

Notes 9

1. grep

- Definition
 - grep (Global Regular Expression Print) searches files or input for lines that match a pattern.
- Usage / Formula
 - `grep [options] "pattern" filename`
- Examples
 - `grep "error" logfile.txt` (Search for lines containing the word "error".)
 - `grep -i "warning" system.log.` (Case-insensitive search.)
 - `ps aux | grep "firefox".` (Search running processes for "firefox".)

2. awk

- Definition
 - awk is a text-processing and pattern-scanning language used to manipulate data in lines and columns.
- Usage / Formula
 - `awk 'pattern { action }' filename`
- Examples
 - `awk '{print $1}' employees.txt` (Print the first column.)
 - `awk '/error/ {print $0}' server.log` (Print lines containing the word "error".)
 - `awk -F ":" '{print $1, $3}' /etc/passwd` (Use : as a delimiter and print specific fields.)

3. sed

- Definition
 - sed (Stream Editor) performs editing operations on text, such as replacing, deleting, or inserting lines.
- Usage / Formula
 - `sed 'command' filename`
- Examples
 - `sed 's/apple/orange/' fruits.txt` (Replace first occurrence of "apple" with "orange" on each line.)

- `sed 's/error/ERROR/g' log.txt` (Replace all occurrences.)
- `sed '2d' data.txt` (Delete line 2.)

Pipes (|)

- Definition
 - A pipe sends the output of one command as the input of another command.
- Usage / Formula
 - `command1 | command2`
- Examples
 - `ls -l | grep ".txt"` (Filter the list of files to only .txt files.)
 - `cat access.log | awk '{print $1}'` (Show only the first column from a log file.)
 - `ps aux | grep firefox | awk '{print $2}'` (Find the process ID of Firefox.)

Saving Output to a File (>)

- Definition
 - The `>` operator redirects output to a file. It overwrites the file if it already exists.
- Usage / Formula
 - `command > filename`
- Examples
 - `ls > filelist.txt`
 - `grep "error" server.log > errors.txt`
 - `df -h > disk_usage.txt`

Appending Output to a File (>>)

- Definition
 - The `>>` operator redirects output to a file but appends instead of overwriting.
- Usage / Formula
 - `command >> filename`
- Examples

- `echo "New log entry" >> output.log`
- `grep "login" auth.log >> activity_report.txt`
- `date >> timestamps.txt`