**LINUX EXERCISE (LAB 08)**

**How to submit your assignment**

Check the requirements of the Lab 01.

Students should have the users configured in Lab 01

Exercise 1. Login to your computer using your normal account. Find the following information (You need to write down the commands the find the required information and/or capture the result screenshots)

1. Which partition does your home directory belong to?

A picture containing text, screenshot, font

Description automatically generated

It is in the disk “sdb” used as a single partition

1. How many partitions are there in your system? Which ones?

Currently there a 2 disk used as a single partition, I haven’t divided them yet

A screen shot of a computer

Description automatically generated with low confidence

1. What is the total size of your Linux OS?

A screenshot of a computer

Description automatically generated

Exercise 2. Creating a File system

1. Log on as root and use the fdisk command to add a new 200 MB logical partition (/dev/sda7) to your hard drive.

A screenshot of a computer program

Description automatically generated with medium confidence

Wsl2 only allow me to create with sda1 to sda4, so I cannot create sda7. Here I created sda1

1. Use the fdisk –l command to verify that the new /dev/sda7 partition has been created. If you made a partition that is larger than 200MB, delete it and make it again.

A picture containing text, screenshot, font, line

Description automatically generated

1. Format this partition with an ext3 file system that contains 800 inodes:

Run command:

sudo mkfs.ext3 -N 800 /dev/sda1

1. Before we mount the file system, lets look at the superblock structure using the dumpe2fs command, note the following fields:
   1. Filesystem volume name
   2. Filesystem state
   3. Inode count
   4. Block count
   5. Block size
   6. Maximum mount count

* Run command:

dumpe2fs /dev/sda7

1. Configure the name and the maximum mount count of the new partition using **e2label** and **tune2fs**.

Run 2 command:

e2label /dev/sda1 newName => set name of partition to newName

tune2fs -c 10 /dev/sda1 => set number of mount count to 10

1. Check your modifications using the **dumpe2fs** command

Run again command:

dumpe2fs /dev/sda7

Exercise 3. Mounting and Populating a File System

1. Mount your new partition to the directory /mnt

Run command:

mount /dev/sda1 /mnt

1. List the current contents of your filesystem by listing the contents of the /mnt directory. What is there? Anything?

ls /mnt

1. Note that the mkfs command made a fairly large, but empty, directory called lost+found in your file system. This directory is used by fsck to store recovered files when fixing file system corruption. What is the inode of the lost+found directory? What is the inode of the mntpoint, (/mnt)? Directory? (hint: you can try to use ls command)

ls -i /mnt/lost+found => see inode of lost+found

ls -i /mnt => see inode of mnt

1. Now populate your new partition with all the home directories of your users

Run command: cp -R /home/\* /mnt/

To copy all data in home directory to /mnt

1. List the contents of your new partition with inode numbers

ls -li /mnt

1. Change directory to / and unmount your partition at /mnt

cd /

umount /mnt

1. Check the integrity of your new file system using the following command even though the filesystem was unmounted cleanly

fsck -f /dev/sda1

Exercise 4. Setting up disk quotas

1. As root, mount your new file system to the /home mount point with the following command:

**mount -o usrquota /dev/sda7 /home**

What would you do if you wanted this file system mounted like this every time you booted the system?

Open file /etc/fstab => add line:

/dev/sda7 /home ext3 defaults,usrquota 0 0

1. Change directory to /home and verify that all your user directories are there.

cd /home

ls

1. Analyze the quotation of the new partition (sda7). Notice the datafile that gets created for holding this quota information. What is its name?

The file name is: **aquota.user**

1. Now turn on user quotas on with the parameters “-uv”. What the meaning of those parameters?

quotacheck -uv /dev/sda7

The -u parameter indicates that user quotas should be turned on, and the -v parameter displays verbose output.

1. On another screen, log in as gimli and issue the quota command. What does it say?

Log in and type command: quota

* The quota command will display the current quota information for the user gimli, including usage and limits.

1. Go back to your root login and setup a quota for gimli. Notice that you can set quotas on disk space (blocks) or on number of files (inodes). Set Gimli’s soft quota to be 2MB and his hard quota to be 2.5 MB

Setup quota for for user gimli in root user with command: edquota -u gimli

It opens text editor so I can set soft quota to 2MB and hard quota to 2.5MB in the file

1. Once you've setup the quota for gimli, test it out by logging in as gimli on another terminal or Putty session and start using up his diskspace. Either copying files into gimli’s home directory or use a script like the following. You should reach the limits

OK

1. To make this quota persistent across reboots, you will have to add the usrquota keyword to the options column of the appropriate entry in /etc/fstab. Do it now.

Open the /etc/fstab file using a text editor and add the usrquota option to the entry for /dev/sda7 like this:

/dev/sda7 /home ext3 defaults,usrquota 0 0

Save change and finish