IST 256
Lab Week 2 – Tuesday, January 20, 2011

I. Computing Football Scores

1. Open NetBeans and create a new project
Go to the Program menu and find NetBeans.   Start a new project in NetBeans and create a Java GUI Application called FootballScores with a form FootballScoresUI. (Don't forget to make FootballScoresUI the main class.)

2. Create the Form Design.
- **Add four labels to the form** by dragging the objects from the Palette pane
    - Change the text of the labels to say something like "Type number of touchdowns", "Type number of extra points", "Type number of field goals", and "Resulting Score".
- **Add four textfields to the form** by dragging the objects from the Palette pane.
    - Initialize the textfields to have 0 in them.
- Add a button to the form by dragging it from the Palette pane.
    - Change the text property of the button to be an instruction to the user, e.g. "Compute Scores".
- **To add a program to be executed** when the user clicks the button, right click on the button on your form and select Event -> Action -> actionPerformed.

3. Write and Run the program
Write the program developed in class right after the comment with TODO:

- **Run this program** by the little green triangle (play) on the top bar.
    - When the program executes, it should bring up the user interface form, and you should type in three integers into the first three text fields. Then click on the button to get the sum.

- **Test your program with three sets of numbers:**
    - **Write down what integers you typed in and what the results are here.**

Touchdowns	Extra Point	Field Goals	Resulting Score

4. Questions about the program
Give an example of a declaration statement in the program that you wrote:

In this declaration, what is (one of) the variable name?

In this declaration, what is the type?

II. Testing Arithmetic Operators

1. Make the project and the form for the user interface.

For this application, start a new project in NetBeans and create a Java GUI Application called TestArith with a form TestArithUI.

This application will be used to test the results of a number of arithmetic operators. The form will be created once with a test program. Then the test program will be continually modified with new operators to test them.

The form should look something like this with three labels, three textfields and a button:

```
First        |__0_____|           | Compute Integers  |
Second       |__0_____|                 (Button)
Result       |__0_____|
```

Right click on the button and select Event -> Action -> actionPerformed.

2. Write the code for testing Integer arithmetic in the Button

For the Compute Integers button, write the following program
   1. Declare three variables named first, second, and result as type int
   2. Get input values for first and second from jTextField1 and jTextField2.
   3. Add the two numbers and assign the sum to the variable result.
   4. Display the result value in jTextField4.

3. Test for Input Errors:

Start the testing with the operator +, as written above. Now run the program and replace the 0's in the TextFields without typing any numbers. Click on the button. What happens?

Now run the program again, and instead of typing a valid integer, type a number with a decimal point – for example, type 3.6 in the first TextField and type 2.2 in the second TextField. What happens?

What happens if you type the string Hello in the first TextField?

4. Test the Integer Operators +, -, *, /, % (addition, subtraction, multiplication, integer division and remainder) :

For the remaining tests, put the operator into the program line that computes with the first and second number and assigns it to result. Then run the program with two different sets of numbers (as described below) and write your results on this paper.

For each operator, in the first set of numbers, the first number should be bigger than the second, but in the second set of numbers, the first number should be smaller than the second. Negative numbers can be used, except for %. The first two sets of numbers are filled in for you – you can pick the remaining ones to test.

Integer Operator	First Integer	Second Integer	Result
+	9	5	
+	-5	9	
-			
-			
*			
*			
/			
/			
%			
%			

This sheet should be handed in at the end of this week (Week 2) or before class next Tuesday, February 1. Make sure that your name is on the front.