**CI (continuous integration)**

Hypervisor is a tool which allows us to virtualise a machine.

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| --- |
| Virtual operating system |
| Hypervisor |
| Operating system |
| Kernel |
| Hardware |

IAAS - Infrastructure as a service

Paas – Platform as a service (The environment, e.g. Java)

Saas – Software as a service

Azure, aws, google drive

Vertical scaling is increasing the power of a single computer (increasing the virtual machine).

Horizontal scaling is increasing the number of computers.

The operating systems on the cloud is preinstalled (using snapshots).

Encryption:

Symmetric – same key used to lock and unlock data.

Asymmetric – you have 2 keys; 1 public, 1 private

Exit

Logout

Ssh ahmed@(“public ip address”)

Ssh-keygen (keep pressing enter) (creates keys)

Ls –al ~/.ssh/

Ssh-copy-id ahmed@(“public ip address”) (copy keys)

Finally connect to it by typing: Ssh ahmed@(“public ip address”).

The terminal works on bash (shell interpreter).

In bash you type:

Ssh-keygen (generate a key)

cat ~/.ssh/id\_rsa.pub (display the key)

If azure says the ssh key is invalid just use password and then type ssh-copy-id ahmed@(“ip address”)

Commands:

man ls (it is the manual)

~ (means home directory)

Pwd (print working directory)

/ (root directory)

Ls –l / (means you want to look at the top of the tree branch) (list of the current directory)

Touch test (creates a file)

Less test (allows you to scroll through a file)

Cat test (prints out whats in the file)

Cp file1 file2 (copies file1 into another file2 in the same location)

Cp file1 /tmp/test2 (copies file1 into /tmp folder with a test2 filename)

Mv file1 file2 (moves file1 into file2)

Rm file1 (remove file1)

Rm –rf file1 (removes file1 with compressing the errors (remove recursively))

Rm –rf / (will remove the whole system and break it)

Mkdir name (creates a directory called name)

Cd name/ (change directory called name)

Ln –s (creates a symbolic link, essentially is used as a shortcut which links to the main file it is identified by the ->)

Ls \*.txt (will list all files with .txt extension)

Ls –l | grep test (will output everything out through another program ‘grep’ with files containin ‘test’)

Ps –aef (ps shows the processes that runs on our system, and aef means all?)

Mkdir –p 1/2/3 (makes a directory recursively meaning that it will make a nested directory).

Mkdir 1 2 3 (makes 3 folders in the same directory (1, 2, 3)).

Sleep 1000 & (returns the process id and the job number. The ‘&’ puts in the background)

Kill PID (will terminate the process id ‘PID’)

Jobs (will show the background processes)

Disown (will get rid of the latest job)

Curl localhost:8080 (will listen, so essentially will check if its actually working)

Chmod +x file1

Chmod nnn file1 (the values of the ‘n’ will describe the access for the user, group and everyone else, respectfully. When typing ls –al the first column shows –rwxrwxrwx where ‘-‘ in between shows that it doesn’t have that characteristic (read=4, write=2, execute=1)

To generate a key in gitbash:

1. ssh-keygen
2. cat ~/.ssh/id\_rsa.pub (then copy the whole generated code and make sure there are no lines inbetween them.

Sudo groupadd docker

Chown ahmed:docker file1

Apt is the package manager.

Mvn clean package (it’s the lifecycle)

sudo vim /etc/systemd/system/spring-boot.service

*Then you type the following in the text:*

[Unit]

Description=Spring Boot Hello World

[Service]

User=Ahmed

WorkingDirectory=/opt/sptring-boot-hello-world/

ExecStart=/opt/spring-boot-hello-world/run.bash

[Install]

WantedBy=multi-user.target

*Then press Esc and then type ‘:wq’ and then press enter. (Incase you made a mistake press esc and then type ‘:q!’ to exit)*

sudo mkdir -p /opt/spring-boot-hello-world/

sudo vim /opt/spring-boot-hello-world/run.bash

*Then type the following inside that file:*

#!/bin/bash

java -jar hello-world-0.0.1-SNAPSHOT.jar

when following the pdf file you need to type in:

sudo chmod +x /opt/spring-boot-hello-world/run.bash (to make it executable)

Installing wildfly on Ubuntu:

<https://www.linuxhelp.com/install-wildfly10-0-0-ubuntu-16-04>

in the:

sudo nano wildfly/standalone/configuration/standalone.xml

you would have to change the ip address 127.0.0.1 to 0.0.0.0 in all 3 places and also change the http port from 8080 to another port (e.g. 8081)

Vim /etc

Week 7

Linux

Look into a tool called Jenkins

Intro cloud

Week 8

Docker

Week 9

Ansible

Week 10

Azure

Week 11

Google cloud platform (GCP)

Week 12

Group project

Linux is a kernel where we can build operating systems on top of.