**Birzeit University**

**Computer Science Department**

**Linux OS Laboratory COMP311**

**Lab 4**

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Create a directory called mode and move inside it (mkdir mode; cd mode). Create a file called myfile and a directory called mydir inside directory mode. Using the chmod command with relative mode, change the permissions on both myfile and mydir as follows:

rwxr\_xrw\_ commands= **chmod u+x,g+x,o+w myfile ; chmod o+w-x mydir**

r\_\_rw\_\_\_\_x commands= **chmod u-wx,g+w-x,o-rw+x myfile ; chmod u-wx,g+w-x,o-rw+x mydir**

\_\_\_rwx\_wx commands= **chmod u-r,g+x,o+w myfile ; chmod u-r,g+x,o+w mydir**

Using the chmod command with absolute mode, change the permissions on both myfile and mydir as follows:

rwxr\_xrw\_ commands= **chmod 756 myfile ; chmod 756 mydir**

r\_\_rw\_\_\_\_x commands= **chmod 461 myfile ; chmod 461 mydir**

\_\_\_rwx\_wx commands= **chmod 073 myfile ; chmod 073 mydir**

Run the command: umask

What number did you get: **022**.

what permissions would you get on files and directories after you run the command: umask 123 Expected permissions on a new file= **-rw r-- r--.**

Expected permissions on a new directory= **-rw r-x r--.**

Check to see if you understood how umask works by creating a new file and a new directory and checking the set permissions. Did you get it right? **Yes**.

What permissions would you expect after the command: umask 625 is executed. Try it to see the results. Did it work? **yes**.

If you want a newly created directory to have the permissions rwxr\_\_\_wx what umask command would you run: **umask 034**. Try it. Did it work? **Yes**.

To have the following permissions on a newly created file: r\_\_rw\_\_\_w\_ what umask command would you run: **umask 315**.Try it. Did it work? **Yes**.

What about if you wanted a newly created file to have permissions: rwxr\_\_\_wx. What umask command would you run: **umask 034** .Try it. Did it work? **No**. Why? **Because the default permission for file do not include execute .**

Go back and create two files called file1 and file2 and then create a hard link called hlink to file1 and a symbolic link called slink to file2. List the commands you used:

**touch file1 file2**

**ln file1 hlink**

**ln -s file2 slink**

Now try changing the permissions on file1 to rwxrwxr\_\_.

Command: **chmod 774 file1.**

What happened to the permissions on hlink? Why?

**It become the same permission as file one, because it is an exact copy of file1.**

Now change the permissions on hlink to rwx\_\_\_\_\_\_x.

Command: **chmod 701 hlink**.

What happened to the permissions on file1? Why?

**It changed to the new permission we set to the hlink , because it is an exact copy of hfile**

Now try changing the permissions on file2 to rw\_r\_xr\_\_.

Command: **chmod 654 file2.**

What happened to the permissions on slink? Why?

**It still the original one (did not change),because the symbolic link look like a pointer.**

Now change the permissions on slink to r\_\_rwxr\_x.

Command: **chmod 475 slink**.

What happened to the permissions on file2? Why?

**It changed to the new permission we set to the slink**.

What happened to the permissions on slink? **did not change**.

Try creating a file and putting the phrase “how are you” inside then save and quit. What is the size of the file? **12**.

Why?**11 bytes for (how are you) and one byte** **char end of file**.

Change to directory /dev.

Command: **cd /dev**.

Check out the size property on device files. What did you find?

**Two numbers and didn’t find the size.**

What are the two numbers that exist instead of the size?

**Major Device Number: Identifies the type of device.**

**Minor Device Number: Identifies a specific instance or unit of the device type identified by the major device number.**

**Go back to your home directory. Command: cd.**

Go back and display the size of the symbolic link (slink) you created earlier. Can you figure out how that size was calculated? **5 byte is the length of the pathname it points to(file2)**.

Try creating a new symbolic link and see if you are able to figure out how the size on a symbolic link is set. What did you find?

**That the size of the symbolic link is set to the length of the link target (the path it points to).**

Last access time: which is the time the file was last accessed or viewed. What ls

option is used to display that time. **lu** .

Now view the file using the more command. What happened to the times?

**The access time changed to the time when I open the file.**

Now open the file myfile, modify it and then save and quit. What happened to the times now?

**The modification time changed to the time when I modify the file.**

Run the stat command on myfile, what information can you see:

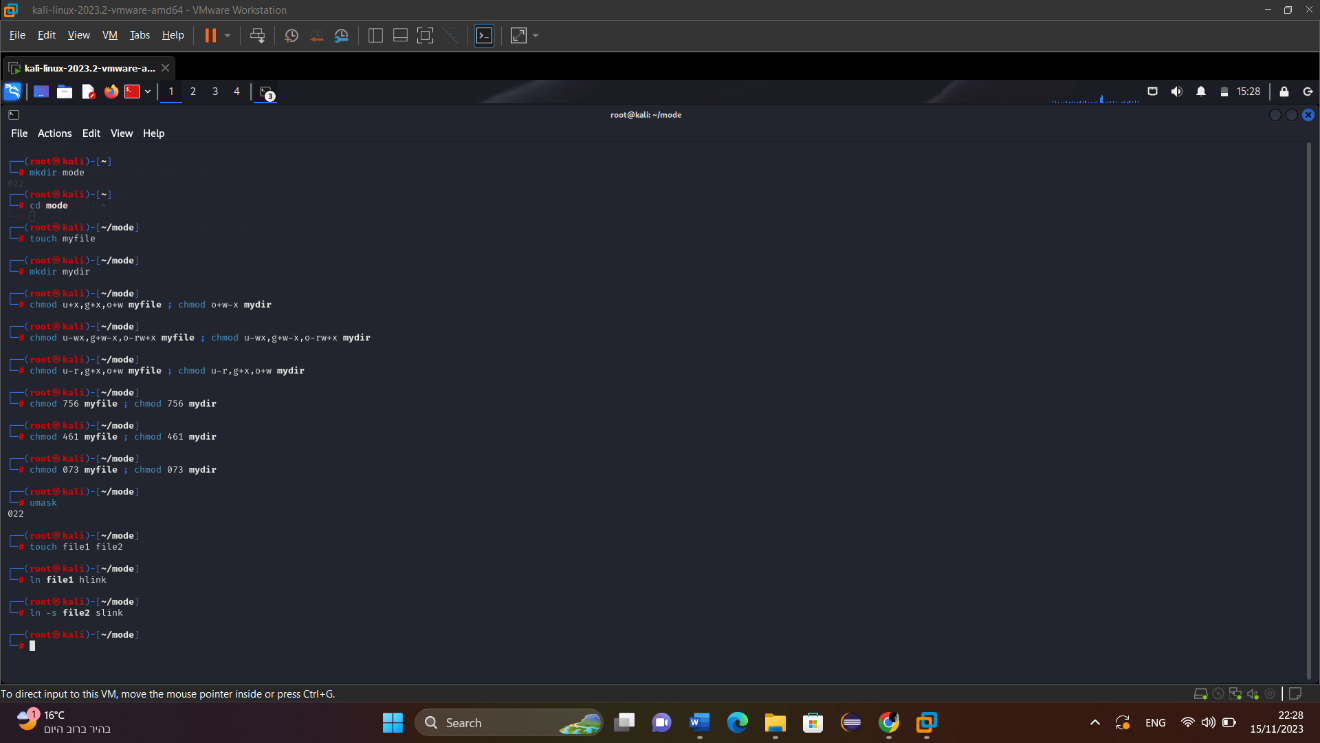
**File name, Size, and Access, Modify, Birth time.**

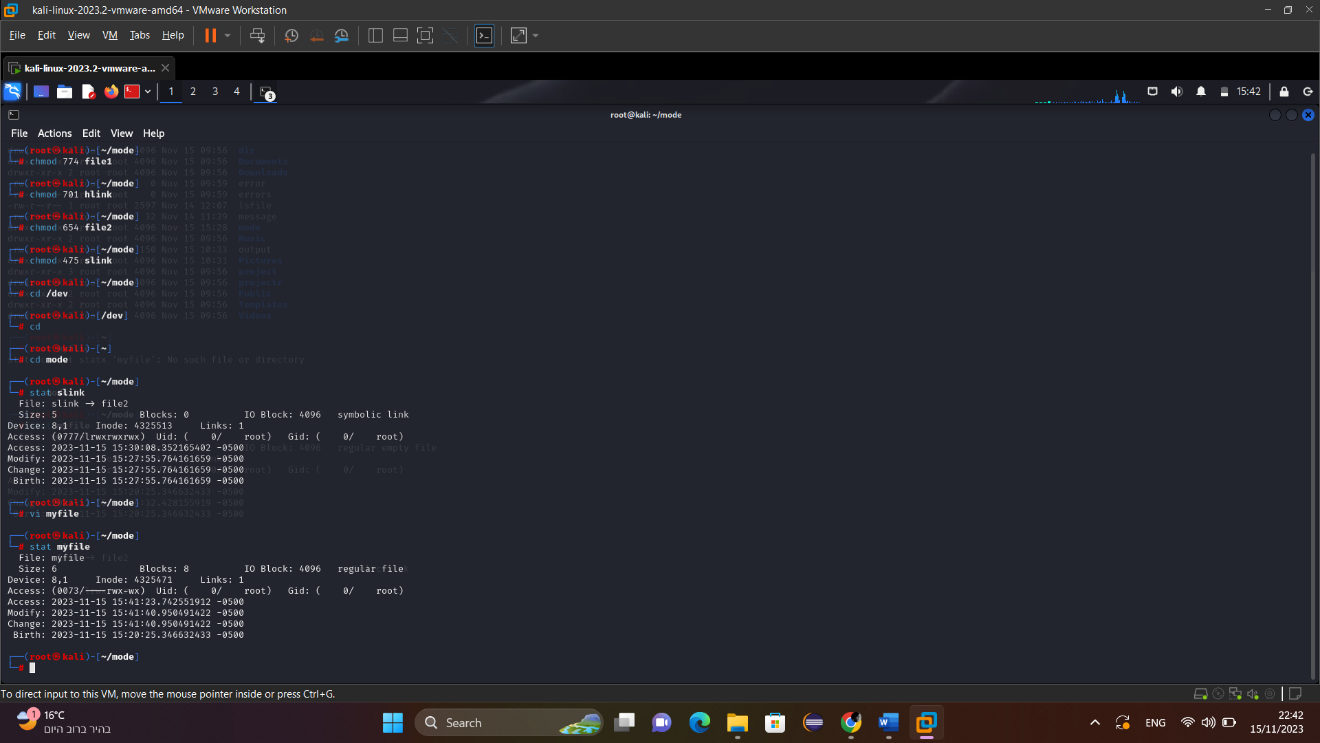
Create a hidden file called. hidden.

Command: **touch .hidden** .

Try to list your files using the command ls. Can you see .hidden? **No**.

Now try to list the files using the command ls with the –a (all) option? Can you see it now? **Yes**.

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