Lab # 5

October 20, 2016

Task 1: For this task, perform each of these steps:

1. Read the problem statement.
2. Formulate the algorithm using pseudocode and top-down, stepwise refinement. (*Submit a text file for the pseudocode over LMS*)
3. Write a C program.
4. Test, debug and execute the C program.

Problem Statement

Drivers are concerned with the mileage obtained by their automobiles. One driver has kept track of several tankfuls of petrol by recording miles driven and liters used for each tankful.

Develop a program that will input the miles driven and liters used for each tankful. The program should calculate and display the miles per liter obtained for each tankful. After processing all input information, the program should calculate and print the combined miles per liter obtained for all tankfuls. Here is a sample input/output dialog: **(7 marks)**

```
Enter the liters used (-1 to end): 12.8
Enter the miles driven: 287
The miles/liter for this tank was 22.421875

Enter the liters used (-1 to end): 10.3
Enter the miles driven: 200
The miles/liter for this tank was 19.417475

Enter the liters used (-1 to end): 5
Enter the miles driven: 120
The miles/liter for this tank was 24.000000

Enter the liters used (-1 to end): -1

The overall average miles/liter was 21.601423
```

Task 2: Develop a program that will determine the gross pay for each of several employees. The company pays "straight time" for the first 40 hours worked by each employee and pays "time-and-a-half" for all hours worked in excess of 40 hours. You're given a list of the employees of the company, the number of hours each employee worked last week and the hourly rate of each employee. Your program should input this information for each employee and should determine and display the employee's gross pay. Here is a sample input/output dialog: **(3 marks)**

```
Enter # of hours worked (-1 to end): 39
Enter hourly rate of the worker ($00.00): 10.00
Salary is $390.00

Enter # of hours worked (-1 to end): 40
Enter hourly rate of the worker ($00.00): 10.00
Salary is $400.00

Enter # of hours worked (-1 to end): 41
Enter hourly rate of the worker ($00.00): 10.00
Salary is $415.00

Enter # of hours worked (-1 to end): -1
```

Grading and LMS Submission

- Make sure that the lab engineer has graded your programs until 5 pm.
- You've uploaded the C source files in Zip format over LMS until 5:30 pm.