

IST 256
Lab Week 2 – Wednesday, September 7, 2011

Lab Exercise 1. Writing a GUI program for Compute Salary

1. Login to lab computers

2. 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 ComputeSalary. If you need to look at the details, refer back to the instructions from last week. But remember the three main steps: create the new project, create the new JFrameForm and name it something like ComputeSalaryUI, and set the Properties under Run to have the form as the main class.

3. The program specification (statement of problem)

This program should allow the user to type in the number of hours they worked in a week. Then they can click on a button to compute the salary for that week. The salary is computed as follows: If the number of hours is less than or equal to 40, the pay rate is \$10 per hour and otherwise it is \$15 per hour. Display the salary in a label.

4. Create the Form Design.

- **Add a label to the form** by dragging it from the Palette pane (upper right hand side).
 - Scroll down to find the text property and change it to an instruction to the user, something like “Type number of hours worked.”
- **Add a textfield to the form** by dragging it from the Palette pane.
 - Change the text property to be 0 (and hit enter). Then resize the textfield on the form with your mouse.
- **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 Salary.
- **Add another label** to the form below the button to show the Salary. (We’ll use this label to show the result, instead of a TextField).

The resulting form will look something like:

Type number of hours worked:	_0_____
Compute Salary	(Button)
Result Salary	(Label)

- **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.

5. Add the Program

First add a comment to the button event method to document its actions:

Go to the Source tab and find the actionPerformed method and add a comment before it. My comment (using the multi-line comment notation):

```

/* Get the number of hours worked from the form and compute the Salary
 * and display it in a label
 * Programmer: Nancy McCracken
 */

```

Add the code right after the comment with TODO:

For each step, add a comment and then on the next line(s), add the programming statement(s) that perform the computational step described.

[These steps correspond to the similar program developed in class:

- Step 1: // declare variables for hours worked and resulting salary
Add the declarations for two variables, hours and salary
- Step 2: // get the number of hours that the user typed into the textfield
Add the statement that assigns the input into the hours variable.
- Step 3: // if hours are <= 40, pay rate is \$10, otherwise it is \$15
Add the if statement that computes the salary
- Step 4: // display the salary (as a decimal number) in the second label
jLabel2.setText("Salary = " + String.valueOf(salary));]

- **Run this program** by the little green triangle on the top bar.
 - When the program executes, it should bring up the user interface form, and you should type in an integer into the text field. Then click on the button to get the salary.
- **Test your program with three integers:**
 - **Write down what integers you typed in and what the results are here. Make sure that at least one integer is greater than 40. Do the results look plausible?**

Hours	Salary

- Note that NetBeans saves your project as you work.

Lab Exercise 2 – Modifying the ComputeSalary program – work on your own

1. Program Specification

Change the ComputeSalary program so that it also allows the user to type in whether they work the night shift or day shift. The user will either type the text “night” or “day” (type it without the quotes). Then the salary is computed as follows:

The salary is computed with the pay rate of \$10.0 for hours ≤ 40
and pay rate of \$15 for hours > 40 as before.

In addition, if they work the night shift, add a bonus of \$20 to the salary.

2. Change the form:

Add a third label right under the Type hours label to say “Type shift, either night or day” and a second textfield beside it that starts as an empty textfield.

The resulting form will now look something like:

Type number of hours worked:	<input type="text" value="0"/>
Type shift, either night or day:	<input type="text"/>
Compute Salary	(Button)
Result Salary	(Label)

3. Add code to your program.

Go to the actionPerformed function that you wrote before.

Add a third variable declaration for a variable of type String that will represent the shift.

Write a statement that will get the value of shift from the second Textfield (jTextField2)
Note that you don’t need to convert the String to a number.

After the *if* statement, add another *if* statement to add to the salary if the user should get a bonus.

the condition of the if statement will compare Strings: (shift.equals (“night”)).
the body of the if statement will add 20.00 into the current value of salary.

4. Run this program by the little green triangle on the top bar.

5. Test your program:

Perform the following 4 tests, using the input indicated and show the result.

Test Run	Hours	Shift	Salary
1	46	day	
2	32	day	
3	46	night	
4	32	night	

6. Answer the following questions about the program that you wrote:

Write down the **condition** of the first if statement:

Write down the **condition** of the second if statement:

Hand in this lab sheet either at the end of class today or by the beginning of class on Monday, September 12.