UNIVERSITÄT DES SAARLANDES

Tools for NLP

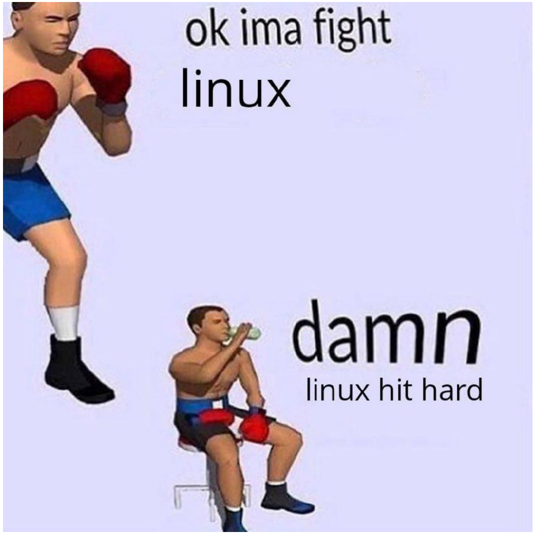
Rishu Kumar, Iuliia Zaitova, Chris Hyek

Saarland University

13.11.2023

Topics for today:

- introduction
- meta commands
- some useful commands
- loops
- pipelining
- custom history
- basic bash scripting



Don't fight linux, work with it.

Shell: Command interpreter
bash: Bourne Again Shell (Homage to Stephen Bourne)

Q. *But why do you stress on using command-line?*

Shell: Command interpreter
bash: Bourne Again Shell (Homage to Stephen Bourne)

Q. *But why do you stress on using command-line?*

Because it makes our life easier.

Shell: Command interpreter
bash: Bourne Again Shell (Homage to Stephen Bourne)

Q. *But why do you stress on using command-line?*

Because it makes our life easier.

Wanna merge pdfs, search for something in a text file, convert pdf into text, run something in the background while you enjoy your snacks?

Using your Terminal can be the best way to do all of that!!

Shell: Command interpreter
bash: Bourne Again Shell (Homage to Stephen Bourne)

Q. *But why do you stress on using command-line?*

Because it makes our life easier.

Wanna merge pdfs, search for something in a text file, convert pdf into text, run something in the background while you enjoy your snacks?

Using your Terminal can be the best way to do all of that!!

Also, because it's cool!

Let's look at some of the files which you would constantly use/modify during this tutorial series and beyond:

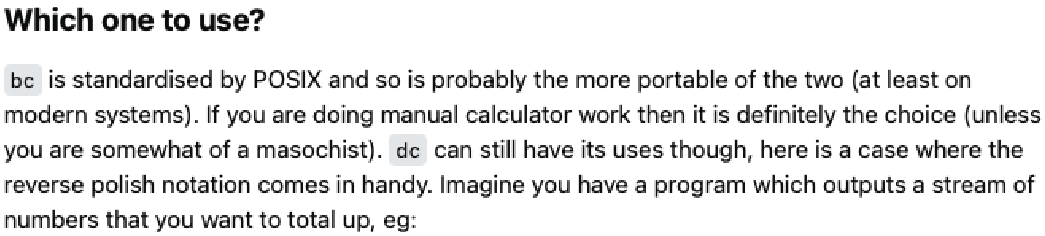
- *.bashrc*
- *.bash_profile*
- *.bash_aliases*
- *.bash_history*

But before that, let's understand some more basics

- *stdout*
- *stdin*
- *stderr*
- *stdbuff*

Let's glance over some basic calculation operations that we can have in our shells:

- `echo $((2+3))`
- `echo "2+3" | bc`
- `echo "2 3 + p" | dc`



Which one to use?

`bc` is standardised by POSIX and so is probably the more portable of the two (at least on modern systems). If you are doing manual calculator work then it is definitely the choice (unless you are somewhat of a masochist). `dc` can still have its uses though, here is a case where the reverse polish notation comes in handy. Imagine you have a program which outputs a stream of numbers that you want to total up, eg:

As this StackOverflow[1] user eloquently puts it, use `bc` instead of `dc`

[1]Source: https://unix.stackexchange.com/questions/124518/how-is-bc-different-from-dc

Some commands which gives you information about your commands i.e. meta commands:

- **man**

Some commands which gives you information about your commands i.e. meta commands:

- man
- **info**

Some commands which gives you information about your commands i.e. meta commands:

- man
- info
- **type**

Some commands which gives you information about your commands i.e. meta commands:

- man
- info
- type
- which

Some commands which gives you information about your commands i.e. meta commands:

- man
- info
- type
- which
- **stat**

Now, let's look at some of the commands which are the most helpful to us as people in CL:

▶ **mkdir**	Creates a Directory

Now, let's look at some of the commands which are the most helpful to us as people in CL:

▶ **mkdir**	Creates a Directory
▶ **touch**	Creates an empty file

Now, let's look at some of the commands which are the most helpful to us as people in CL:

▶ mkdir	Creates a Directory
▶ touch	Creates an empty file
▶ **cat**	Displays content of a file

Now, let's look at some of the commands which are the most helpful to us as people in CL:

mkdir	Creates a Directory
touch	Creates an empty file
cat	Displays content of a file
head	Displays 10 lines from start of file

Now, let's look at some of the commands which are the most helpful to us as people in CL:

▶ mkdir	Creates a Directory
▶ touch	Creates an empty file
▶ cat	Displays content of a file
▶ head	Displays 10 lines from start of file
▶ **tail**	Displays 10 lines from end of file

Now, let's look at some of the commands which are the most helpful to us as people in CL:

mkdir	Creates a Directory
touch	Creates an empty file
cat	Displays content of a file
head	Displays 10 lines from start of file
tail	Displays 10 lines from end of file
less	Similar to **cat** but scrollable

Now, let's look at some of the commands which are the most helpful to us as people in CL:

mkdir	Creates a Directory
touch	Creates an empty file
cat	Displays content of a file
head	Displays 10 lines from start of file
tail	Displays 10 lines from end of file
less	Similar to **cat** but scrollable
find	Finding files in a given directory

Now, let's look at some of the commands which are the most helpful to us as people in CL:

▶ mkdir	Creates a Directory
▶ touch	Creates an empty file
▶ cat	Displays content of a file
▶ head	Displays 10 lines from start of file
▶ tail	Displays 10 lines from end of file
▶ less	Similar to **cat** but scrollable
▶ find	Finding files in a given directory
▶ **grep**	Finding content in a given file

Now, let's look at some of the commands which are the most helpful to us as people in CL:

mkdir	Creates a Directory
touch	Creates an empty file
cat	Displays content of a file
head	Displays 10 lines from start of file
tail	Displays 10 lines from end of file
less	Similar to **cat** but scrollable
find	Finding files in a given directory
grep	Finding content in a given file
cut	Cuts the content of lines on a delimiter

Some more:

rm	Removes/Deletes a file

Some more:

▶ **rm**	Removes/Deletes a file
▶ **cp**	Copies a file

Some more:

▶ **rm**	Removes/Deletes a file
▶ **cp**	Copies a file
▶ **mv**	Moves a file

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations
sleep	Introduces waiting time

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations
sleep	Introduces waiting time
tee	Copies stdin to file(s)

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations
sleep	Introduces waiting time
tee	Copies stdin to file(s)
source	Loads variables from a script

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations
sleep	Introduces waiting time
tee	Copies stdin to file(s)
source	Loads variables from a script
ssh	Connects a *secure shell* to a server

Some more:

rm	Removes/Deletes a file
cp	Copies a file
mv	Moves a file
scp	Securely copies a file to a server
rsync	Sync a file between different locations
sleep	Introduces waiting time
tee	Copies stdin to file(s)
source	Loads variables from a script
ssh	Connects a *secure shell* to a server
crontab	Executing one task on a given interval/time

Even more:

- **sed** Edits stream of output

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string
kill	Kills a process

Even more:

▶ sed	Edits stream of output
▶ gawk	Pattern processing (a PL)
▶ rev	Reverses a string
▶ kill	Kills a process
▶ sudo	Gives you POWER

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string
kill	Kills a process
sudo	Gives you POWER
curl	Downloads files

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string
kill	Kills a process
sudo	Gives you POWER
curl	Downloads files
wget	Also downloads file

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string
kill	Kills a process
sudo	Gives you POWER
curl	Downloads files
wget	Also downloads file
date	Gets you the current time

Even more:

sed	Edits stream of output
gawk	Pattern processing (a PL)
rev	Reverses a string
kill	Kills a process
sudo	Gives you POWER
curl	Downloads files
wget	Also downloads file
date	Gets you the current time
history	Gives you few last run commands

.bash_aliases DEMO!!

Custom History **Going through the function**

Bash Script DEMO!!