

CST 180 Programming Assignment #4 (20 points)

Purpose: The purpose of this assignment is to use an IDE (Integrated development environment) to create a well-documented C++ program that utilizes user interactions, loops, an input file, and an output file.



Specifics: Using your pay calculation program, modify the existing program to handle multiple employees, calculate net pay after taxes, and outputs a Payroll Report for your company, **Delta Technical Services**.

Delta Technical Services has 10 employees and utilizes the pay code strategy that was developed within the pay calculation program with the following exceptions. Paycode 'M' gets minimum wage, Paycode 'O' gets minimum wage + \$3.00, and Paycode 'T' gets minimum wage + \$6.00.

Your program needs to open and read an input file of employees, pay codes, and hours worked. The input file can be found here : [payrolldata.txt](#)

Look at the input file and study the way it is formatted. Each line of input contains a name, an employee ID number, a pay code, and the number of hours worked. You are not allowed to change this file.

For each record in this file, process/validate the input for each employee and calculate gross and net pay based on the following tax rates: (You should declare a constant for each of these.)

Fed Tax Rate = 15%

State Tax Rate = 5%

Social Security Tax Rate = 7.5%

Medicare Tax Rate = 1.5%

Any hours worked over 40 hours should be paid at time and a half.

Once you have calculated gross pay, apply the above tax rates to calculate net pay.

You will need to use input validation to confirm that you have a valid paycode and you should also check that no employee worked more than 80 hours for the week. If you encounter an invalid record, make sure you acknowledge/highlight the record in your output payroll report.

Create a **single output file** ("payroll_report.txt") for your payroll report. Output to your output file a complete report that includes the following:

- a) A report header that details the report.
- b) A nicely formatted "paystub" (see example below) for each employee. If you encounter an error. Highlight the employee and the error reason in your report.
- c) A wrapup that includes the number of employees processed, the total payroll for this pay period (e.g. How much was paid to all employees).

Here is a sample paystub output: (yours should look similar with appropriate formatting)

```
*****
Paycheck info for employee: Lane Holden
Employee Code:          124578
Total Hours Worked:    45
Payrate:                $  8.15
Earnings Before Taxes: $ 387.12

    Federal income tax:  $  58.07
    State income tax:    $  19.36
    Social security tax: $  29.03
    Medicare tax:        $   5.81

Earnings After Taxes:   $ 274.85
*****
```

Step 1: Develop and document your program by writing pseudocode. Examine your pseudocode for logic errors and correct as needed. (Do this before you write the program!)

Step 2: Study loop and file concepts, specifically how to use input and output files.

Step 3: Type your code into the IDE (e.g. Dev c++, visual studio, etc)

Step 4: Compile your code and execute. You may need to fix errors. Look at your output and make it meaningful for the students using your program. Do a test run with meaningful data and correct any errors you encounter.

Deliverables: Submit the C++ source code **AND** the output file to the **Program 4 Dropbox** within the Delta eLearning System.

Create a hardcopy for turn-in and grading containing the following:

- a) Title Page
- b) Pseudocode for program
- c) Source Code (copy and paste from your IDE)
- d) Output file (copy and paste into your turn-in doc or print and attach)

Upload the document **AND** the .cpp source code file for grading into the appropriate dropbox.