRAY,
15));
		add(displayTextField,BorderLayout.NORTH);

		add(keys,BorderLayout.CENTER);

	}

	public void  Keys()
	{
		keys.setLayout (new GridLayout(5,3));

		keys.setBackground (Color.green);
		keys.setBorder(BorderFactory.createLineBorder(Color.blue, 5));


		//adding keys to the gui

		keys.add(delete_key);
		keys.add(call_key);
		keys.add(end_key);
		keys.add(one_key);
		keys.add(two_key);
		keys.add(three_key);
		keys.add(four_key);
		keys.add(five_key);
		keys.add(six_key);
		keys.add(seven_key);
		keys.add(eight_key);
		keys.add(nine_key);
```

```
            keys.add(astr_key);
            keys.add(zero_key);
            keys.add(pound_key);
            // listener for key presses

            delete_key.addActionListener( new PhoneButtonListener());
            call_key.addActionListener( new PhoneButtonListener());
            end_key.addActionListener( new PhoneButtonListener());
            one_key.addActionListener( new PhoneButtonListener());
            two_key.addActionListener( new PhoneButtonListener());
            three_key.addActionListener( new PhoneButtonListener());
            four_key.addActionListener( new PhoneButtonListener());
            five_key.addActionListener( new PhoneButtonListener());
            six_key.addActionListener( new PhoneButtonListener());
            seven_key.addActionListener( (ActionListener) new
PhoneButtonListener());
            eight_key.addActionListener( new PhoneButtonListener());
            nine_key.addActionListener( new PhoneButtonListener());
            astr_key.addActionListener( new PhoneButtonListener());
            zero_key.addActionListener( new PhoneButtonListener());
            pound_key.addActionListener(new PhoneButtonListener());


      }
      private class PhoneButtonListener implements ActionListener {

            @Override
            public void actionPerformed(ActionEvent event) {

                  if (event.getSource()== one_key){
                        Entered_Numbers = displayTextField.getText() + "1";
                        displayTextField.setText(Entered_Numbers);


                  }
                  else if (event.getSource()== two_key){
                        Entered_Numbers = displayTextField.getText() + "2";
                        displayTextField.setText(Entered_Numbers);


                  }
                  else if (event.getSource()== three_key){
                        Entered_Numbers = displayTextField.getText() + "3";
                        displayTextField.setText(Entered_Numbers);

                  }
                  else if (event.getSource()== four_key){
                        Entered_Numbers = displayTextField.getText() + "4";
                        displayTextField.setText(Entered_Numbers);


                  }
                  else if (event.getSource()== five_key){
                        Entered_Numbers = displayTextField.getText() + "5";
                        displayTextField.setText(Entered_Numbers);
```

```
}
else if (event.getSource()== six_key){
       Entered_Numbers = displayTextField.getText() + "6";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== seven_key){
       Entered_Numbers = displayTextField.getText() + "7";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== eight_key){
       Entered_Numbers = displayTextField.getText() + "8";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== nine_key){
       Entered_Numbers = displayTextField.getText() + "9";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== zero_key){
       Entered_Numbers = displayTextField.getText() + "0";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== astr_key){
       Entered_Numbers = displayTextField.getText() + "*";
       displayTextField.setText(Entered_Numbers);


}
else if (event.getSource()== pound_key){
       Entered_Numbers = displayTextField.getText() + "#";
       displayTextField.setText(Entered_Numbers);


       }
else if (event.getSource() ==delete_key){
       Entered_Numbers="";
       displayTextField.setText(Entered_Numbers);
}
else if (event.getSource() == call_key){
       String Test_Call = displayTextField.getText();
       int Testing= Test_Call.length();
       int correct = 10 ;
       int area_code = 7;
       if ( Testing == correct){
       Entered_Numbers= displayTextField.getText()+ "  Calling";
```

```
                        displayTextField.setText(Entered_Numbers);

                        }
                        else if (Testing == area_code){
                              String Area_Numbers = " Please add area Code";
                              displayTextField.setText(Area_Numbers);

                        }
                        else
                        {
                              String Incorrect_Numbers = "Inccorrect Phone #";
                              displayTextField.setText(Incorrect_Numbers);
                        }

                  }
                  else if (event.getSource() == end_key){
                        String END = "Ended Call";
                        displayTextField.setText(END);
                  }
                  }
            }

      }


import javax.swing.*;
public class Phone {
      public static void main(String[] args){

            JFrame frame = new JFrame("Phone Keypad");
            frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

            frame.getContentPane().add(new Keypad());
            frame.pack();
            frame.setVisible(true);
      }
}
```