

# Docker (Imp)

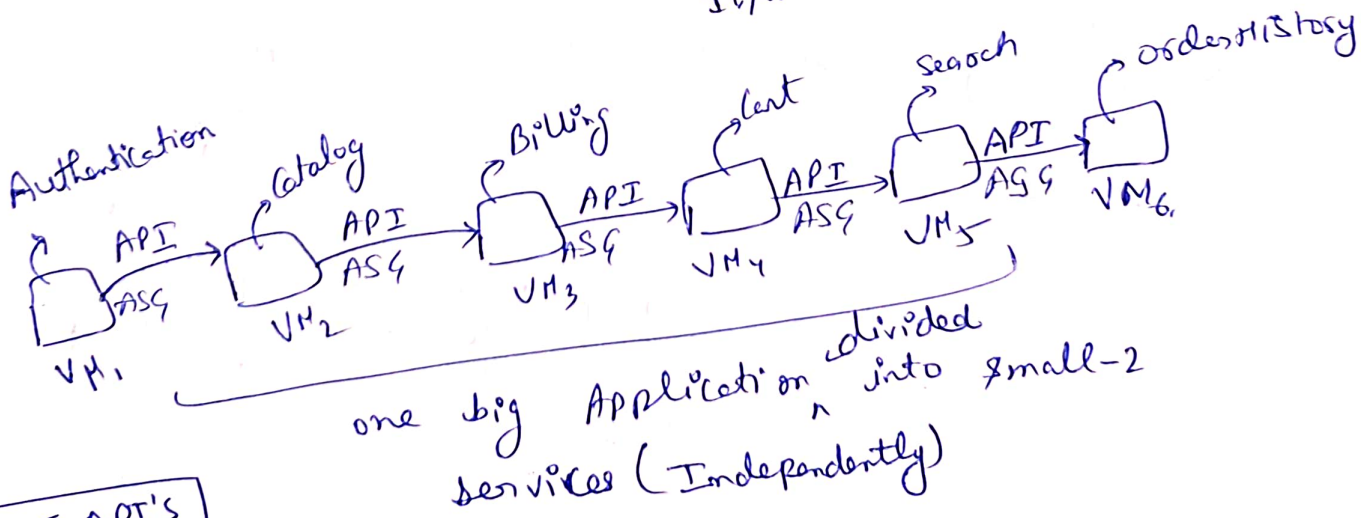
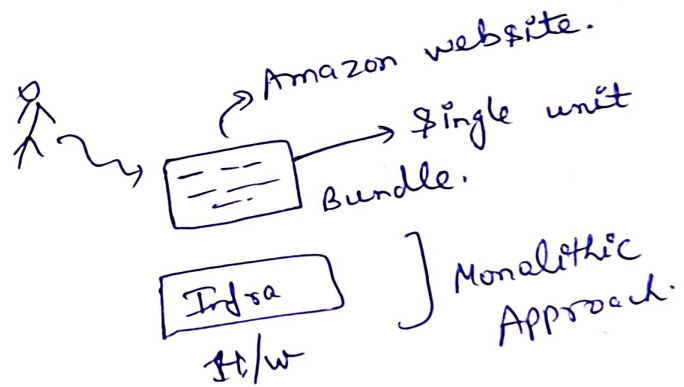
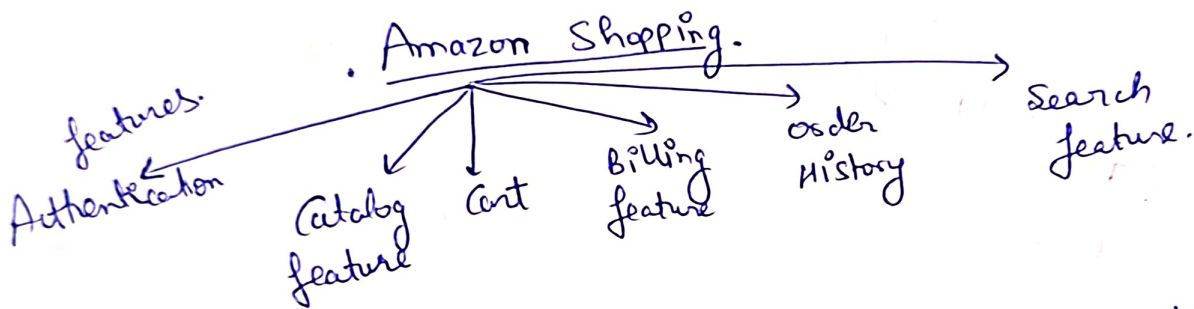
Page 11



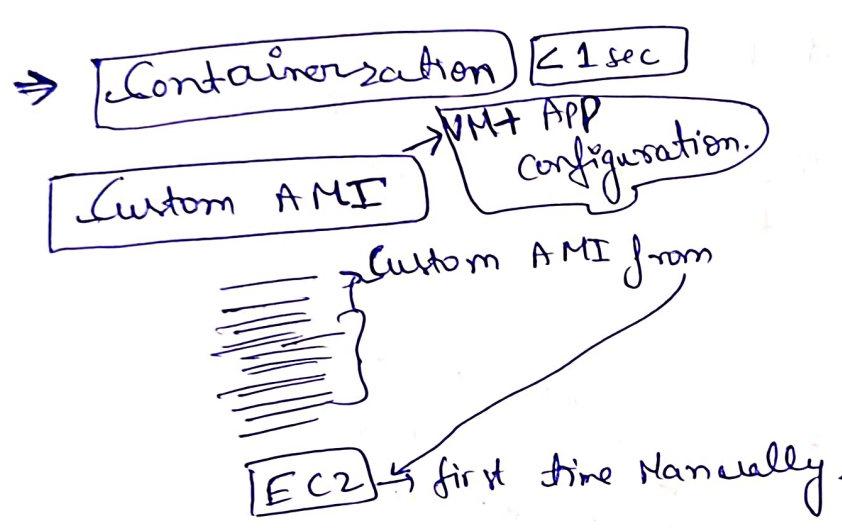
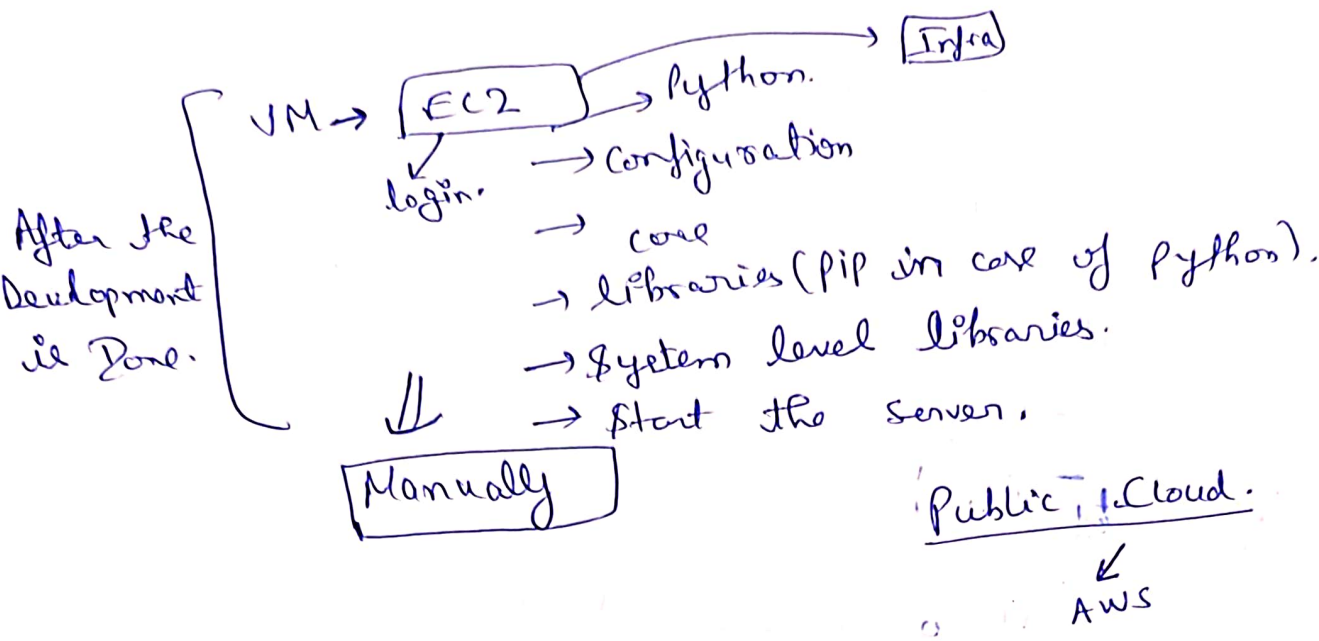
Git Tags

git to v1.0

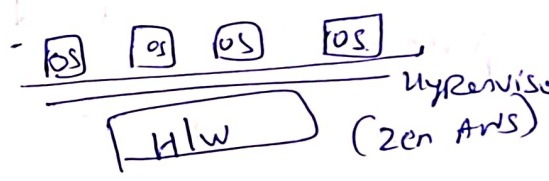
## Microservices Architecture.



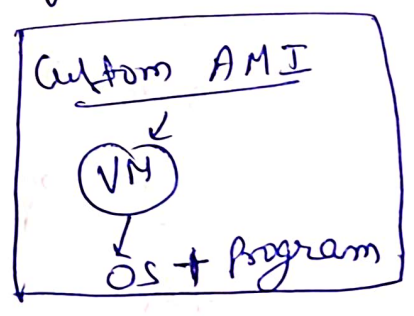
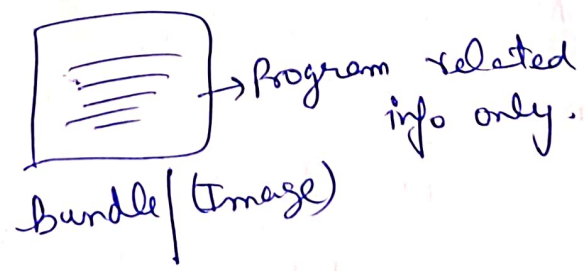
REST API'S

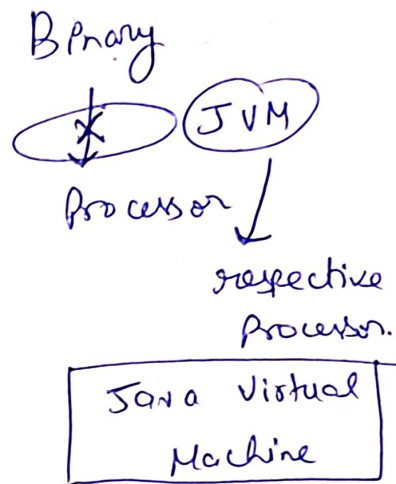
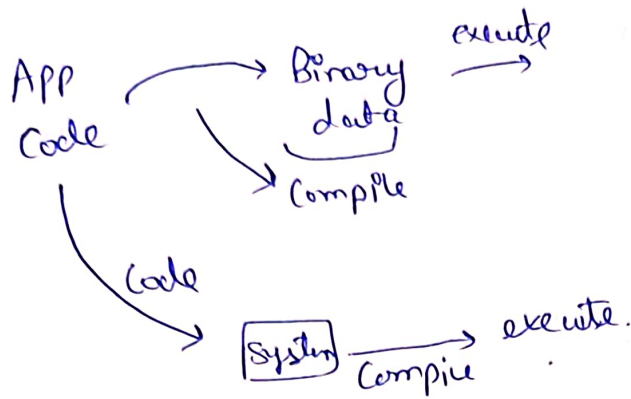


### Virtualization



⇒ Containerization can refer to packaging SW into containers or packaging cargo into containers for shipping.





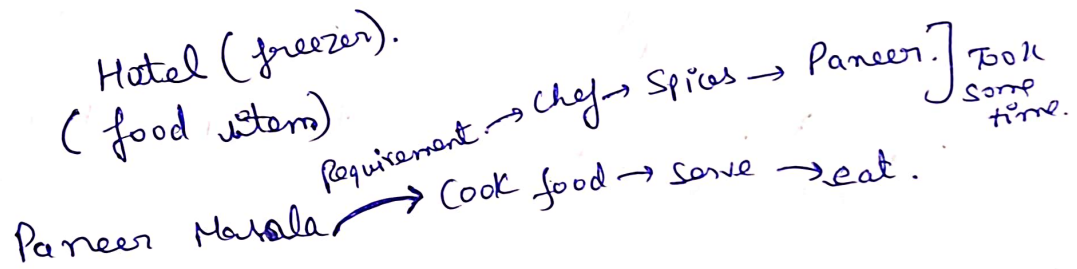
Containerization is OS-level Virtualization

→ Containers ⇒ respective S/W program info.

→ Multi Node Clusters on VM into 1  
Can divide Multiple VM's (Install Docker).

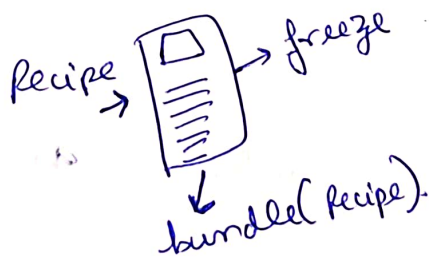
Docker CLI Commands

Example



Hotel (freezer).  
(food item)

Requirement → Chef → Spices → Paneer. Took some time.  
Paneer Masala → Cook food → serve → eat.



Containers  
(Running instance of program)

Image → Recipe handy.

↳ Includes Python libraries. → Bundled Image.



## Practical

launch an Instance.

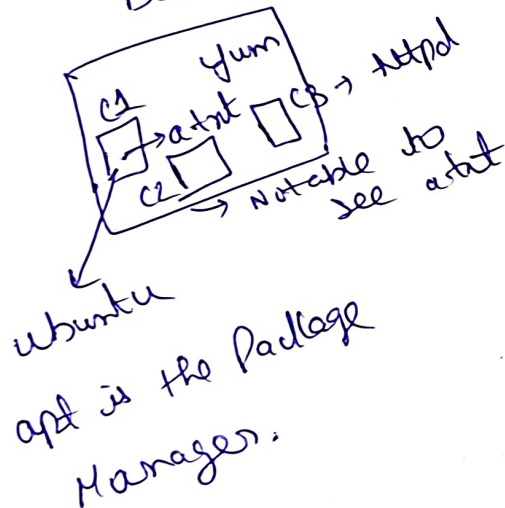
docker run  
↓  
create containers  
from images

Registry

↓  
Docker Hub

↓  
where we can  
find all the  
common Docker  
Images.

Base OS



↓

Install  
Docker.

↓

yum install docker.

↓

systemctl start docker.

↓

docker images.

↓

docker pull ubuntu.  
(for zen recipe)

↓

Again docker images.

↓

docker run ubuntu  
(within a ke launched)

↓

docker ps (How many  
containers are there)

↓

docker ps -a (All containers  
whether running or  
failed)

↓

docker run -it ubuntu

↓  
Interactive  
terminal

↓  
yum (Not found)

↓  
apt (Working)

↓

## Docker Engine

↓  
Main program  
which does the  
magic for us

## Docker Architecture

EC2 ⇒ Docker  
Host

Daemon ⇒ part  
of Docker  
Engine  
(Main Program).

(hub.docker.com)

Container  
create from  
Image

⇓  
touch a.txt.

⇓  
pwd.

⇓  
hostname (Container Id)

⇓  
Ctrl+C (Come out to Base system. without terminating the Container)

⇓  
yum

⇓

docker ps

⇓

ls

(a.txt is not visible).

⇓

docker run -i -t ubuntu (New Container launch).  
(2nd container).

⇓  
ls

⇓

touch b.txt

⇓

Ctrl+C

⇓

docker ps.

⇓

ls.

⇓

docker attach

(go back to the terminal existing of Container).  
bring-llb (id or name)

⇓

ls.

docker run  
within a  
second

In bash whenever  
we add exit  
Bash program  
stopped  
then container will  
be stopped

(Bash program runs  
infinite time  
until we press  
exit).

⇓  
exit (Container has been stopped).

⇓  
docker ps -a

⇓  
docker start -name.

⇓  
docker attach -name.

⇓  
Ctrl + p + q.

⇓  
Container still running

docker rm -name. (Terminate Docker).  
(first stop then remove).

⇓  
docker stop -name.

⇓ now

docker rm -name.

⇓

docker ps.

⇓

docker ps -a.

⇓

docker pull.  
amazonlinux

⇓

docker images.

feeling like inside  
Amazon Linux

(Image.)

(root Directory).

↓

`docker run -it --name abhidocker amazonlinux.`  
Image Name.

↓

`apt` (Command not found).

↓

`yum install httpd.` (Inside Amazon Linux Containers).

↓

`rpm -q httpd.` (info about httpd).

↓

Systemctl start httpd (error).

↓

which date  
→ Need to install this.

↓

which httpd

System has not been booted with systemd as init system

↓

`cat /etc/passwd`

↓

`docker ps`

↓

`docker inspect abhidocker.`  
(IP Address at least)  
(More info about the container).

↓

Port	IP Address
------	------------

↓

`curl 172.17.0.2`

↓

`rpm -q httpd.`

Each Container will have unique Internal IP Address

By default Base System will have connectivity with the IP Address of all the Containers



Check My web Server

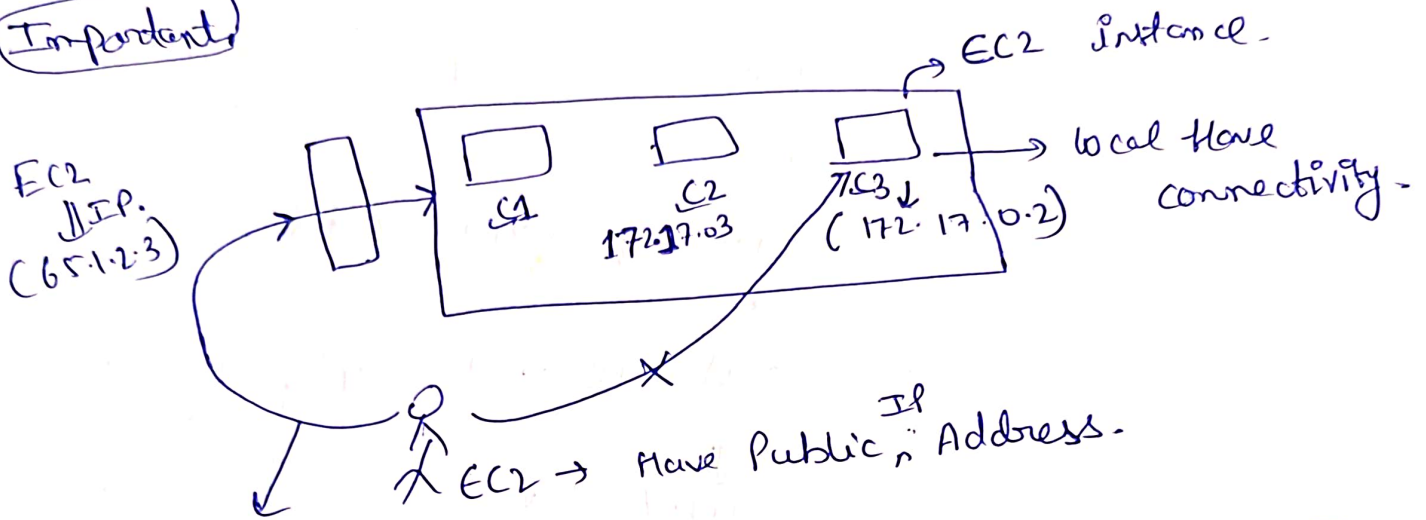
copy 172.17.0.2

(Private IP Address)

(within the container only).

SNET & DNET

Important



Send some Data.

Src → 208.3.2.1  
Data  
Dest  
EC2 IP

EC2 instance Need to create a simple rule

Imp

docker run -it --name webserver -p 80:80 amazonlinux

65.1.107.187:80

webapp

docker attach webserver

cd /usr/www/html.

Port Mapping.  
80:80  
anyone who will come to Base System (Port No 80)

Public IP Address of EC2 instance at Port No 80.



→ User behind the scene is connecting to the Base System only.

→ Client is going to (OS) and rest of the part is done.

↓  
`netstat -tnlp`

(docker & Port Info)  
pid (unique process id).

⇒ How can we create our own custom Images.

⇒ A script to create a Docker Container.

Run Image from csv.

(LVM, users, file permission)