

GREP

- **Definition**
 - `grep` is a command-line tool used to search for specific text or patterns within files or command output.
- **Usage / Formula**
 - `grep [options] "pattern" file`
- **Examples**
 - Search for a word inside a file
 - `grep "error" logfile.txt`
 - Search ignoring case sensitivity
 - `grep -i "linux" notes.txt`
 - Search recursively in a directory
 - `grep -r "main" /home/user/projects`

AWK

- **Definition**
 - `awk` is a text-processing command used to analyze and manipulate structured text, especially files with columns.
- **Usage / Formula**
 - `awk 'pattern { action }' file`
- **Examples**
 - Print the first column of a file
 - `awk '{print $1}' data.txt`
 - Print lines where the third column is greater than 50
 - `awk '$3 > 50 {print $0}' scores.txt`
 - Use a colon as a field separator
 - `awk -F: '{print $1}' /etc/passwd`

SED

- **Definition**
 - `sed` (stream editor) is a command used to perform basic text transformations on text streams or files.
- **Usage / Formula**
 - `sed 'command' file`
- **Examples**
 - Replace the first occurrence of a word
 - `sed 's/apple/orange/' fruits.txt`
 - Replace all occurrences of a word
 - `sed 's/cat/dog/g' pets.txt`
 - Delete lines containing a word

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▪ sed '/error/d' logfile.txt
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Using the Pipe (|)

- **Definition**
 - The pipe (|) redirects the output of one command and passes it as input to another command.
- **Usage**
 - Used to chain multiple commands together so the output of one becomes the input of the next.
- **Examples**
 - Filter directory listing results
 - `ls | grep ".txt"`
 - Find a running process
 - `ps aux | grep nginx`
 - Count the number of lines in a file
 - `cat file.txt | wc -l`

Saving Output to a File (>)

- **Definition**
 - The > operator saves the output of a command to a file and overwrites the file if it already exists.
- **Usage**
 - Used to redirect command output into a file.
- **Examples**
 - Save a directory listing
 - `ls > files.txt`
 - Save the current date
 - `date > date.txt`
 - Save search results to a file
 - `grep "error" logfile.txt > errors.txt`

Appending Output to a File (>>)

- **Definition**
 - The >> operator appends the output of a command to the end of a file without deleting existing data.
- **Usage**
 - Used when you want to add new output to a file.
- **Examples**
 - Append a directory listing
 - `ls >> files.txt`
 - Append the current date to a log
 - `date >> log.txt`
 - Append search results to an existing file

- `grep "warning" logfile.txt >> warnings.txt`