

Regular expressions, command grep.

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Contents

- 1 Discussion of homework
- 2 grep – options
- 3 grep – regular expression (RE)
- 4 grep – table
- 5 grep – file
- 6 egrep/grep – extended regular expression (ERE)
- 7 Homework

Discussion of homework

- Create alias `lss`, which prints names of files in the working directory sorted by file size.
- Create shell script that prints names of the 10 largest files (including their sizes), which are in your home directory and in its direct subdirectories.

Discussion of homework

- Patching of source code
 - Create directory with at least 5 files. (e.g. C project: files *.c, *.h, Makefile, ...)
 - Fill the files with some text (e.g. output of command `ls`, `date`, `man`, ...).
 - Create copy of this directory.
 - Modify some files in new directory. Remove/create some old/new one.
 - Use command `diff` to compare both directories.
 - Save the output of command `diff` to the file.
 - Use the previous file in program `patch` to create from old directory structure new directory structure.

Discussion of homework

- What is the default behaviour of the command `grep`?
- What is the meaning of the following options?
 - `-V`
 - `-C`
 - `-i`

- What is the meaning of the following options?
 - -l
 - -n

- What is the meaning of the following symbols in RE?

- `^` (caret/hat)
- `$`
- `\<`
- `\>`

- `.`
- `[a-d]` or `[abcd]`
- `^[a-d]` or `^[abcd]`

- `*`
- `\{n\}`
- `\{n,\}`
- `\{,n\}`
- `\{m,n\}`

- What is the meaning of the following symbols in RE?
 - `\(\)`
 - `\n`

grep – regular expression

- Try the following commands and explain the output.

```
cd /usr/dict      # on server fray1.fit.cvut.cz
```

```
grep o words
```

```
grep oo words
```

```
grep oo$ words
```

```
grep ^oo words
```

```
grep o.o words
```

```
grep 'o.*o' words
```

```
grep '^o.*o$' words
```

grep – regular expression

- What is the difference between the following commands?

```
grep 'o*' words
```

```
grep 'oo*' words
```

```
grep '[^o]' words
```

```
grep -v o words
```

```
grep '^a.*a$' words
```

```
grep '^\(a\).*\1$' words
```

```
grep '^\(.\).*\1$' words
```

- Use the output of the command `ps -ef`. How to print the number of processes running under the identity of the user `root`?
Hint: try to find the correct solution for both Linux and Solaris.
- Use the output of the command `ps -eo pid,user,comm` on the server `fray1.fit.cvut.cz`. How to determine how many times the program `sshd` is running on this server?

- Use the output of the command `ps -eo pid,user,comm` on the server `fray1.fit.cvut.cz`. How to determine how many times the program `sshd` is running under the identity of the user `root` on this server?
- Use the output of the command `getent passwd` on the server `fray1.fit.cvut.cz`. How to determine how many students have the account on this server?
Hint: student's account has the flag `student` at the end of the fifth column.

- Assume that the variable `file` is defined as follows

```
file=/home/courses/BIPS1/public/07/NAMES.TXT
```

Use the output of the command `getent passwd` on the server `fray1.fit.cvut.cz`. How to find account info about users whose names are in the file `NAMES.TXT`?

egrep/grep – extended regular expression (ERE)

- What regular expressions are not accepted by command egrep?
- What is the meaning of the following symbols in RE accepted by egrep?
 - +
 - ?
 - |
 - ()

egrep/grep – extended regular expression (ERE)

- How to print names of the days of the week from file `/usr/dict/words` on the server `fray1.fit.cvut.cz`?

```
M o n      day
T u e s    day
W e d nes  day
T h u rs   day
F r i      day
S a t ur   day
S u n      day
```

- How to print lines containing the same character at the beginning and at the end of line.

Hint: use `man -s 5 regexp` and find meaning of symbols `\n`, `\(` and `\)` in the section 2.6 on server `fray1.fit.cvut.cz`.

- How to print all palindromes of length 2, 3, 4 and 5 characters from the file `/usr/dict/words` on server `fray1.fit.cvut.cz`.