COL100 Lab 4

I semester 2016-17

Week 4, 2016

Objective

To be able to write simple C programs involving data types, if statement
and loops.

Instructions

1. After 1 hour 45 minutes have passed, your code will be checked. What-
   ever you have completed till this point will be recorded. Anything that
   you complete later will not be recorded.

2. If you complete an assignment later, you can ask the TAs of your lab
   session any problems and doubts that you face. There is no need to
   show the TA your code, if there is no problem in it.

3. You cannot attend any lab session other than your allotted session,
   without informing the TAs of the session you are attending. This too
   is permitted only for genuine reasons.

4. Also, you will not get attendance, if you do not attend your own lab
   session, nor will your performance be noted. (Even if you fill in the
   attendance sheet, it will not be uploaded later.)

Sample Programs:

```c
#include<stdio.h>
int main()
{
    int a, b, count;
    printf("Enter the count of numbers you want to add\n");
```

```c
    scanf("%d",&count);
    int i = 1;
    int sum = 0;
    while(i<=count)
    {
        scanf("%d", &a);
        sum = sum + a;
        i++;
    }
    printf("Sum of entered numbers = %d \n",sum);
    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int age;
    printf("Enter your age\n");
    scanf("%d",&age);
    if(age >= 18)
    {
        printf("You are eligible to vote\n");
    }
    else
    {
        printf("You are not eligible\n");
    }
    return 0;
}
```

Programs

- Press Ctrl + Alt + T to open a terminal.
- cd to the directory COL100.
- In this directory, create another folder, called as lab4.
- cd to lab4.

1. Write a program in C to find product of integers. The program should first prompt the user to input the count(N) of numbers the user want

to multiply, and then ask the user to enter the numbers one by one. Then it should print the product obtained. (Hint: See sample code).

2. Write a program in C to add even and odd numbers separately and print them separately. Program should take numbers as user input and identify itself that the number entered by the user is even or odd.

3. Write a program in C to find n! (n! = 1 x 2 x 3 $\cdots$ x n). The program should prompt the user to input the number 'n'. Then the program should run a loop over values 1 to 'n' and iteratively multiply the numbers to find n!. Then it should print the result.

4. Write a program in C which prompts the user to enter the marks of 3 subjects out of 100 and then classifies the result on the basis of following criteria-
a) Fail: If <30 in atleast two subjects.
b) Compartment: If <30 in only one subject,
c) 3rd division: If average of all the subject is <45
d) 2nd division: if average of marks is between 46 and 70,
e) 1st division: if average of all subject is >70.
f) Pass with distinction: If the user scored >85 in all subjects individually.

Optional Programs

1. Write a Program in C to detect that the number taken as user input is prime or not?

2. Write a Program in C to find the maximum among a set of numbers. The numbers should be taken as user input one by one. Hint: Maintain a 'max' integer, which stores the maximum of all the integers, which have been read till now.

Useful Commands in Linux

1. Open terminal: Ctrl + Alt + T

2. Terminate current Linux command: Ctrl + C

3. Make a new directory: mkdir *dirname*

4. Copy: cp *src dest*

5. Rename: mv *originalname newname*

6. Delete: rm *filename*

7. Change working directory: cd *path*

8. List contents of a folder: ls

9. List contents of a folder including hidden files: ls -a

10. Print current directory: pwd

Points to Remember

1. To set proxy: Open an internet browser and set the Automatic proxy configuration url to http://www.cc.iitd.ernet.in/cgi-bin/proxy.btech (or proxy.dual if you are a Dual Degree student).
   (For Firefox, open Options > Advanced > Network Tab > (Connection) Settings > Choose "Automatic proxy configuration" and set the URL)

Optional : Use vim editor

1. Open a file: vim filename.txt

2. Insert in a file: i (insert mode) (Use Esc to come out of the insert mode)

3. Navigation: arrow keys

4. Undo u

5. Redo Ctrl+R

6. Saving a file :w

7. Closing a file without saving :q!

8. Saving and closing a file :wq

9. Deleting a line dd

10. Copying a line yy

11. Pasting a line p