

## ECE 71/191T – Data Structures and Algorithms

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C++ Homework Assignment: Chapter 3

**Code Due By:** Midnight on Mon, Jan 23

**Writeup Due By:** Class on Tue, Jan 24

### HOMEWORK #5 – Salary Raises

Three employees in a company are up for a special pay increase. You are given a file, “**SalaryData.txt**” with the following information:

```
Miller Andrew 65789.87 5
Green Sheila 75892.56 6
Sethi Amit 74900.50 6.1
```

Each input line contains the employee’s last name, first name, current salary, and percent pay increase.

#### Specifications:

Write a program that reads data from the specified file and stores the output in a file called “**SalaryRaises.txt**”. For each employee, the data must be output in the following form: **firstName lastName updatedSalary**. Format the output of the salary to two decimal places, and place a comma into the salary figure appropriately. The salary should be tabbed over from the names of the employees and should also contain the dollar sign ‘\$’.

After you compile your program for the first time, click on the black “**Open Working Directory in Terminal**” icon. This will take you to the subdirectory where your **main.cpp** file is located. From there, create the “**SalaryData.txt**” file using the text editor **nano**.

After you run your program, you can check the contents of the “**SalaryRaises.txt**” file by again clicking on the “**Open Working Directory in Terminal**” icon. Then use the **more** command to examine the contents of the file.

```
Calculating Salary Increases.
Salary Increases written to 'SalaryRaises.txt'.
```

```
~> more SalaryRaises.txt
Andrew Miller   $69,079.36
Sheila Green    $80,446.11
Amit Sethi      $79,469.43
~>
```

Once you verify the operation of your program, submit your source code to the Grader Program.

## HOMEWORK #6 – Business Profitability Calculator

Linda is starting a new cosmetic and clothing business and would like to make a net profit of approximately 10% after paying all the expenses, which include merchandise cost, store rent, employees' salary, and electricity cost for the store. She would like to know how much the merchandise should be marked up so that after paying all the expenses at the end of the year she gets approximately 10% net profit on the merchandise cost. Note that after marking up the price of an item, she would like to put the item on 15% sale.

### Specifications:

Write a program that prompts Linda to enter the total cost of the merchandise, the salary of the employees (including her own salary), the yearly rent, and the estimated cost. The program should then output how much the merchandise should be sold at (the markup price) so that Linda receives her desired profit. The total revenues after the 15% sale, the net profit dollar amount, and a calculation of the net profit percentage should also be printed to the screen based on the merchandise cost.

Use global named constants for the profit percentage and sale percentage. All dollar amounts should be printed to the nearest cent, and the final calculated net profit percentage to the nearest tenth of a percent.

Please enter the total cost of the merchandise: \$435.22

Please enter the total cost of all employee salaries: \$120.42

Please enter the yearly rent: \$567.32

Please enter the estimated electricity costs: \$67.83

Merchandise should be sold at \$1452.13.

With a 15% sale, total revenues are \$1234.31

After operating costs, the net profit is \$43.52.

The net profit is calculated to be 10.0%  
of the initial \$435.22 merchandise cost.

Once you verify the operation of your program, submit your source code to the Grader Program.