the Shell

Johan Montelius

KTH

2020

Some basic stuff

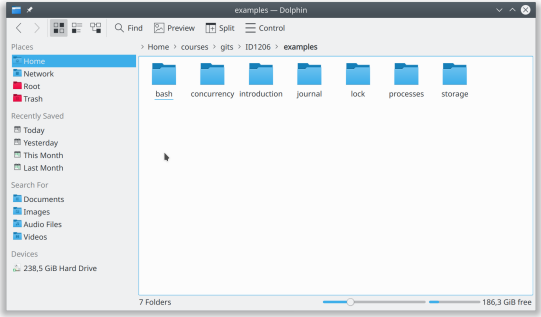
- the shell
- files and directories
- some tools: grep, wc, sed ...
- write a thesis: gcc, latex, gnuplot, make
- environment variables

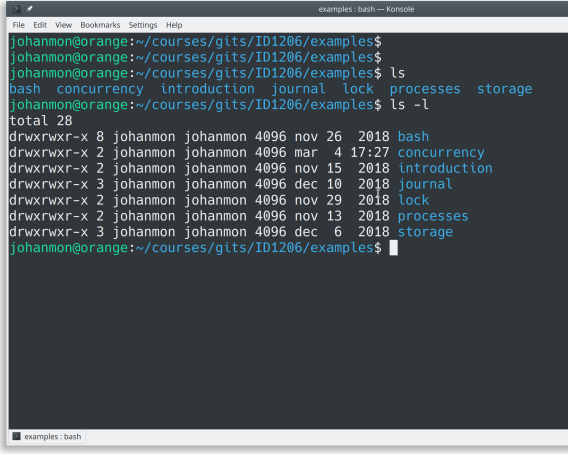
the shell

Terminal File Edit View Search Terminal Help

```
johanmon:Orange:~$cd
johanmon:Orange:~$cd courses/ID2206/lectures/linux/
johanmon:Orange:~$ls
adm3a-keyboard.jpg        handout.snm                        Makefile    slides.tex
Apple_IIe_keyboard-s.jpg  handout.tex                        mark.jpg    slides.toc
foo.txt                   handout.toc                        mint.png    slides.vrb
handout.aux               handout.vrb                        slides.aux  unity.png
handout.log               history-of-unix.png                slides.log  windows10.png
handout.nav               hjkl.jpg                           slides.nav  xubuntu.png
handout-nup.pdf           kubuntu.jpg                        slides.out
handout.out               lisp-machine-keyboard-2-left.jpg   slides.pdf
handout.pdf               lubuntu.png                        slides.snm
johanmon:Orange:~$make
make: Nothing to be done for 'all'.
johanmon:Orange:~$xpdf -fullscreen slides.pdf&
```

the file system





Commands that you should to know:

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- `ls` - list files and directories
- `mkdir` - make a directory
- `rmdir` - remove a directory
- `cd` - change directory
- `pwd` - path of working directory
- `touch` - touch a file
- `rm` - remove a file
- `mv` - move a file
- `cp` - copy a file
- `ln` - create a link (soft/hard) to a file
- `stat` - information about a file

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- $ as in `$HOME` - expands to the *variable* value (more on this later)

Expansion can be controlled by enclosing arguments in single quotes ' ', double quotes " " (variables will be expanded) or precede character by backslash \.

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- `less` - less is of course more
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- `sort` - sort rows
- `wc` - word count
- `uniq` - remove duplicates
- `tr` - transpose char-by-char
- `sed` - stream editor
- `awk` - more powerful than sed

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Standard output of one command becomes standard input of the next command

an example

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```
2019 jag
1818 och
1505 att
1429 det
1045 i
 979 en
   :
```

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Experiment yourself, the devil is in the details.

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Set up a `Makefile` to automate the process.

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- `set` - control the shell environment
- `<variable>=<value>` - defines a variable value
- `$<variable>` - access variable from shell

- `HOME` - home directory
- `PWD` - current directory
- `PATH` - paths searched when looking for executables
- `USER` - user name

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