

CST8110 - Introduction to Programming

Assignment #1 - Problem Solving

DUE: MONDAY September 28th at 11pm - see submission instructions below. Late submissions receive a grade of 0.

Problem Description:

Using the steps for Problem Solving - generate for the following problem:

- a) an algorithm **AND**
 - b) PDL **AND**
 - c) test plan **AND**
 - d) write and test the program code in Java.
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- This problem will simulate producing a very basic invoice for a Roofing company (ie a company that replaces a roof on a building).
 - We will use this problem for many assignments and will build functionality as we progress.
 - For now, the invoice will only handle one roof replaced at a time.
 - The program should ask for the number of hours the job will take.
 - The program should calculate the Invoice Amount - which will be number of hours input above multiplied by \$100.00 per hour.
 - The program should calculate and display the Sales Tax (13% of the Invoice Amount) and the total amount due (ie Invoice Amount + Sales Tax).
 - The program should then ask for payment amount from the user and then calculate and display the change amount to be returned.
 - You do not need to worry about formatting the output - ie numbers to two decimal places, etc. YET....that will come later.

Sample Output #1: (*italics indicate user entered information*)

```
Please enter number of hours: 10
Invoice Amount : $ 1000.00
Sales Tax:      $ 130.00
Total Due:      $ 1130.00

Enter amount paid by customer: 1500.00
Change due: $ 170.00
```

Sample Output #2: (*italics indicate user entered information*)

```
Please enter number of hours: 20
Invoice Amount : $ 2000.00
Sales Tax:      $ 260.00
Total Due:      $ 2260.00

Enter amount paid by customer: 2260.00
Change due: $ 0
```

Submission Requirements:

- Paper submission (to your Lab Professor's mailbox - located in hallway around the corner from T312) should include:
 - o cover page (including student name, student number, lab section, lab professor);
 - o hand-written (legibly) or typed and printed Algorithm, PDL and test plan;
 - o printout of .java file(s).
- Electronic submission of .java and .class files through the Assignment feature under Labs tab in the Blackboard course titled 09F_CST8110_311, 09F_CST8110_312, 09F_CST8110_313 or 09F_CST8110_314 - depending on your lab section. (Note - all of this is submitted to your Lab Professor).