

IST 256
Lab Week 3 – Monday, September 13, 2010

Lab Exercise 1. Writing a GUI program – Each student should do their own program for this exercise, led by the instructor.

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.
- **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

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 following code right after the comment with TODO:

```
// declare variables for hours worked and resulting salary
    int hours;
    double salary;

    // get the number of hours that the user typed into the textfield
    hours = Integer.parseInt(jTextField1.getText());

    // if hours are <= 40, pay rate is $10, otherwise it is $15
    if (hours <= 40) {
        salary = hours * 10.0;
    }
    else {
        salary = hours * 15.0;
    }

    // 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 or work as programming pairs (but each person should collect the programming example at the end):

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”. 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 the 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.

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.

Get the shift from the second Textfield (jTextField2) (where do you put this?). (Note that you don’t need to convert the String to a number.)

After the If statement (where is that?) add another If statement to add to the salary if the user should get a bonus. (If you don’t remember how to compare a String variable, just ask.) (How do you add 20.0 to the salary?)

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

Save this lab sheet and hand it in on Wednesday, Sept. 15.