

# Labs - Linux's advanced notions

Astier Guillaume, Lefebvre Loic, Morit Luca

10/10/2025



Math's commands

The flows

ReGex / Sed



## Math's commands

## Math's commands

- ▶ Perform the following calculation and redirect the stdout to a file named "calculation1.txt" :  $10 + 24 - 5 / 11$

## Math's commands

- ▶ Perform the following calculation and redirect the stdout to a file named “calculation1.txt” :  $10 + 24 - 5 / 11$
- ▶ Perform the previous calculation with 4 numbers after the decimal point and redirect the output to a file named “calculation2.txt”



## Math's commands

- ▶ Perform the following calculation and redirect the stdout to a file named “calculation1.txt” :  $10 + 24 - 5 / 11$
- ▶ Perform the previous calculation with 4 numbers after the decimal point and redirect the output to a file named “calculation2.txt”
- ▶ Compare the result



## Math's commands

- ▶ Perform the following calculation and redirect the stdout to a file named “calculation1.txt” :  $10 + 24 - 5 / 11$
- ▶ Perform the previous calculation with 4 numbers after the decimal point and redirect the output to a file named “calculation2.txt”
- ▶ Compare the result
- ▶ Perform a sequence of numbers from 1 to 100 with a step of 6 and redirect the output to a file named “sequence1.txt”



## Math's commands

- ▶ Perform the following calculation and redirect the stdout to a file named “calculation1.txt” :  $10 + 24 - 5 / 11$
- ▶ Perform the previous calculation with 4 numbers after the decimal point and redirect the output to a file named “calculation2.txt”
- ▶ Compare the result
- ▶ Perform a sequence of numbers from 1 to 100 with a step of 6 and redirect the output to a file named “sequence1.txt”
- ▶ Perform the previous sequence and adapt the output format to separate numbers with ‘;’ and redirect the output on the “sequence1.txt” file (without deleting the previous sequence in the file)

The flows



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt
- ▶ With the SHELL command find, locate Count.txt



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt
- ▶ With the SHELL command find, locate Count.txt
- ▶ With the precedent command redirect the stdout flow in LocateCountFile.txt file



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt
- ▶ With the SHELL command find, locate Count.txt
- ▶ With the precedent command redirect the stdout flow in LocateCountFile.txt file
- ▶ List files in a non existing directory and redirect stderr flow in /dev/null to get a clear result



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt
- ▶ With the SHELL command find, locate Count.txt
- ▶ With the precedent command redirect the stdout flow in LocateCountFile.txt file
- ▶ List files in a non existing directory and redirect stderr flow in /dev/null to get a clear result
- ▶ List files in a non existing directory and redirect stdout and stderr flows in KoList.txt



## The flows

- ▶ Redirect the stdout of the following command `echo -e "un\ndeux\ntrois\nquatre"` in a file named Count.txt
- ▶ Redirect the stdout of the following command `echo -e "cinq\nsix"` at the end of Count.txt file (don't erase the content of the file !)
- ▶ Display the content of Count.txt in stdout
- ▶ Combine the two SHELL COMMAND cat and wc (redirect stdout of cat command in stdin of wc command) to count the number of lines in Count.txt
- ▶ With the SHELL command find, locate Count.txt
- ▶ With the precedent command redirect the stdout flow in LocateCountFile.txt file
- ▶ List files in a non existing directory and redirect stderr flow in /dev/null to get a clear result
- ▶ List files in a non existing directory and redirect stdout and stderr flows in KoList.txt
- ▶ Use the SHELL cat command to populate a file named Myletter.txt with input (stdin) from the user and ending by the string "FIN" Example :



ReGex / Sed



## Text file

- ▶ Put this content in the /home/isen/regex.txt file.

*Toto loves titi*

*or so*

*TOTO LOVE TITI*

*and again*

*TOTO or Mr TOTO loves TITI Ms TITI*

*/NAME/ likes bash*

*I do not know what to say To\_Delete*

*and you what do you mean?*

*/NAME/ toto /NAME/ titi /NAME/*

*toto titi toto titi toto titi to-ti*



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’
- ▶ Show lines that end with ‘?’



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’
- ▶ Show lines that end with ‘?’
- ▶ Show lines that contain capital letters



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’
- ▶ Show lines that end with ‘?’
- ▶ Show lines that contain capital letters
- ▶ Show lines that contain an ‘A’ OR a ‘b’



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’
- ▶ Show lines that end with ‘?’
- ▶ Show lines that contain capital letters
- ▶ Show lines that contain an ‘A’ OR a ‘b’
- ▶ Show lines that contain an ‘A’ AND a ‘b’



## Grep

- ▶ Show lines contains the string “toto” with non case sensitivity
- ▶ Show lines that start with ‘/’
- ▶ Show lines that end with ‘?’
- ▶ Show lines that contain capital letters
- ▶ Show lines that contain an ‘A’ OR a ‘b’
- ▶ Show lines that contain an ‘A’ AND a ‘b’
- ▶ Show lines that have 2 ‘t’



## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI

## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI
- ▶ Replace all '/NAME/' with your first name



## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI
- ▶ Replace all '/NAME/' with your first name
- ▶ Delete all lines that contain '*To\_Delete*'



## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI
- ▶ Replace all '/NAME/' with your first name
- ▶ Delete all lines that contain '*To\_Delete*'
- ▶ Add a line containing 'ERROR' before each line which does not have a capital letter at the beginning



## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI
- ▶ Replace all '/NAME/' with your first name
- ▶ Delete all lines that contain '*To\_Delete*'
- ▶ Add a line containing 'ERROR' before each line which does not have a capital letter at the beginning
- ▶ Replace '?' by '!'



## Sed

- ▶ Replace the first occurrence in each line of the word TOTO by TITI
- ▶ Replace all '/NAME/' with your first name
- ▶ Delete all lines that contain '*To\_Delete*'
- ▶ Add a line containing 'ERROR' before each line which does not have a capital letter at the beginning
- ▶ Replace '?' by '!'
- ▶ Replace 'titi' by 'toto' and 'toto' by 'titi'



## Text file

- ▶ Put this content in the /home/isen/advancedRegex.txt file.

*Antoine Dupont*

*Léon Marchand*

*0687548965*

*Jean NEYMAR*

*BobMarley*

*6985478954*

*Baptiste& Serin*

*jean.neymar@gmail.com*

*vincentlagaffe.outlook/com*

*078565321454*

*192.168.0.1*

*456.567.0.1*

*192.168.0.1.2*

*d8:43:ae:2e:03:01*

*087:43:ae:2e:03:01*



## Advanced ReGex

- ▶ Write the regex to check lines that contains Prenom and Nom (Prenom and Nom are strings separated with a space, containing only letters and starting with a capital letter)



## Advanced ReGex

- ▶ Write the regex to check lines that contains Prenom and Nom (Prenom and Nom are strings separated by a space, containing only letters and starting with a capital letter)
- ▶ Write the regex to check lines that contain a phone number (Phone number is a string containing only 10 numbers and starting with "06" or "07")



## Advanced ReGex

- ▶ Write the regex to check lines that contains Prenom and Nom (Prenom and Nom are strings separated by a space, containing only letters and starting with a capital letter)
- ▶ Write the regex to check lines that contains a phone number (Phone number is a string containing only 10 numbers and starting with "06" or "07")
- ▶ Write the regex to check lines that contains an email address (Email address is a string containing identifier, provider and a domain respectively separated by a "@" and ".". Exemple : toto83@gmail.com)



## Bonus

- ▶ Write the regex to check if a string is a @IP (4 digit separated with '.', each digit is between 0 and 255)



## Bonus

- ▶ Write the regex to check if a string is a @IP (4 digit separated with '.', each digit is between 0 and 255)
- ▶ Write the regex to check if a string is a @MAC (6 digit separated with ':', each digit is coded in hexa)