

DePaul University
College of Computing and Digital Media

CSC 211 - Programming in Java I

Assignment 3

Your assignment this time is to upgrade your Employee class as follows:

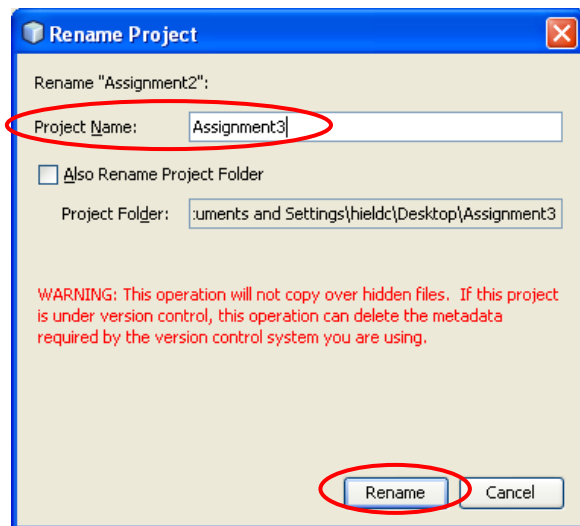
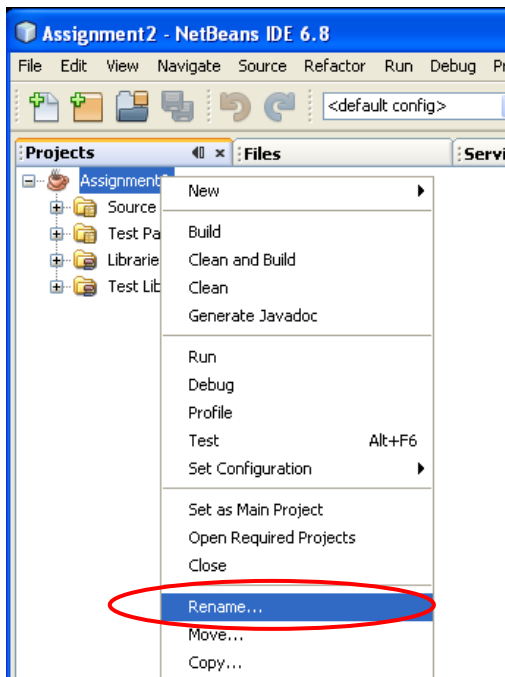
- Make all the Employee's data attributes "private"
- Create accessor & modifier methods (get's & set's) for these private data
- Use the modifiers in the employee constructor
- Use the accessors in the main function.
- Use Java I/O classes to accept keyboard data input

To do all this, you should do the following:

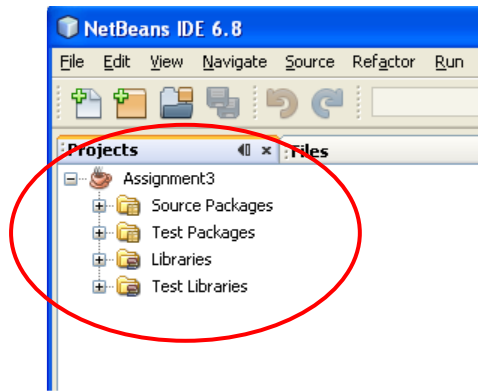
- 1) You can re-use your project from Assignment #2. There is no need to create a new project for this assignment. To do this, make a copy of your project folder from Assignment 2, and give the copy a new name for Assignment 3. For example, my Assignment 2 was done in "C:\Documents and Settings\hieldc\Desktop\Assignment2". I made a copy of the Assignment 2 folder and named it "Assignment3" as follows:

"C:\Documents and Settings\hieldc\Desktop\Assignment3".

- 2) Now open the copied project in NetBeans. We need to rename the copied project within NetBeans. To do this, right-click on the existing "Assignment2" project and select menu option "Rename...". Change the "Project Name" from "Assignment2" to "Assignment3" and click "Rename".



- 3) Your Assignment 3 project should then appear as shown in NetBeans:



- 4) Finally, right-click on the “Assignment3” project and select menu option “Set as Main Project”.
- 5) Now it’s time to make some updates to our “Employee” class. First, make all 4 data members defined in “Employee.java” private (they should have been declared as “public” in Assignment 2).
- 6) Now, create public accessor & private modifier methods (gets & sets) in the “Employee.java” file for each of the 4 data members. Use the following as the error-checking criteria in your modifier (“set”) methods:
- First Name & Last Name: Must have size greater than zero, and size less than or equal to 20.
 - Employee Id: Value must be *greater than or equal* to 1000, but *less than or equal* to 9999.
 - Employee Rate: Must be *greater than* zero.

Use the following template as a guideline on how to structure your accessor & modifier methods (“gets” & “sets”) and how to handle any errors:

```
private void setSomeAttribute(argType someParameter)
{
    if (someParameter > 100) // I used 100 as an example for error checking!
    {
        System.out.println("Bad value passed in for someAttribute: " + someParameter);
        System.exit(-1);
    }
    someAttribute = someParameter;
}

public returnType getSomeAttribute()
{
    return someAttribute;
}
```

You should try to make your “set” method error messages as informative as possible. For example:

```
Bad Last Name Size: Someverylonglastnamethatshouldcauseproblems:43
Employee Id must be 4 or more digits: 22
Hourly Rate must be greater than zero: -23.48
```

- 7) Next, change the Employee constructor implementation so that rather than simply assigning the Employee’s data attributes directly to the incoming parameters with an “=” sign, it will now call the “set” methods for each of Employee’s data attributes.

For Example:

Rather than doing this:

```
someAttribute = someParameter;
```

We now want to do this:

```
setSomeAttribute(someParameter);
```

- 8) Finally, completely remove the “main” method from the Employee class. We will be doing something a little different for the “main” method in this assignment.
- 9) At this point, your “Employee” class should compile cleanly – with no errors.
- 10) Create a new Java class called “Driver” in the existing “coursework” package. We’ve created new classes before so you should know how to do this by now. If you have forgotten, refer to the NetBeans notes pack, or the instructions in your previous assignments.
- 11) Add the following “main” method to your newly created “Driver” class (in between the opening and closing curly-braces of the “Driver” class:

```
public static void main(String[] args)
{
    // First we variable of type Employee.
    // We always set this to null as good practice.
    Employee e = null;

    // Declare variables to hold user inputs needed
    // by the Employee constructor
    String firstNameInput;
    String lastNameInput;
    int idInput;
    double rateInput;

    // Get input data values from the user (via the keyboard)
    Scanner userInput = new Scanner(System.in);

    System.out.println("Employee First Name: ");
    firstNameInput = userInput.next();

    System.out.println("Employee Last Name: ");
    lastNameInput = userInput.next();

    System.out.println("Employee Id: " );
    idInput = userInput.nextInt();

    System.out.println("Employee Hourly Rate: ");
    rateInput = userInput.nextDouble();

    // Now allocate a new instance of an Employee,
    // passing test data to the constructor.
    e = new Employee(firstNameInput, lastNameInput, idInput, rateInput);

    // Print out the data with nice titles
    System.out.println();
    System.out.println("Name: " + e.getFirstName() + " " + e.getLastName());
    System.out.println("Emp. Id: " + e.getEmployeeId());
    System.out.println("Hourly Rate: $" + e.getHourlyRate());

    // We're done with this employee, so now free up the space we allocated
    // for that employee by setting the "e" variable back to null;.
    e = null;

    System.out.println();
}
```

- 12) You will need to “import” “java.util.Scanner” at the top of the “Driver” class, below the “package statement:

```
package coursework;

import java.util.Scanner;

public class Driver {
    ...
}
```

- 13) Now compile your project – the “Driver.java” file and the “Employee.java” files will be compiled. Fix any compiler errors as usual. Then - run the program.

Example Inputs & Expected Outputs:

(You need to type in the values where shown below in blue. You can use your own data for these values)

(Run 1)

Employee First Name:

Reese

Employee Last Name:

Witherspoon

Employee Id:

2739

Employee Hourly Rate:

19.81

Name: Reese Witherspoon

Emp. Id: 2739

Hourly Rate: 19.81

(Run 2)

Employee First Name:

Indiana

Employee Last Name:

Jones

Employee Id:

9876

Employee Hourly Rate:

11.25

Name: Indiana Jones

Emp. Id: 9876

Hourly Rate: 11.25

(Run 3)

Employee First Name:

Justin

Employee Last Name:

Someverylonglastnamethatshouldcauseproblems

Employee Id:

1084

Employee Hourly Rate:

12.90

Bad Last Name Size:

Someverylonglastnamethatshouldcauseproblems:43

(Run 4)

Employee First Name:

Vin

Employee Last Name:

Diesel

Employee Id:

22

Employee Hourly Rate:

14.88

Employee Id must be 4 or more digits: 22

(Run 5)

Employee First Name:

Eliza

Employee Last Name:

Dushku

Employee Id:

2983

Employee Hourly Rate:

-23.48

Hourly Rate must be greater than zero: -23.48

Submission:

- This assignment is due before the start of class next week (on or before 5:45 pm on Monday, April 26th). Late assignments will be penalized 10% per week.
- Your submission should consist of your entire Assignment 3 project folder put into a single ZIP file (or a "TAR" file, or a "RAR" file). Check with me on other formats.
- All submissions are to be made via the course's Course OnLine site
- You may email me with any questions on this assignment at any time between now and the due date.