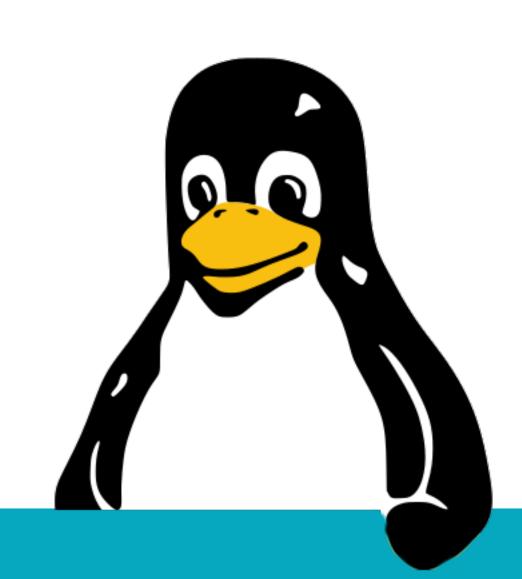
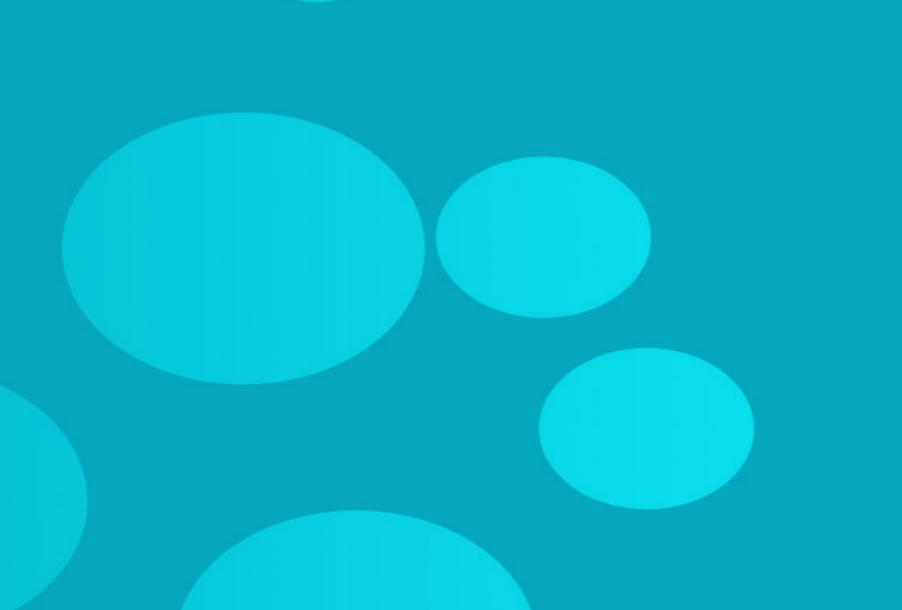
# Linux, day 4





### LAB: The shell environment





### Assignment

- Adjust your account's "~/.bashrc".
  - Add "/opt/test" to \$PATH.
- Make the "/opt/test" directory.
  - Copy the "Is" binary to "/opt/test/testls".
- Do a new SSH login (or start a new Bash).
  - Can you now run "testls"?

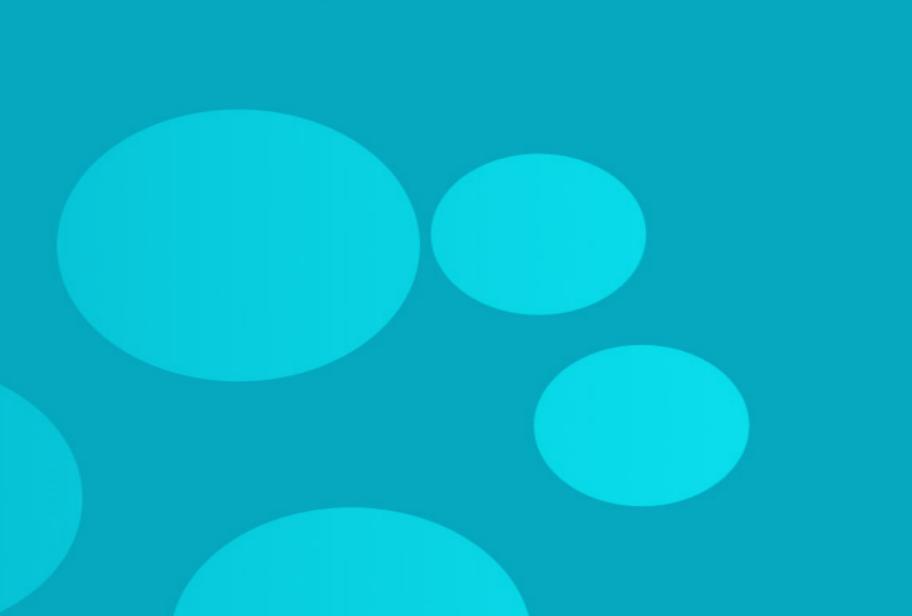
```
$ echo 'PATH=$PATH:/opt/test' >> ~/.bashrc
$ sudo mkdir -p /opt/test
$ sudo cp -p /usr/bin/ls /opt/test/testls
$ ssh localhost "which testls"
```

### What will we do today?

- Recap
- Git lab, from day 3.
- The shell environment
- Shell scripting
- Closing: homework and Q&A

# LAB: Shell scripting: a start





### LAB: Create a simple script

- Create a script which:
  - Runs ;)
  - Reads a name from the first, passed parameter.
  - Asks for a greeting interactively (with read).
  - Outputs a greeting to the name.

### Example

```
$ ./greeting.sh Tess
How would you like to be greeted?
Hello
Hello Tess
```

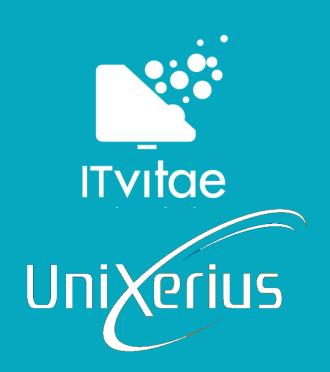
```
#!/bin/bash
NAME=$1
read -p "What greeting would you like? " GREET
echo "${GREET} ${NAME}"
```

```
$ chmod +x greeting.sh
$ ./greeting.sh Tess
What greeting would you like? Hello
Hello Tess
```

### What will we do today?

- Recap
- Git lab, from day 3.
- The shell environment
- Shell scripting MORE
- Closing: homework and Q&A

# LAB: Shell scripting: I/O & Files





### Assignment 1

- Find all files with "passwd" in their name.
- Find all files, literally and exactly called "passwd".
- Find all world-writable files.

### Assignment 2

- SSH from one VM to the other,
- Use a HEREDOC to run:
  - touch /tmp/foobar
  - Is /tmp
  - echo \$(whoami) > /tmp/foobar
  - cat /tmp/foobar

```
$ locate passwd
$ find / -type f -name "*passwd*"
$ locate -b -r /passwd$
$ find / -type f -name "passwd"
```

```
$ find / -perm -o+w -type f
```

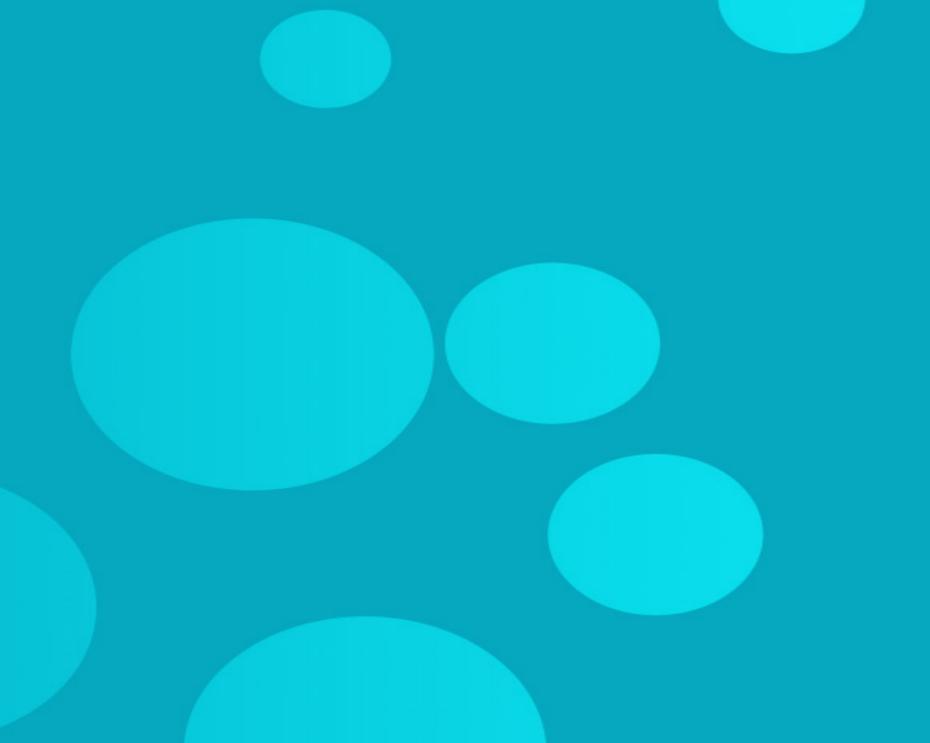
```
$ ssh localhost << EOF
touch /tmp/foobar
ls /tmp
echo \$(whoami) > /tmp/foobar
cat /tmp/foobar
```

### What will we do today?

- Recap
- Git lab, from day 3.
- The shell environment
- Shell scripting -> More!
- Closing: homework and Q&A

# LAB: Shell scripting: Flow





### Assignment

- Write a shell script which:
  - Checks if it's run as root; if not, "exit 1".
  - Reads a command from passed parameters.
    - This command is either "create" or "remove".
  - Asks for a number (for now, keep it <20).</p>
  - Either creates or removes "user1", "user2", "user3" etc.
  - Uses HEREDOC to make "welcome.txt" in their homedir.

### Assignment

• If you run it, this looks like:

```
$ sudo /tmp/dummy-users.sh create
How many?
5
$ cat /home/user5/welcome.txt #works
```

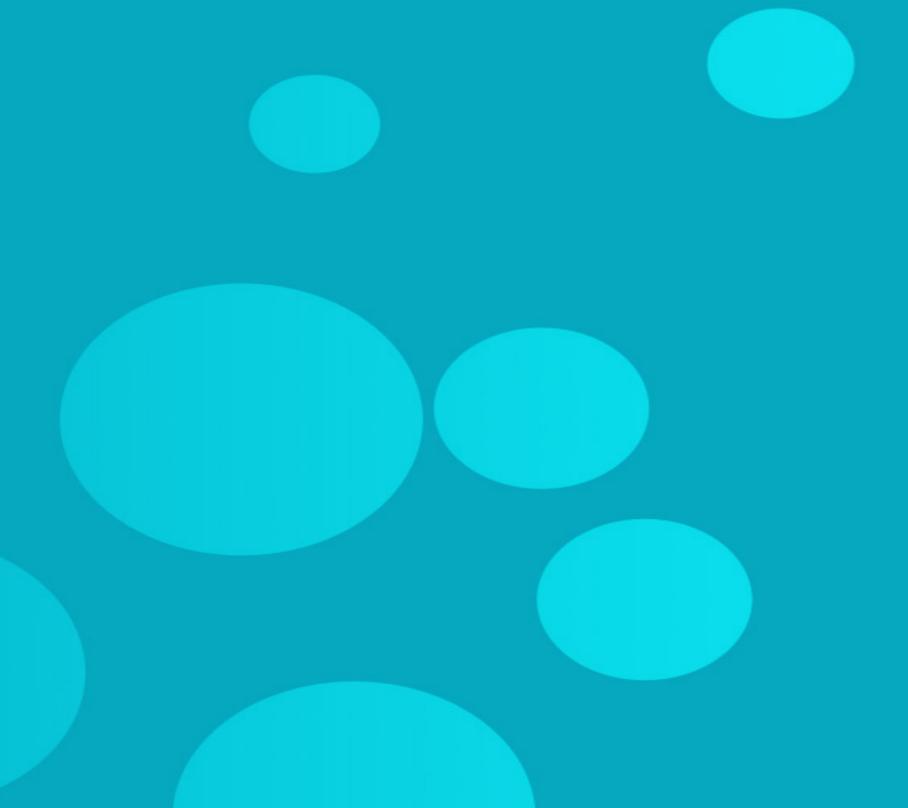
- I have a sample solution on Github.
- It's here, in the Lesson 004 directory.

### What will we do today?

- Recap
- Git lab, from day 3.
- The shell environment
- Shell scripting
- Closing: homework and Q&A

# Closing





#### Homework

- Reading:
  - Chapter 4: Processing and analyzing text
  - Chapter 25: Shell scripting

#### Homework

- Create a shell script to "ping sweep" a network.
  - It should ask for the first three octets of an IP.
  - Then it should cycle through all 254 addresses.
  - e.g. ./pingsweep 192.168.10.0 24

#### Other resources

GNU.org Bash manual

- Exercism: gamified learning programming.
  - 80+ assignments for Bash.

TLDP.org has some <u>fun assignments</u>.

### Reference materials





#### Resources

- Creating shell scripts in Enterprise Linux (PluralSight)
- A roundup of 15 popular Linux shells.
- Linux shell metacharacters
- Bash globbing tutorial
- Bash read command
- Bash getopts example

#### Resources

- Really in-depth on pipes, forks and more
- Testing file characteristics in Bash
- Why you don't read lines with "for"
- An excellent, in-depth study guide for shell scripting
- Practice more, take the challenge!
- Or try Tutorials Ground

#### Resources

- Exercism: gamified learning programming.
- TLDP.org has some <u>fun assignments</u>.
- Arithmetic in Bash
- GNU.org Bash manual
- Shell Scripting tutorial for beginners (YouTube)