

DAY 4

PATTERN MATCHING :- Any character that appears in a pattern, other than ~~the~~ ^{some} special pattern characters, matches itself.

The NULL character may not occur in a pattern. A backslash escapes the following character; the escaping backslash is discarded when matching. The special pattern characters must be quoted if they are to be matched literally.

The special pattern characters have the following meanings:-

* :- matches any string, including the null string.

? :- Matches any single character.

[...] :- Matches any one of the enclosed characters.

?(pattern-list) :- matches zero or more occurrences of the given ~~up~~ patterns.

+(pattern-list) :- Matches one or more occurrences of the given patterns.

@(pattern-list) :- matches one of the given patterns.

!(pattern-list) :- Matches anything except one of the given patterns.

WILDCARD CHARACTERS.

Wildcards (also referred to as meta characters) are symbols or special characters that represent other characters.

These are interpreted by the shell and the results are returned to the command you run.

- ? - represents or matches a single occurrence of any character.
- * - matches one or more occurrences of any character, including no character.
- [] - matches any occurrence of character enclosed in the square brackets.

Matching filenames using wildcards :-

Examples :-

i. `$ ls l*`

- This command matches all files with name starting with 'l'.

ii. `$ ls l?st.sh`

- This command matches all files with names beginning with 'l' followed by any single character and ending with 'st.sh'.

iii. `$ ls l[abdcio]st.sh`

- The command matches all files with names starting with 'l' followed by any of the characters in the square bracket but ending with 'st.sh'.

iv. `ls [clst][io]?t*` :- This command starting with any of these characters '[clst]' followed by one of these '[io]' and then any single character, followed by a 't' and lastly, one or more occurrence of any character will be listed.

METACHARACTERS

A metacharacter is any character that has a special meaning, such as a caret (^), dollar sign (\$), or an asterisk (*). Linux has a fair number of these metacharacters, and their meanings differ depending on which Linux command or program ^{we} ~~you~~ use.

- Pipe | :- It connects command output as an input to the other command.

Ex:- `ps -ef | grep firefox`

- Asterisk * :- The asterisk * is used to match zero or more of a character. ~~when~~.

Ex:- `ls *.flac`

- Tilde ~ :- Used to get back to your home directory.

Ex `cd ~`.

- Dollar \$:- Match any line or string that ends with a pattern

Ex `ls | grep png$`

- Caret ^ :- Used to denote the start of a line or a string.

Ex:- `ls -a | grep ^gnome`

-> ~~If~~ It will list the files in a folder that begin with 'gnome'.

- Full stop (.) :- It indicates the current position when running commands such as `cd` or `sh`. In applications such as `awk`, `grep`, & `sed`, it's a wildcard that denotes a specific no. of any character.

Ex:- `ps -ef | grep firefox`

Character class [] :- The character class comprises a set of characters enclosed by the rectangular brackets, [and], but it matches a single character in the class. The pattern [abcd] is a character class, and it matches a single character 'a', 'b', 'c' or 'd'.

Ex `ls chapter [1234]`

Range specification is also possible inside the class with a - (hyphen); the two characters on either side of it (left have a lower ASCII value than the one on the right) form the range of characters to be matched

Ex:- `ls chapter [1-4]`

Negating character class (!)

Ex:- `*.[!co]`

Matches all filenames with a single character extension but not the .c or .o files.