Miscellaneous functions

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grep & find

- How can I find files?
- How can I find things in files?

- find : find files whose names match simple patterns
- grep : select lines from text files that match simple patterns.
All it'd take is one flight
We'd be in the same time zone
Looking through your timeline
Seeing all the rainbows, I
I got an idea
And I know that it sounds crazy
I just wanna see ya
Oh, I gotta ask

“lyrics.txt”

$ grep time lyrics.txt
We’d be in the same time zone
Looking through your timeline

$ grep -w time lyrics.txt
We’d be in the same time zone

$ grep -w “is one” lyrics.txt
All it’d take is one flight
grep

All it'd take is one flight
We'd be in the same time zone
Looking through your timeline
Seeing all the rainbows, I
I got an idea
And I know that it sounds crazy
I just wanna see ya
Oh, I gotta ask

“lyrics.txt”

$ grep -n I lyrics.txt
4:Seeing all the rainbows, I
5:I got an idea
6:And I know that it sounds crazy
7:I just wanna see ya
8:Oh, I gotta ask

$ grep -n -v I lyrics.txt
1:All it’d take is one flight
2:We’d be in the same time zone
3:Looking through your timeline
$ find .
  .
  ./data
  ./data/one.txt
  ./data/two.txt
  ./thesis
  ./thesis/empty-draft.md
  ./hello.txt
  ./tools
  ./tools/format
  ./tools/old
  ./tools/old/oldtools
$ find . -type d
./
./data
./thesis
./tools
./tools/old
$ find . -type d
  ./
  ./data
  ./thesis
  ./tools
  ./tools/old

$ find . -type f
  ./hello.txt
  ./data/one.txt
  ./data/two.txt
  ./thesis/empty-draft.md
  ./tools/format
  ./tools/old/oldtools
$ find . -name '*.txt'
./hello.txt

$ find . -name "*.txt"
./data/one.txt
./data/two.txt
./hello.txt
Regular expressions

- ^ : Display lines starting with the character
  - grep ^And lyrics.txt

- $ : Display lines ending with the character
  - grep ya$ lyrics.txt

- [ ] : Match any single character in the bracket
  - grep [abcde] lyrics.txt
    - Matches any character in the list
  - grep [^abcde] lyrics.txt
    - Matches any character NOT in the list
# Regular expressions

<table>
<thead>
<tr>
<th>Operator</th>
<th>Effect</th>
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<tbody>
<tr>
<td>.</td>
<td>Matches any single character</td>
</tr>
<tr>
<td>?</td>
<td>The preceding item is optional and will be matched, at most, once. ‘colou?r’ -&gt; ‘color’, ‘colour’</td>
</tr>
<tr>
<td>*</td>
<td>The preceding item will be matched zero or more times. ‘ab*c’ -&gt; ‘ac’, ‘abc’, ‘abbbbbbbbc’, ..</td>
</tr>
<tr>
<td>+</td>
<td>The preceding item will be matched one or more times. ‘ab*c’ -&gt; ‘abc’, ‘abbbbc’, ...</td>
</tr>
<tr>
<td>□&lt;</td>
<td>Matches the empty string at the beginning of word.</td>
</tr>
<tr>
<td>□&gt;</td>
<td>Matches the empty string at the end of word.</td>
</tr>
</tbody>
</table>
Regular expressions

```
$ grep '\<c.*h\>' /usr/share/dic/words
caliph
cash
catch
cheesecloth
cheetah
```
Exercise

- Make a list of files in your home directory that were changed less than 10 hours ago, using grep, but leave out directories.