

## Lab6 Notes

### What is Vim ?

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## What is VIM?

- The vi command-line text editor is included in all POSIX compliant operating system.
- Learning vi takes time, but it is crucial for system administration.

### How to start Vim

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## How to start and quit Vim?

- To start vim type vim. The text editor will start in normal mode.
- To quit vim press esc and type :qa!
  - `:` -> prefix for entering command line mode
  - `q` -> short for quit
  - `a` -> short for all buffers
  - `!` -> force
  - `:qa!` -> quit all now

### What are the Vim modes ?

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## Vim modes:

- **Insert mode:** used for writing text
- **Normal mode:** used for manipulating text
- **Command mode:** used for entering vim commands
- **Visual mode:** used for navigation and manipulation of text selections
- **Select mode:** similar to visual mode
- **Ex-mode:** Similar to the command-line mode but optimized for batch processing.

### How to save and quit in Vim ?

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## Saving and quitting vim

- To save a text file you need to enter normal mode using : and then use the w key
  - `:w` will save the file
  - `:w new.txt` will save the file as new.txt
  - `:wq` will save the file and quit
  - `:wqa!` will save the file and close all

### How to Delete , Copy and Paste ?

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# Delete text and copy and paste

- `dw` = delete current word
- `u` = undo
- `dd` = delete line under the cursor
- `d + /word` = delete until the word given
- `yw` = copy the current word
- `p` = for paste after the cursor
- `P` = for paste before the cursor
- `yy` = copies a whole line
- `x` = for cut

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## Managing Data

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### Archiving utilities

- **Tar (tape archive):** creates archives by combining files and directories into a single file.
- **CPIO:** Creates an archive, restores files from an archive, or copies a directory hierarchy. The `cpio` utility has three modes of operation:
  - Create (copy-out) mode places multiple files into a single archive file,
  - Extract (copy-in) mode restores files from an archive,
  - Pass-through (copy-pass) mode copies a directory hierarchy.
- **Ar:** creates, modifies, and extracts from archives.

# The tar program

## Usage:

- To create an archive:
  - `tar + options + archive name + files to add to archive`
- To extract an archive:
  - `tar + options + file to extract`

## Some Examples for the Tar Command

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# Examples of the tar command

Action	Example
create archive	<code>tar -cf example.tar file1 file2 file3</code>
extract archive	<code>tar -xf example.tar</code>
Extract archive in a different directory	<code>tar -xf example.tar --directory ~/Downloads</code>
extract an specific file	<code>tar -xf example.tar file3</code>
list the contents of an archive	<code>tar -tf example.tar</code>
add files to an archive	<code>tar -rf example.tar file4</code>
update files inside an archive	<code>tar -uf example.tar file4</code>
to add members of an archive to another archive	<code>tar -Af example.tar example2.tar</code>
to delete specific members of an archive	<code>tar --delete -f example.tar file3</code>
to compare files with members of an archive	<code>tar -df example tar file2</code>

## The ar Utilities

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# The ar utility

The GNU ar program creates, modifies, and extracts from archives.

Archive files with ar

- `ar r test.a *.txt`

List contents of an archive

- `ar t test.a`

Add a new member to an archive

- `ar r test.a test3.txt`

Delete a member from archive

- `ar d test.a test3.txt`

## The File Permission

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### Linux File Permissions | File Ownership

- A file can be owned only by one user and one group.
- `ls -l` shows you the file user owner and group owner.
- The `/etc/passwd` file contains a list of all the users in Linux.
- The `/etc/group` file contains a list of all the groups in Linux.
- The `chown` command is used for changing group owner.

## Files and Directories

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## Files

- **R (read)**
  - Gives users permission to open a file and view its contents
- **W (write)**
  - Gives users permission to open a file and edit its contents
- **X (execute)**
  - Allows users to run the file (*as long as it's a program or script*)

## Directories

- **R (read)**
  - Allows users to list a directory's contents with commands such as `ls`
- **W (write)**
  - Allows users to add or remove files and subdirectories
- **X (execute)**
  - Allows users to switch to the directory with the `cd` command.

## The Chmod command

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- The `chmod` (change mode) command is used to change permissions on files and directories and has this Syntax: **`chmod permissions file/directory`**
- The permissions argument is the information used to change permissions.
- The file/directory argument specifies the file or directory you want to change.
- You can use the `chmod` command in two ways to change file permissions:
  - **Symbolic notation**