Assignment 1:
C Programming Environment and Creating Simple Programs

Date: **Thursday September 13 9:30am-12:20pm**
You must demo all your work ***during your lab session and before exiting the lab***.

Goal of this assignment: To be able to 1) **install software**, 2) **use vi editor, 3) use gcc compiler**, and 4) use **basic UNIX based folder navigation commands**.

1. Every student should be able to download and install a software system. You will need to install software that allows us to compile and run the C program written by us.
   a. If you have a Windows system do the following.
      i. Install **Cygwin** on your system. You may follow https://cygwin.com/install.html . Ensure that you have selected some packages like:
      lynx, wget, curl, tar, bash-completion, vim, tmux, git, diffutils, make, gcc-c, gcc-c++, gcc-fortran, openssh
      ii. Familiarize yourself with the vi commands by experimenting on your system.
   b. If you have a Mac system do the following.
      i. Invoke your **terminal** software. This link shows how to use the terminal http://www.macworld.co.uk/feature/mac-software/get-more-out-of-os-x-terminal-3608274/
      ii. Install gcc if it is not available.
   c. If you have a Linux system, do the following.
      i. gcc is usually available on any Linux system. Install it if it is not available.

2. On your computer, create and edit welcome.c file as shown below. Compile/link the program using gcc, run the generated program. NOTE DON" T copy and paste the welcome.c but type the program yourself using all of the vi commands. You must familiarize yourself with the vi editor.

welcome.c program

```
#include <stdio.h>

//        Name:           Your name here
//        Section:        Your section here
//        Purpose of program:
//        This program is a demo program to understand the basics of
//        how to create a c file, edit it, save it, compile it and
//        execute it.
//
// Function main begins program execution
int main(void)
{
  int ID;
  float shipweight;
```

```
    ID = 4518;                    //Initialize ID
    shipweight = 24.625f;         //Initialize Shipping weight

    // display the string
    printf(" Welcome to C\n");

    //display contents of variables
    printf("The ID of the item is %d\n", ID);
    printf("The shipping weight of the item is %0.3f\n", shipweight);

    //We have to return
    return 0;
} // end function main
```

To compile and link your source code program in the file named `welcome.c` in your *current* directory, using the following command:

`gcc -o` *executableFileName* `welcome.c`
where *executableFileName* is the file name for the executable program generated from `welcome.c`

To run your executable program, use the following command:

`./`*executableFileName*

3. During the lab session, install Cygwin and gcc on the lab computer. Work on question 2 again using the Cygwin environment. Enter the welcome.c program code using vi editor. Demonstrate to your Lab TA, your work for question 2.

4. Write a C program that displays the following information on the screen/display. Also demonstrate how an executable program is obtained during lab session. Please ensure that you have adequate comments including the header section and comments around code.

```
**********************
  I hear and I forget.
 I see and I remember.
I do and I understand.
          -- Confucius
**********************
```