National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Computing

CS 330: Operating Systems

BSCS-6AB

Lab 1: Introduction to Linux

CLO1(Explain & summarize OS Services and Abstractions)

Date: 11-9-2018

Time: 09:00 AM- 12:00OM and 02:00 PM – 05:00 PM

Instructor: Dr. Ali Tahir

Lab 01: Introduction to Linux

Introduction

The purpose of this lab is to introduce Linux OS and its commands in order to enable students to development their C applications on this platform. For step 11, write down the commands you used in a text file and upload it.

Objectives

Objective of this lab is to install linux and explore its GUI and CLI.

Tools/Software Requirement

VMware workstation, ISO image of Ubuntu.

Description

1. Working Linux system:

For conducting this and subsequent labs, you are going to need an operational Linux system. There are several options of running Linux OS:
a): Wipe out windows from your computer and install Linux from scratch

http://www.ubuntu.com/download/desktop/install-desktop-latest

b): Dual boot Linux and Windows—http://www.dedoimedo.com/computers/dual-boot-windows-7-ubuntu.html

c): Run Linux inside a virtualization platform like Virtual Box (https://www.virtualbox.org). This is the recommended method. Check out Piazza for some more installation instructions for this method.

d): We recommend the Ubuntu Linux distribution (http://www.ubuntu.com/), though others are also acceptable.

2. Graphical User Interface (GUI) or Command Line Interface (CLI):

There are two primary ways of interacting with a Linux computer. The first is to use GUI (just like Windows) and the second is to interact with CLI. The most popular CLI terminal is called BASH (Bourne Again Shell).

3. User Name:

It is important to know the user name and password for the Linux system that you are using. Make a note of it while making installations. In the lab, this is likely going to be "lab" and "seecs", although you should check with your Lab Engineer.

a. Use VM workstation for Ubuntu 14.04, if you are using Lab machines.
b. Select VM workstation, then choose the option "open virtual machine"
c. Go to D:\vm
d. Select Ubuntu 14.04

4. What is root user?

See http://www.linfo.org/root.html

5. sudo:

Ubuntu users will need sudo command to run privileged commands. See

http://linux.about.com/od/ubuntu_doc/a/ubudg24t4.htm

6. Basic Linux Tutorial:

Open the Linux tutorial "An Introduction to the Linux Command Shell For Beginners" at http://gedris.org/Manual-ShellIntro/1.2/ShellIntro.pdf

a. Go through the initial sections of the tutorial.
b. Overview of Linux filesystem (section 3) of the tutorial.
c. Linux Utility Commands(section 4 and 5)

7. Editing files:

Some popular text editors include emacs, vim, nano and gedit. The last two are easier to use, the first two are more powerful and therefore more popular among developers.

8. Network Configuration:

a. Check if your network is working by pinging Google. On the command prompt, run "ping a. www.google.com". If it is successful, then it is great, otherwise you will have to configure your network.

i):GUI configuration visit the following link: http://www.wikihow.com/Set-up-a-Network-in-Ubuntu

ii): CLI configuration can be easily done through the following command:"Ifconfig".

9. Installing new software using apt-get (on Ubuntu):

a. See https://help.ubuntu.com/10.04/serverguide/apt-get.html

10. Writing, compiling, and executing C code on Linux:

a. Write the C code using nano or emacs or vim or gedit and save it in some folder and name it hello.c

```
/* Hello World program */
#include<stdio.h>

main() {
printf("Hello World");
}
```

- Write C code

b. Compile the code: gcc -o hello hello.c

c. Execute it: ./hello

Lab Tasks

a. Create a file name file1 using terminal; write some text in this file. Create another file name file2, copy the text from file1 to file2, using terminal. (Write set of commands which you will use to perform these steps).
b. Open the firefox, terminate the firefox process using terminal
c. Create directory dir1, place a file named file1. Create another directory dir2, place file name file2 in it. Move file2 to dir1.
d. Compress the dir1 and dir2 in a zip file using terminal, named zipped_directories.
e. Unzip the compressed file "zipped_directories" in /home/Labs/Documents
f. find out what the following script file does:

g. ********** file commands.sh**********

```
#!/bin/bash
echo "hello world"
for f in *.txt; do
   f2=${f%%.*}
   echo filename $f2
   cat $f | sed 's/(.*)//g' > ${f2}_modified.txt
done
**********end of file commands.sh**********
```

h. Hint: text files contain strings like "aad(bbb)c c"

i. make this script file executable by command
chmod u=rwx commands.sh

Deliverables

A lab report containing commands and screenshots of output.