COL100 Lab 12

I semester 2016-17

Week 12, 2016

Objective

To be able to write C programs involving pointers.

Instructions

1. After 1 hour 45 minutes have passed, your code will be checked. Whatever 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 that 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.)

Programs

- Press Ctrl + Alt + T to open a terminal.
- cd to the directory COL100.
- In this directory, create another folder, called as lab12.
- cd to lab12.

1. Write a program that given a list of strings, stores them into an array of pointers. Output the string which has the highest number of vowels.

2. Given an array $p[5]$, write a function to shift it circularly left by two positions. Thus, if $p[0] = 15$, $p[1] = 30$, $p[2] = 28$, $p[3] = 19$ and $p[4] = 61$ then after the shift $p[0] = 28$, $p[1] = 19$, $p[2] = 61$, $p[3] = 15$ and $p[4] = 30$. Call this function for a (4 x 5) matrix and get its rows left shifted.

3. Write a function which takes an array of pointers to char (strings) and returns the number of strings equal to first element of the array.

4. An array is arranged such that $a[i] + a[i+1] = a[i+2]$, for each i which is a multiple of 3. However, there are some mistakes in $a[i+2]$. Write a function that takes this array and corrects the mistakes. It should return the number of mistakes.
   (Hint : $a[0] + a[1] = a[2]$, $a[3] + a[4] = a[5]$ but $a[1] + a[2]$ may not be equal to $a[3]$.)

Optional Programs

1. Write a program that takes a set of names of individuals and abbreviates the first, middle and other names except the last name by their first letter.

2. Write a program to count the number of occurrences of any two vowels in succession in a line of text. For example, in the sentence
   "Please read this application and give me gratuity"
   such occurrences are ea, ea, io, ui.

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