School of Electrical Engineering and Computer Science
The University of Newcastle
SENG1110/SENG6110 Object Oriented Programming

Lab Session 2 – Week 3

1. Listen the **first video** available in the 'computer lab 2' in Blackboard.
2. Download the code **Salary.java** from Blackboard. Compile and run the code.
   2.1. Modify the code adding the following requirements (one by one):
      a. If the total salary is less than 500, the worker will receive 10% bonus. If the salary is between 500 and 1000, the worker will receive 5% bonus. **(You need to complete this exercise and show the result to your demonstrator)**.
      b. Suppose the program should calculate the salary for 2 weeks: modify the code to accept the normal hours and extra hours in week 1 and then in week2 (four inputs). Then, calculate the total salary and calculate the bonus
      c. Now redesign the interface. This code uses terminal IO. Code a GUI using dialog boxes.
3. Download, compile and run **DivideTwo.java**, and observe the output. The program prompts the user for two integers that represent the numerator and the denominator of a fraction. The Scanner object named `keyboard` is used to read the integers provided by the user. Modify the program to include an If/Else statement to check for division by zero. If the denominator is not equal to zero, display the result of the division, otherwise display a message to the user that division by zero is not allowed.
4. Using a text editor, download and open the file **SwitchErrors.java**. The program evaluates an integer entered by the user and displays the colour assigned to the integer. Compile the program. The program has several syntax and logic errors. Fix the syntax errors and compile and run the program. Does the program run as you expected? Locate and correct the errors in the program logic.
5. Using the program structure templates provided via the program files **ExampleTio.java** and **ExampleGui.java** that you can download from Blackboard, write Java codes for the problems given below.
   5.1. Listen the **second video** available in 'computer lab 2' in Blackboard. It will give some examples of methods in String class.
   5.2. Write a program where the inputs are three strings, two first names (first1 and first2) and one last name (last). The program should create two complete names: first1+last and first2+last and output these two complete names. Use also in this code at least three different methods from String class (you can find some ideas in the lecture slides, book or the API java documentation). Use your imagination! ☺.
   5.3. Write a java program where the inputs are three sides of a triangle, then check if the values represent a valid triangle and if so, which type. A triangle has the following properties:
      - No side of a triangle can be greater than the sum of the other two sides.
      - An isosceles triangle has two equal sides.
      - An equilateral triangle has three equal sides.
      - A scalene triangle has three different sides.

6. Listen the **third video** available in 'computer lab 2' in Blackboard. It will give an introduction to Java documentation.

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1. Modify the Java source code from exercise 3 (above) to use GUI.
2. Explore the Java API documentation at http://docs.oracle.com/javase/8/docs/api/
   a. Check the different methods in String class. Try to use a couple of them in the exercises 5.2 above.

Try to do all exercises! Ask a lot of questions to your demonstrators!
Discuss different approaches for the same problem! Compare with your friends!
If you can't finish during the computer lab, finish any other time in the labs or in your home.
Use the discussion board/Help Desk/PASS to ask questions.

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Mar-17