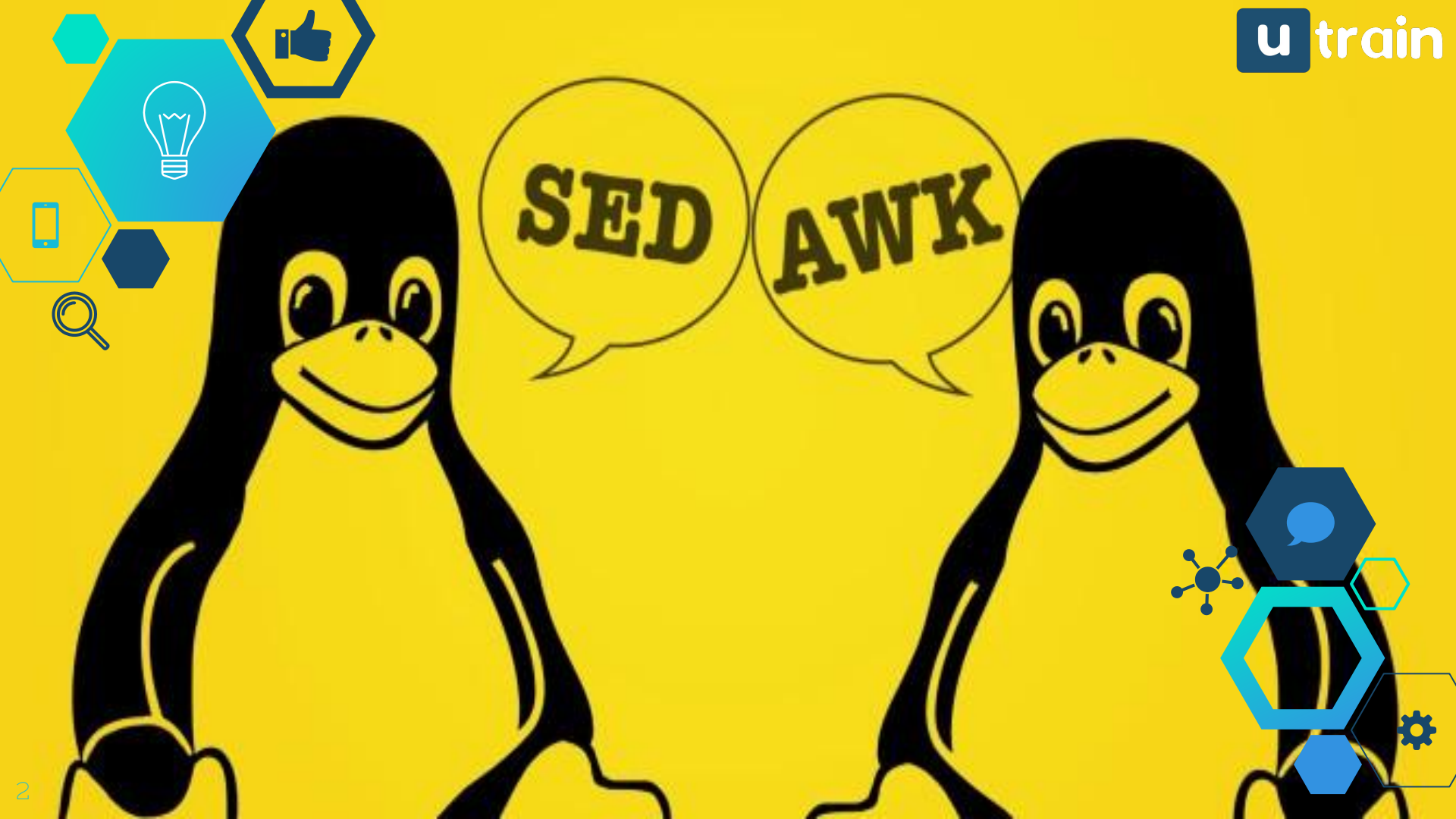




# The sed and the awk commands

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# Important Note!

Before starting this lesson,

- ◇ Launch your **Visual studio code**,
- ◇ Open a **terminal** or use the one that is opened
- ◇ Check the VMs on your computer: **vagrant global-status**
- ◇ Copy the **ID** of a **Centos 7 server**. If you don't have one, **please install it now**
- ◇ Resume or start your **Centos 7 server**: **vagrant resume ID** or **vagrant up** (this works just fine)
- ◇ Connect remotely to a **Centos 7 server**: **vagrant ssh ID**

1

# The awk command

How is it used?

# The AWK command

- ◇ **awk** is often used with **sed** to perform **useful and practical text manipulations**
- ◇ Just as **sed**, **awk**
  - **reads** one line at a time,
  - **performs some action** depending on the condition you give it
  - and **outputs** the result.
- ◇ One of the most simple and popular uses of **awk** is **selecting a column from a text file or other command's output**



# Syntax of the awk command



# The AWK command

- ◇ The **awk** command is mostly used to **filter data using a field separator**
- ◇ Remember the **/etc/passwd** file?
- ◇ Let's do some practice in there with the **awk** command
- ◇ **# cat /etc/passwd**

```
ntp:x:38:38::/etc/ntp:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin
haldaemon:x:68:68:HAL daemon:/:/sbin/nologin
pulse:x:497:495:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
tcpdump:x:72:72:::/sbin/nologin
serge:x:500:500::/home/serge:/bin/bash
student:x:501:501::/home/student:/bin/bash
```



# The AWK command

- ◇ The file has **7 fields** if we use **:** as field separator
- ◇ Let's print only the **first column** using the **awk** command. To do that, use:
- ◇ **# awk -F ":" '{print \$1}' /etc/passwd**
- ◇ This will print **just the first column (names of the users in the system)**

```
ntp  
rpcuser  
nfsnobody  
haldaemon  
pulse  
gdm  
sshd  
tcpdump  
serge
```

# The AWK command

- ◇ Using **/** as field separator, we will have 5 columns.

```
serah:x:34571:34571::/home/ub4t:/bin/bash
```

1 2 3 4 5

- ◇ The following command will print the **second column** using **/** as field separator
- ◇ **# awk -F "/" '{print \$2}' /etc/passwd**
- ◇ **Note:** If you don't specify the field separator, the **space** will be used as default



# The AWK command

- ◇ Let's do another example with the output of the `ll` command
- ◇ `# ll | awk -F "." '{print $1}'`
- ◇ Let's print only the **second column**:
  - `# ll | awk '{print $2}'`
- ◇ Here, the space will be used as field separator
- ◇ To print only **the month where a document was created**:
  - `# ll | awk '{print $6}'`

```
etc  
var  
var  
:  
var  
var  
var  
:  
home
```



## 2

# The sed command

How is it used?

# The SED command

- ◇ The **sed** command acts like a **file editor (Stream editor)**
- ◇ It helps you **insert text in a file without opening it with vi**
- ◇ If you write a script that brings some changes or that need to insert something in a file, you can't use vi.
- ◇ You can **use the sed command to do that**



# The SED command

- ◇ Let's do some practice with the content of the `/etc/passwd` file
- ◇ Let's dump that content in a new file called `passwdfile`
  - `# cat /etc/passwd > passwdfile`
  - `# ll` (to check if the file is created and if its content is the same with the `/etc/passwd` file content.)
- ◇ Remember in `vi`, we used `:set nu` to set the lines numbers.



# The SED command

- ◇ To insert a line at the beginning of passwdfile, we use:
  - **# sed -i '1i This is the account components' passwdfile**
  - **# vi passwdfile** to check that
- ◇ Also, in **/etc/passwd file**, the system accounts end at **line 31** with the **tcpdump** account.
- ◇ Let's say we want to precise at line 32 that the accounts of users are the ones below (put a number depending on the line where the users you created on your system are)
- ◇ **# sed -i '32i From here down are accounts created by the admin' passwdfile**
- ◇ **# cat passwdfile** to check that



# The SED command

- ◇ We can also use **sed** to **insert a line after a match**
- ◇ Consider the line for the user **student**
- ◇ Let's add a word after the user **student** informations
  - **# sed -i '/student/a inserting a message' passwdfile**
- ◇ You can also
  - **delete a line,**
  - **Insert lines after a match**
  - **Append lines**
  - **Replace a string at a specific line**







# Examples with the sed command



# The SED command

Syntax	Description
<code>sed -i '1 \line to be added ' file</code>	Add a line at the top of a file
<code>sed -i '\$ \line to be added here' file</code>	Insert a line at the second to the last line
<code>sed -i '/string match/a insert text here' file</code>	Insert a line after a match
<code>sed -i 'ni avatar' file</code>	Insert a line at the line n
<code>sed -i \$'/Line to insert after/a\ i Line one to insert \n second new line to insert \n third new line to insert' file</code>	insert many line after a specific line

# The SED command

Syntax	Description
<code>sed -i \$'/line to insert after/a\line1\\nline2\\nline3' file</code>	Also insert many lines
<code>sed -i '/line to be deleted/d' file</code>	Delete a line from a file
<code>sed -i '/pattern/a \line1 \line2' inputfile</code>	Insert lines after a match
<code>sed -i '/pattern/i \line1 \line2' inputfile</code>	To append the lines before:
<code>sed -i 'Ns./replacement-line/' file.txt ( N represent the line number .)</code>	Replace a line in a file
<code>sed -i '34s/AAA/BBB/' file_name</code>	Replace a string at a specific line



Play with the various options and make some research on these two commands.

The idea here is to understand the concept not to memorize them

See you guys in the next lesson!



# Thanks!

## Any questions?

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