CST8102-16F Lab5 Name_____ Section #_____

The Linux File System (Part 1)

Due date

- End of the day of Week 7 (Oct.17 to Oct.21) lab class

Evaluation

- 3% of final grade.

Submission

Submit completed lab using **Assignment** link (make sure you choose the right **section number**) on BlackBoard before due date.

Materials

1) Student laptop computer
2) Ubuntu 14.04.5 installed in VMWare Workstation

Before you get started...

IMPORTANT – Create a full clone of your Ubuntu virtual machine in case you really mess things up. You should already have the clone that was created in lab1. In case you don't have it in place, create it again following the instructions in lab1.

Procedure

Exercise #1: Viewing existing partitions

Switch to root user with the command **`su – root`**

To manage partitions, use the **/sbin/fdisk** command.

The syntax of the **fdisk** command is: **`fdisk device_name`**

- Create a directory called lab and make it your working directory
- Type **`fdisk /dev/sda`**
- Within the **fdisk** utility type **m** for a list of menu options at the "Command (**m** for help):" prompt
- Record the (one-character) fdisk command to:
    - display/list all partitions: ____
    - create a new partition: ____
    - delete a partition: ____
    - list partition types: ____
    - change a partition's system identification: ____
    - save changes made to the partition table: ____
    - exit **fdisk** without saving: ___

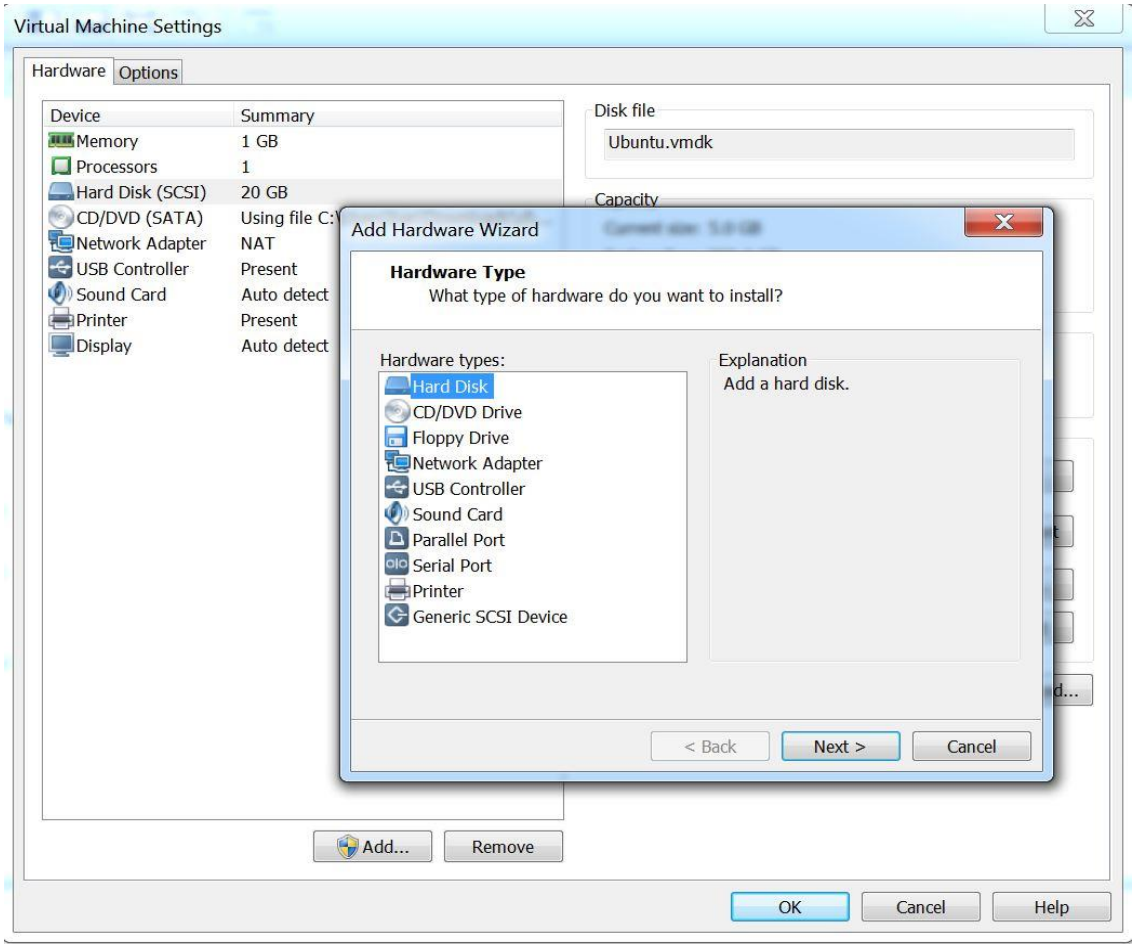
- Select the option that lists the partition types and record the **system id** of the following types:
    - "Linux": _____
    - "Linux swap": _____

Exercise #2: Creating a partition

Add a new virtual hard drive in your Ubuntu virtual machine Make it **3 GB** in size. **DO NOT USE YOUR EXISTING HARD DRIVE** (**`/dev/sda`**)!!!

1) Turn off the Linux virtual machine

2) **VM → Settings → Add → Hard Disk**



3) Click Next, and use the default settings for "**Select a Disk Type**" and "**Select a Disk**"

4) Type **3** GB for Max. disk size for "**Specify Disk Capacity**", and then click **Next → Finish**

Create the following partitions using **fdisk** command:

1) Create an primary partition:

   - The size of the primary partition is **1000MB** and is of type "Linux"

2) Create another primary partition:
   - The size of the primary partition is **500 MB** and is of type of "Linux"

3) Create an extended partition to host three logical drives as the following:

   (keep in mind that you must make it large enough to encapsulate the logical drive described below. HINT: There will be problems if you try to make it exactly **1200MB.** You will need to experiment and perform some math):

   - The size of the first logical drive is **500MB** and is of type "Linux".
   - The size of the second logical drive is **400MB** and is of type "Linux".
   - The size of the third logical drive is 3**00MB** and is of type "Linux Swap".

4) Print the partition table with fdisk command **p** and record the output :

5) Record the information on the partitions which have been created on the new 3GB hard drive and answer questions in the table below:

List all the primary partitions on the new 3GB drive	
Name the extended partition if one exists on the new 3 GB drive	
List all logical drives if they exist on the new 3GB drive	
Can you create additional primary partitions on the new 3GB drive?	Y, N and Why?
Can you create additional logical drives on the new 3GB drive?	Y, N and why?

Exercise #3: Deleting a partition

- Delete the logical drive of **400MB** with fdisk command **d**
- Print the partition table with fdisk command **p**
- What do you notice in terms of the partition numbering?

  _____

  _____

- Save the changes and quit **fdisk** with command **w**

Exercise #4: Basic commands review

1) Log in as the default user, what is your default prompt?

2) What does **whoami** return?

3) What dose the command **uname** return?

4) To display Linux kernel version, you should type:

5) Type **hostname** at command line, record the output

6) Type **pwd**. What does it display?

7) What does **`wc -l /etc/passwd`** display?

8) What is the purpose of **wc** command? (using **man** for help)

9) Type the following commands and record the output**:**

```
touch lab51 lab52
ls –i lab51 lab52
```

10) Type **`man ls`** and see what the **-i** switch does. Explain what it does.

11) What is the command to take you to your home directory? Be specific. Show two methods.

12) How many top-level subdirectories are located under the root(/) of the file system?

13) What command do you use to remove a empty directory?

14) What command and options do you use to delete a complete directory structure including files stored in it?

15) What is the command used to restart Linux immediately?
(Assume you log in as root)