CSC3320 System Level Programming
Homework 1

Due at 11:59 pm on Sep. 6th, 2014

Part1: Environment configuration for UNIX system. (3 points)

(1) Install a virtual machine and **Ubuntu** in your operating system. For **Windows** users, please follow guide [VirtualBox](https://www.virtualbox.org/) and [Vmware Player](https://www.vmware.com/). For **Mac** users, please follow guide [VirtualBox](https://www.virtualbox.org/).

You can also refer to this video. https://www.youtube.com/watch?v=PL7Dh6drlBw

(2) Log in to your Ubuntu system, and open “**Terminal**”. Click Dash Home and search “Terminal”. Then select Terminal and open it.

(3) In “**Terminal**”, use command `ssh` to connect server snowball.cs.gsu.edu.

`ssh campsId@snowball.cs.gsu.edu`
E.g. my camps Id is ylong4, so I use ssh ylong4@snowball.cs.gsu.edu

**Note:**
1. *Your password for camps Id will be the password for this server.*
2. If the server warns you that the authenticity of host cannot be established and ask you if you want to continue connecting, please enter “yes”.
3. Remember to type “Enter” once you input the command after the prompt ‘$’.

*(4) Submit a screen shot like following figure (including your terminal and ssh connection)*

![Screen shot](image-url)

**Note:** *Screen shot short cut in Mac OS, command + shift + 4; in windows, use key PrintScreen.*
Part2: Answer the following questions: (20 points in total)

1. What are the differences among shell, kernel and API (Application Program Interface)? (3 points)

2. What are the differences among file, program and process? (3 points)

3. What are the UNIX philosophies? (3 points)

4. What are the UNIX attributes? (3 points)

5. Assuming the following directory structure. (8 points)

```
To establish this directory structure, please copy the following commands one by one. Remember to use Ctrl-D as an end of file.

mkdir csc3320 csc3320/hw1 csc3320/hw1/folder1 csc3320/hw1/folder2 csc3320/hw1/folder1/folder3

cd csc3320/hw1

cat > file1

cd folder1

cat > file2
```
Then please write the commands you will issue to complete the following tasks step by step.

(1) Output current pathname.

(2) Go to directory hw1.

(3) Use `ls` to list all the files and directories under folder hw1.

(4) Create a folder named as “folder4” under hw1.

(5) Remove folder2.

(6) Go to folder3 with absolute path.

(7) Go to folder4 with relative path.

(8) Remove all the files and folders under folder csc3320.

**Submission:**

- Upload an electronic copy (MS word or pdf) of your answer sheet to the folder named “**HW1**” of the dropbox in the desire2learn system.

- Please add the homework number and your name at the top of your answer sheet.

- Name your file in the format of **HW1_FirstnameLastname** (eg. HW1_YuanLong.docx, HW1_YuanLong.pdf)