Managing Data

- backup: copies files and directories to an archive
- system backup: ise to restore data in case of a system failure or data loss and corruption
- archive: file containing many other files, each of which is still identified by its filename, owner, permissions, and timestamp
- tar: creates archives by combining giles and directories into a single file
- CPIO: creates an archive, restores files from an archive, or copies into a directory
- AR: create, modifies, and extracts from archives

Examples of the tar command

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

The CPIO program

Cpio requires a list of files to archive. The option to create an archive is -o

- `ls | cpio -ov > archive.cpio`

To extract an a archive to cpio use the -i option with <

- `cpio -iv < archive.cpio`

Archive specific files

- `find . -iname *.sh | cpio -ov > scriptsArchive.`

Create a tar archive with cpio

- `ls | cpio -ov -H tar -F sample.tar`

Extract *.tar Archive File using cpio

- `cpio -idv -F sample.tar`

View the content of *.tar Archive File

- `cpio -it -F sample.tar`

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`

File compression and decompression

GZIP bzip2 and xz

File Compression | GZIP

Action description	Example
Compress a single file	`gzip File.txt`
compress multiple files	`gzip file1.txt file2.txt. file3.txt`
compress a file and keep the original file	`gzip -k file.txt`
decompress a file	`gzip -d file.txt`
force compression	`gzip -f file.txt`
see details about a compressed file	`gzip -l file.txt`
compress files recursively	`gzip -r schoolFiles`
Test the validity of a compressed file	`gzip -t file.txt.gz`
compress a file to its max	`gzip -9 file.txt.gz`
compress a file to its min	`gzip -1 file.txt.gz`

File Compression | bzip2

Action description	Example
compress a file	`bzip2 file.txt`
compress multiple files	`bzip2 file1.txt file2.txt file3.txt`
decompress a file	`bzip2 -d file.txt`
compress and keep the file	`bzip2 -k file.txt`
compress a file and show details	`bzip2 -v file1.txt file2.txt`
check integrity of a file	`bzip2 -t file.txt.bz2`

File Compression | xz

Activity Description	Example
compress a file	`xz file.txt`
compress multiple files	`xz file1.txt. file2.txt file3.txt`
compress a single file and keep original file	`xz -k file.txt`
decompress a file	`xz -d file.txt.xz`
list compression information	`xz -l file.txt.xz`
compress a file to its max	`xz -9 file.txt`
compress a file to its min	`xz -0 file.txt`
check a file integrity	`xz -t file.txt`

cip 7zip and rar

- Zip is an archiving and compression utility.
- To use zip: `zip + archiveName.zip + files to include in archive`
- Example: `zip allmyfiles.zip file1 file2 file3`
- To unarchive use: `unzip archive.zip`

Compression and Decompression | 7zip

Activity Description	Example
Create an archive	`7z a file.7z fileExample.iso`
Extract an archive	`7z e file.7z`
Create an archive with different archive format	`7z a -tzip file.zip fileExample.iso`
See files in an archive	`7z l file.7z`
test integrity of an archive	`7z t file.7z`
to archive with password protection	`7za a -p{password_here} file.7z`

Compression and Decompression | rar

Activity Description	Example
Create an archive	rar a archive.rar file1 file2 file3
Extract an archive	unrar archive.rar
Create an archive with different archive format	Example coming soon
See files in an archive	Example coming soon
test integrity of an archive	Example coming soon
to archive with password protection	Example coming soon