16. Shells

- shell est l'interpréteur de commande
- shell est aussi le nom générique d'un command file
- Il n'y a pas un seul interpreteur de commande:
    - sh - csh - ksh - bash - tcsh - zsh
    - explication de quelques differences entre les shells
        - programming syntax
        - history
- rappel: shell par defaut dernier champs de /etc/passwd
    - valid shells: /etc/shells

17. Bash programming

- Programming --> variables
- Exemple mysh01.sh
    - suffix is irrelevant
    - file type determined by magic characters (/usr/share/file/magic)
    - #! perl, sh, bash, ... could be print
- Variables can be local or global (environment)
- Variables can be predefined:
    - $$ (pid)
    - $*
    - $?
    - $0
    - $#
    - $1 $2 $3 $4 ...
    - $BASH_VERSION
- Demo global variable avec mysh01.sh et prenv
    - /proc/pid/environment is the startup environment
    - cat /proc/pid(mysh01.sh)/environ | tr '\0' '\n'| grep GLOVAR --> nothing
    - cat /proc/pid(prenv)/environ | tr '\0' '\n'| grep GLOVAR --> OK

18. Wild characters (expansion by the shell)

- ls a*
- ls *.*
- ls *.sh
- ls ?
- ls ????.*
- ls *.[08]
- ls *.[0-9]
- ls *.{pl,sh}
- advanced: (shopt - shopt -s extglob)
- ls *([a-z0-9]).? a comparer avec ls *[a-z0-9].?
- ls *[0-9]+([0-9]).sh

- ls *.?

19. Shell escaping

- \
- simple quotes
- double quotes
- demo prargs
    - ./prargs 0
    - ./prargs \0
    - ./prargs \\0
    - ./prargs "\0"
    - ./prargs '\0'
    - ./prargs "$0"
    - ./prargs '$0'

- var=3232
    - ./prargs $var
    - ./prargs \$var
    - ./prargs "$var"
    - ./prargs '$var'

- ./prargs *
- ./prargs *

20. Wild characters (advanced)

- If nothing match a wild character expansion, the argument is passed as is to the program
- demo from Annexes-11
    - ./prargs *.{awk,pl}
    - ./prargs /usr/bin/*.{awk,pl}
    - ./prargs *.doc *.c

21. Shell constructs

- for loop
    - based on file list:
        - mysh02.sh
            - introduction of basename (and dirname)
            - introduction of md5sum
    - based on string words
        - mysh03.sh
- expr for arithmetic expression
    - cnt=1
    - cnt=$(expr $cnt + 1)
- while loop
    - mysh04.sh

    - Warning test syntax (man test)
- simple tests
    - Example 1 - test number of arguments (mysh05a.sh)
    - Example 2 - test file existence
    - Example 3 - test if root (mysh05b.sh)
    - Example 4 - test exit value (mysh05c.sh)

22. Subshells

- cmd1 &
- cmd1 & cmd2 & cmd3 &
- prodd 10 & ls
- prodd 10 && ls
- prodd 11 & & ls
- cmd1 ; cmd2 ; cmd3
- (cmd1 ; cmd2)
    - (date ; ls) | mail -v -s testfile alain.ninane@uclouvain.be