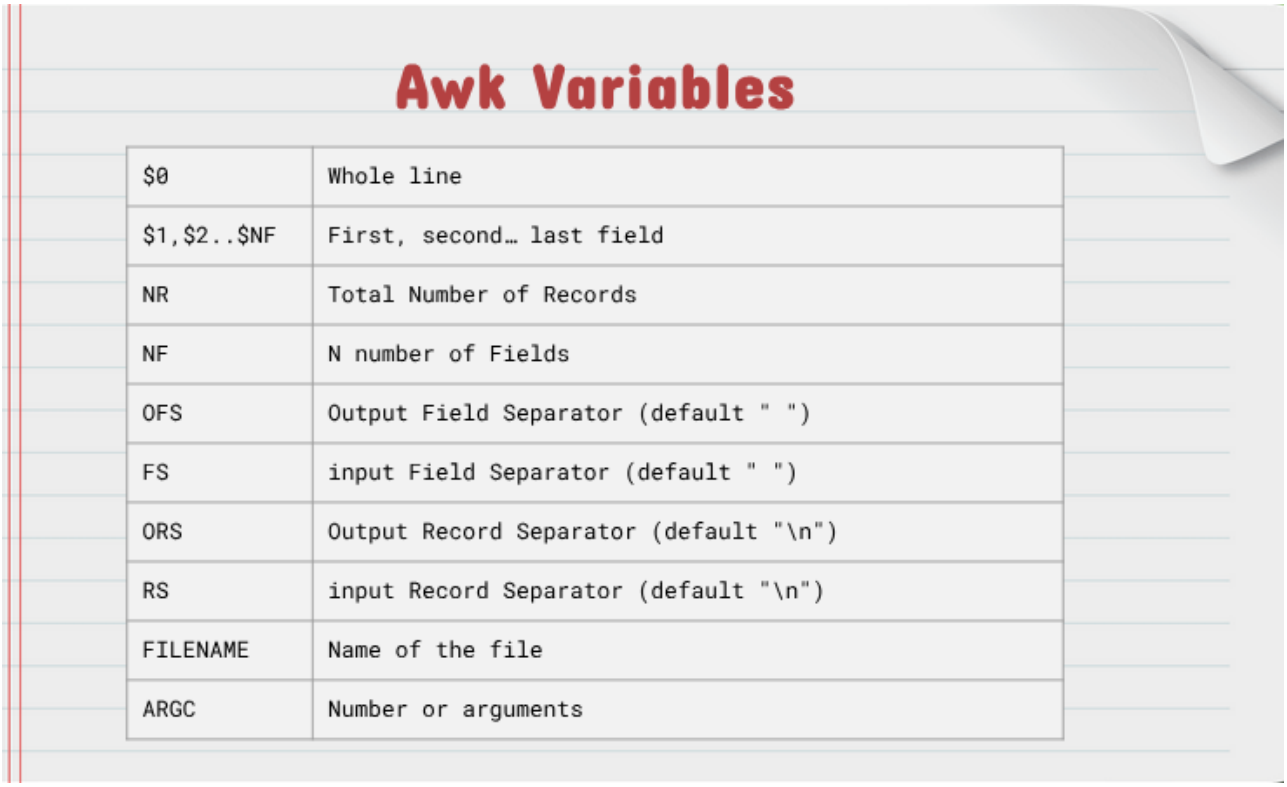
Explain how to use each of the following commands:

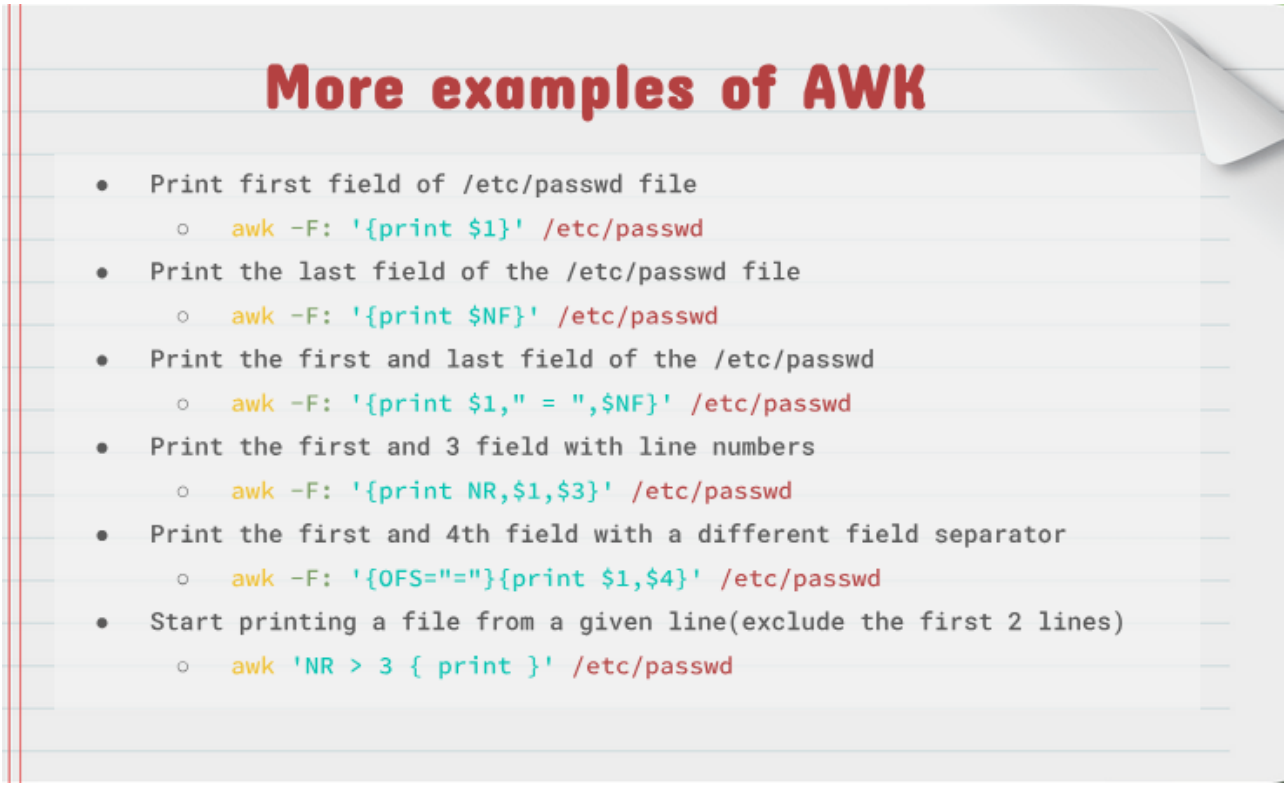
- awk

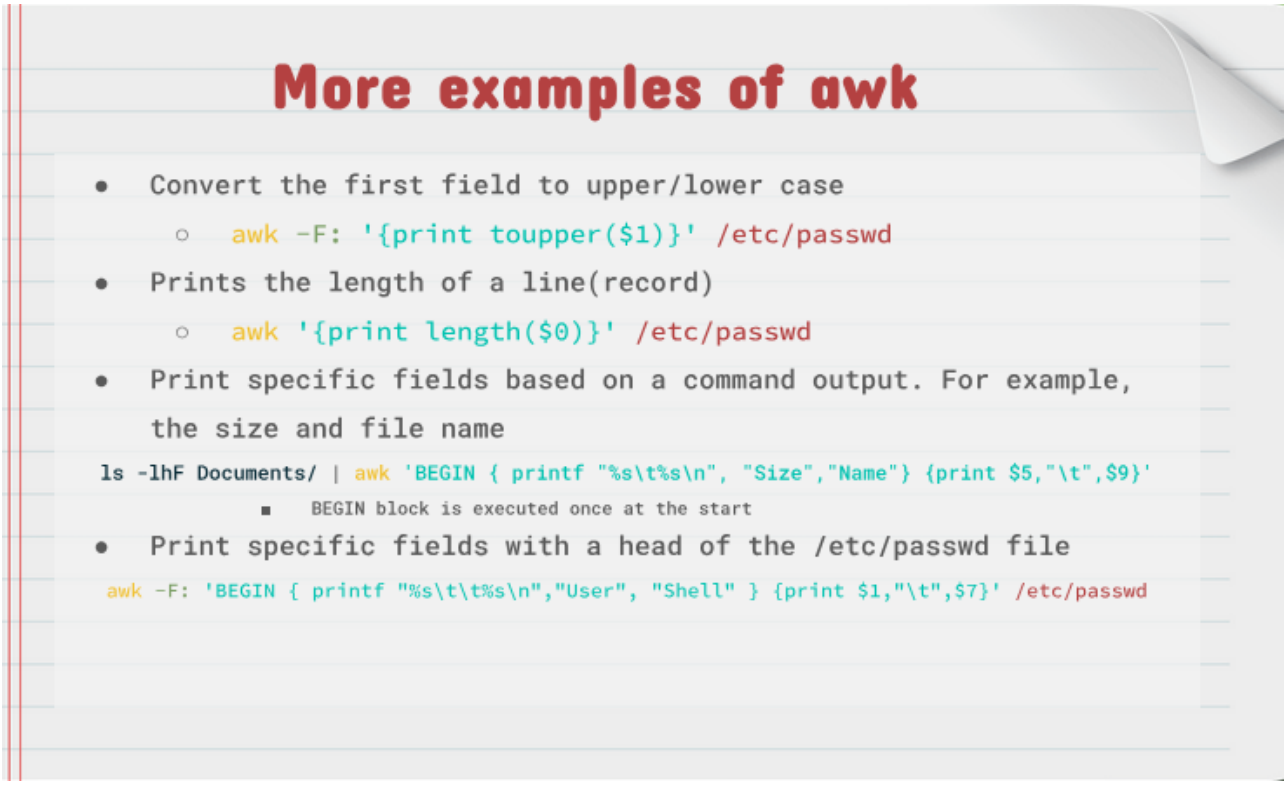
-Description = A scripting language used for processing and displaying text. it can work with text file or from standard output. There are several implementations of AWK: `nawk` , `mawk`,`gawk`, and `busybox`. AWK performs operation line by line.

- Usage = `awk + options + {awk command} + file + file to save (optional)`
- Basic Example = Print the first column of every line of a file. `awk 'print $1' ~/Documents/Csv/cars.csv`



`THIS ARE MORE EXAMPLE OF AWK`

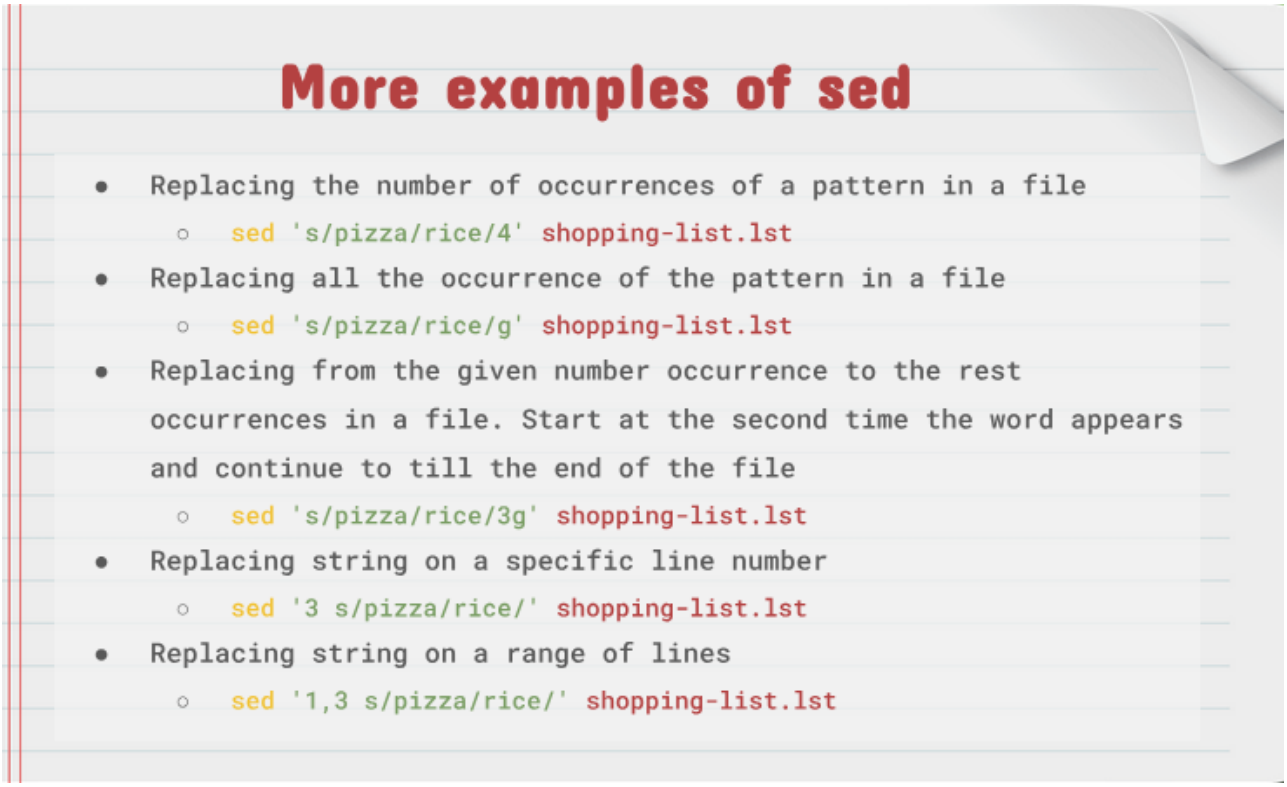


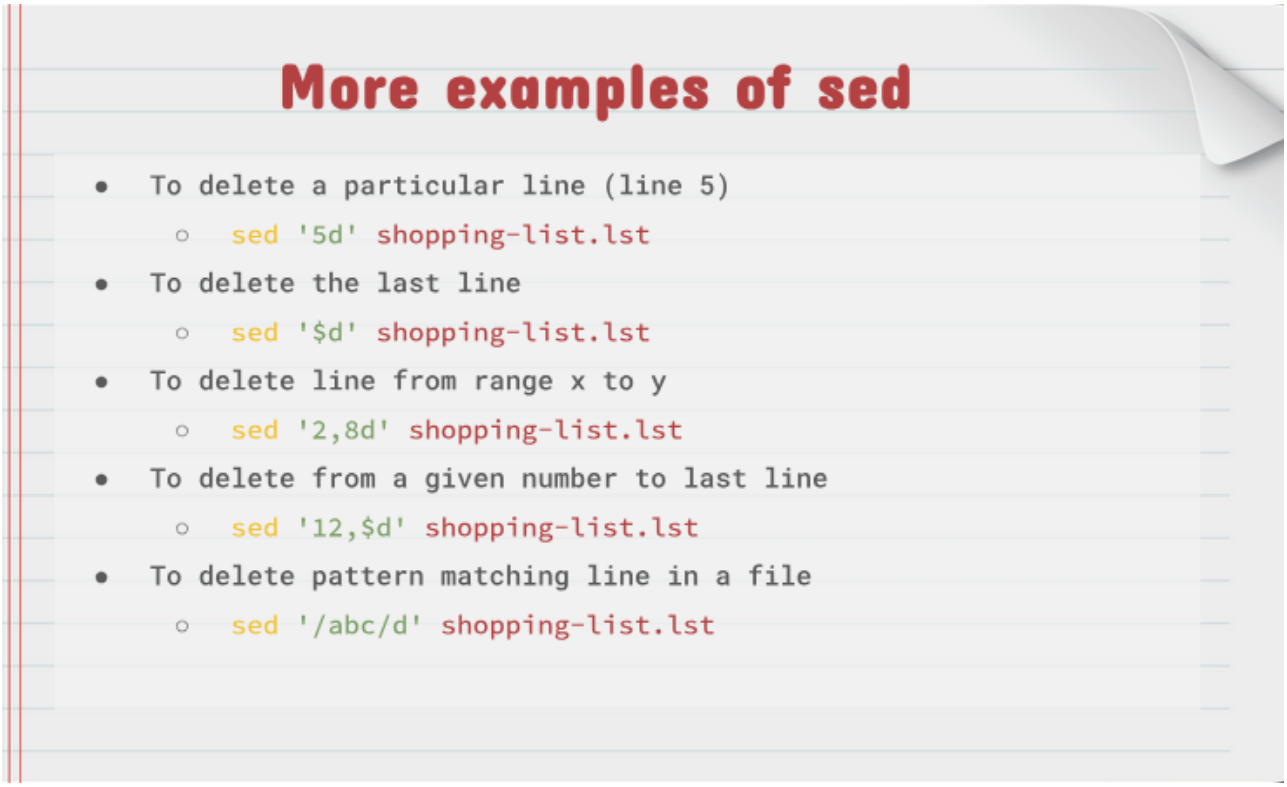


- sed

- SED is a stream editor that performs operation on files and standard output. for instance it can search, find and replace, insert and deletion. By using SED you can edit files without opening them.
- Usage = `sed options + sed script + file`
- Basic Example = Replacing a string in given file (replace pizza for rice) `sed 's/pizza/rice' shopping-list.lst`

- MORE EXAMPLE OF SED





- less

Explain, with examples, how to use:

- > (standard output) , >>

How to save standard output?

- Usage
  - Command output + > + file
- Basic Example:
  - Save the output of a command to a file
    - ls -lA ~ > all-files-in-home.txt
  - Save the error generated by a command to a file
    - ls -lA downloads/ 2> error-of-ls
  - Save the error to a file and the success to another
    - ls -lA downloads/ Pictures > success.txt 2> error.txt
  - Save the error and success to the same file
    - ls -lA downloads/ Pictures &> allouput.txt
  - Do not display errors. Send errors to the black hole
    - ls -lA downloads/ 2> /dev/null

Appending output to a file

- Append means to add more to a file instead of overwriting its content. When we use > on a file that already exist and contains data, we overwrite whatever is already inside the file. For instance take this example:
  - ls -la > allmyfiles.lst
- In this example, if the file allmyfiles.lst had any data prior executing the command, that data will be overwritten by the output of ls -la.
- What happens if we want to keep the old data? Then we use >> for example
  - ls -la >> allmyfiles.lst
- Will add the output of ls -la to the end of the file allmyfiles.lst

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How to redirect standard output?

- Description:
  - The pipe allows you to redirect the standard output of a command to the standard input of another.
- Usage
  - `command_1 | command_2 | command_3 | .... | command_N`
- Basic Examples:
  - Use grep to look for a string in a particular man page
    - `man ls | grep "human-readable"`
  - Display only the options of the of any command from its man page
    - `man ls | grep "^[[:space:]]*[[:punct:]]"`

Other examples of |

- Display only the ip addresses from the output of the ip command

```
ip addr | grep -Eo '[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}'
```

- Display only the 2nd line in a file
  - `head -2 file.lst | tail -1`