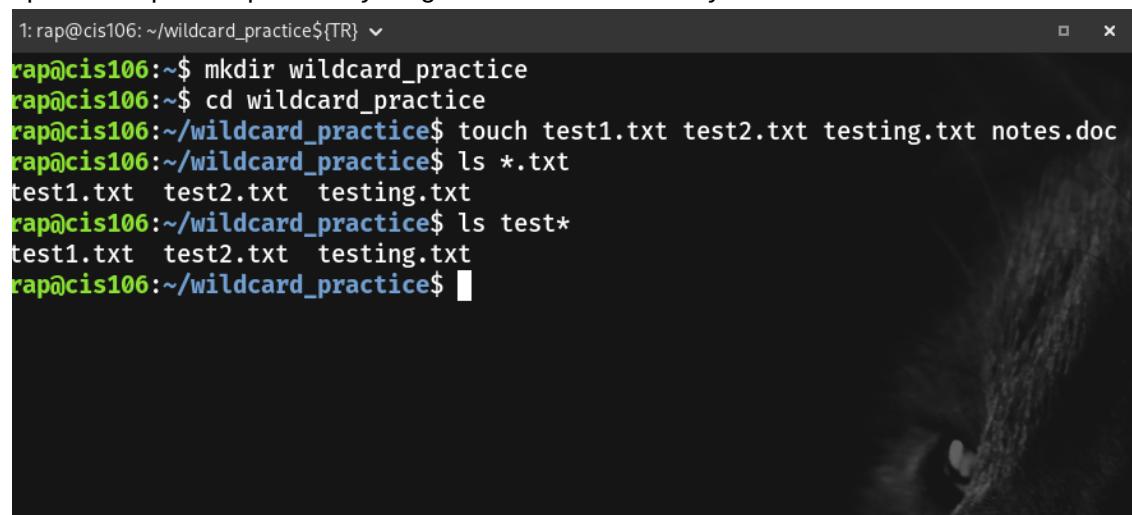


# Notes 7

## 1. Wildcards

- Wildcard: \* (Asterisk)
  - Definition: Matches zero or more characters. It is the most flexible wildcard.
  - Examples: ls \*.txt → lists all files ending in .txt
    - rm test\* → deletes any file that starts with test (ex: test1, testfile, testing.txt)
    - cp \* /backup/ → copies everything in the current directory



```
1: rap@cis106:~/wildcard_practice${TR} ~
rap@cis106:~$ mkdir wildcard_practice
rap@cis106:~$ cd wildcard_practice
rap@cis106:~/wildcard_practice$ touch test1.txt test2.txt testing.txt notes.doc
rap@cis106:~/wildcard_practice$ ls *.txt
test1.txt test2.txt testing.txt
rap@cis106:~/wildcard_practice$ ls test*
test1.txt test2.txt testing.txt
rap@cis106:~/wildcard_practice$
```

- Wildcard: ? (Question Mark)
  - Definition: Matches exactly one character.
  - Examples:
    - ls file?.txt → matches file1.txt, fileA.txt, but not file10.txt
    - mv photo?.jpg images/ → moves files like photo1.jpg, photo2.jpg
    - cat log?.txt → matches logs log1.txt, log2.txt, etc.
- [ ] (Character Class)
  - Definition: Matches one character from a list or range.
  - Examples:
    - ls report[123].pdf → matches report1.pdf, report2.pdf, report3.pdf

- rm file[a-c].txt → deletes filea.txt, fileb.txt, filec.txt
- cp img[0-5].png pics/ → matches images numbered 0–5

```
rap@cis106:~/wildcard_practice$ touch report1.pdf report2.pdf report3.pdf report9.pdf
rap@cis106:~/wildcard_practice$ ls report[1-3].pdf
report1.pdf  report2.pdf  report3.pdf
rap@cis106:~/wildcard_practice$
```

/

- Wildcard: [^ ] (Negated Character Class)

- Definition: Matches one character NOT inside the brackets.

- Examples:

- ls file[^0-9].txt → matches fileA.txt, fileB.txt, but not file1.txt
  - rm test[^ab].log → deletes logs not ending in a or b

- mv doc[^s].md backup/ → moves files not ending in s

```
rap@cis106:~/wildcard_practice$ ls report[1-3].pdf
report1.pdf  report2.pdf  report3.pdf
rap@cis106:~/wildcard_practice$ touch fileA.log fileB.log file1.log file2.log
rap@cis106:~/wildcard_practice$ ls file[^0-9].log
fileA.log  fileB.log
rap@cis106:~/wildcard_practice$
```

/

- Brace Expansion

- Definition:

Brace expansion generates multiple strings before a command runs. It is used to quickly create many files or directories, including full directory trees.

- Example 1: Create multiple directories
  - mkdir project/{docs,images,scripts}

- Creates:

project/docs

project/images

project/scripts

```
rap@cis106:~/wildcard_practice$ mkdir project/{docs,images,scripts}
mkdir: cannot create directory 'project/docs': No such file or directory
mkdir: cannot create directory 'project/images': No such file or directory
mkdir: cannot create directory 'project/scripts': No such file or directory
rap@cis106:~/wildcard_practice$ ls project
ls: cannot access 'project': No such file or directory
rap@cis106:~/wildcard_practice$ ls project
ls: cannot access 'project': No such file or directory
rap@cis106:~/wildcard_practice$
```

- Example 2: Create entire folder structures `mkdir -p music/{jazz,rock,pop}/{mp3,ogg,flac}`

Creates:

`music/ └── jazz/ | ├── mp3 | ├── ogg | └── flac
 └── rock/ | ├── mp3 | ├── ogg | └── flac
 └── pop/ | ├── mp3 | ├── ogg | └── flac`

```
rap@cis106:~/wildcard_practice$ mkdir -p music/{jazz,rock,pop}/{mp3,ogg,flac}
rap@cis106:~/wildcard_practice$ tree music
```

```
music
└── jazz
    ├── flac
    ├── mp3
    └── ogg
── pop
    ├── flac
    ├── mp3
    └── ogg
── rock
    ├── flac
    ├── mp3
    └── ogg
```

13 directories, 0 files

```
rap@cis106:~/wildcard_practice$
```

Relational expressions example

- Example 3: Create multiple files at once `touch logs/{error,debug,access}.log`

- Creates:

`error.log`

`debug.log`

access.log

```
rap@cis106:~/wildcard_practice$ touch logs/{error,debug,access}.log
touch: cannot touch 'logs/error.log': No such file or directory
touch: cannot touch 'logs/debug.log': No such file or directory
touch: cannot touch 'logs/access.log': No such file or directory
rap@cis106:~/wildcard_practice$ ls logs
ls: cannot access 'logs': No such file or directory
rap@cis106:~/wildcard_practice$
```