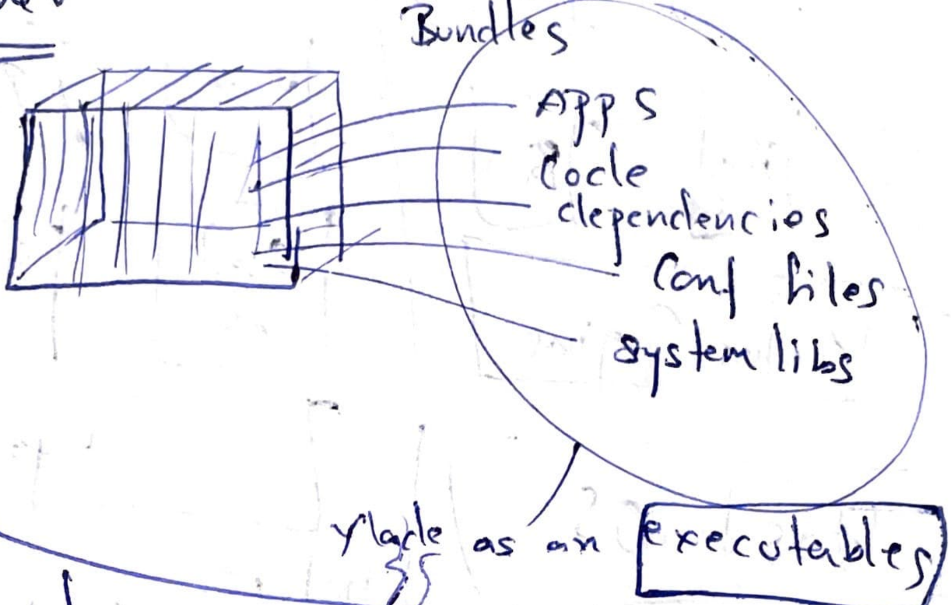
1/1/23

Contanized Applications on AWS

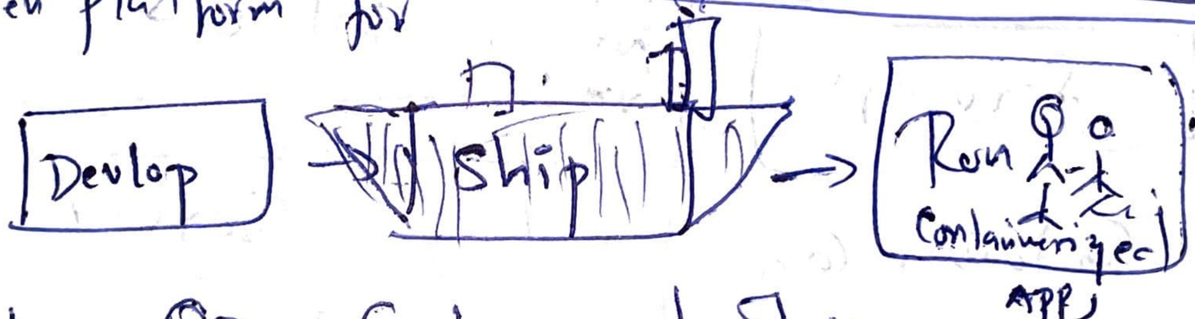
Part-1 **Container**

Docker Container



↓

Open platform for



OCI — Open Containerized Initiative.

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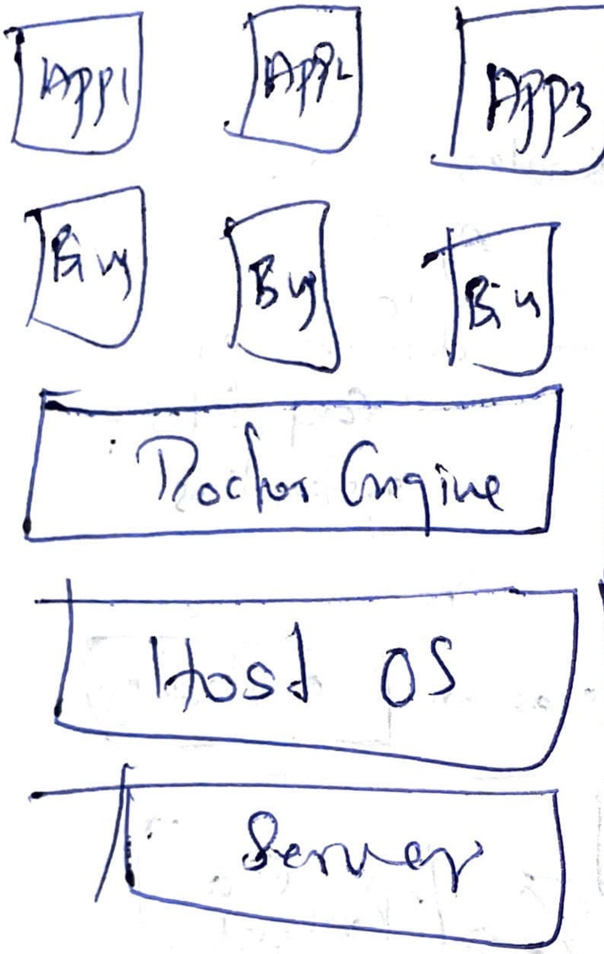
Platform Neutral Specs

Docker Engine → Rely on 2 resources. → control groups

Linux Kernal

Namespace (Isolation) : Cgroup (Resource limitation)

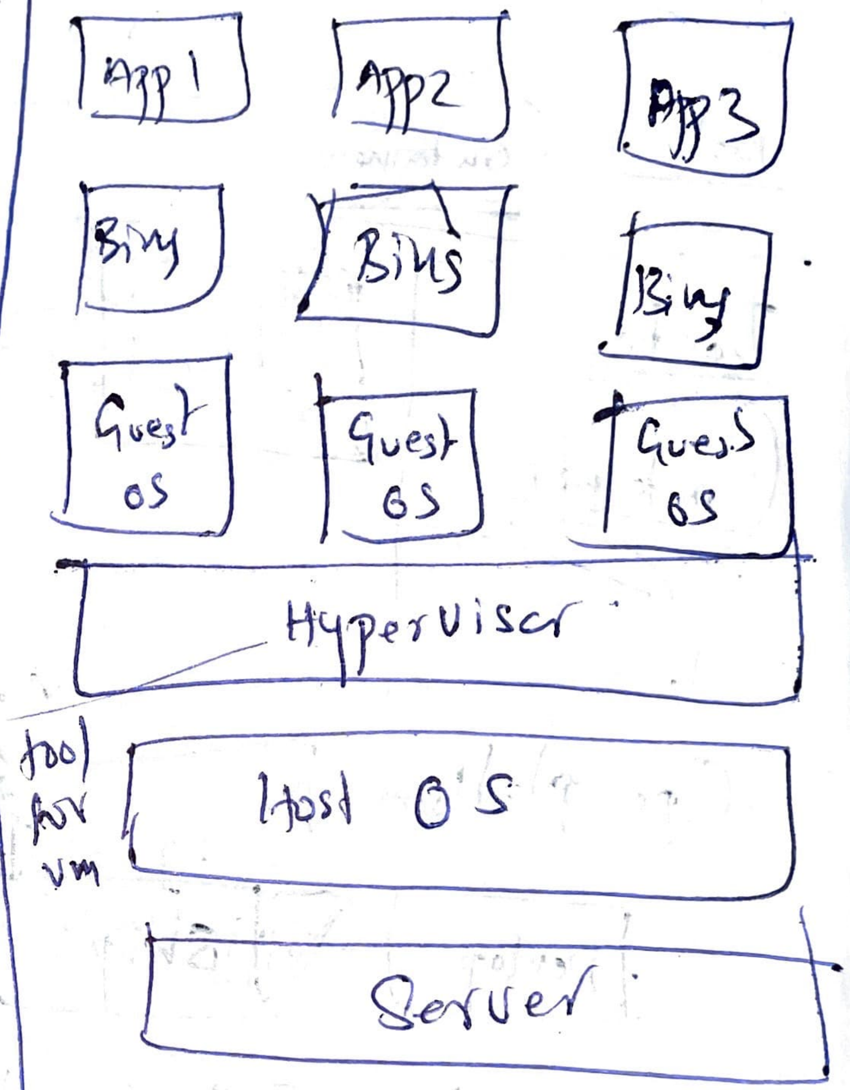
Container



Ever Container can use Host resource.

- same OS /vm.
- less Resource
- less time (quick!)
- Optimization of Resources.
- portability.

Virtualization.



~~Ai~~ Vm's Require lots of hardwar allocation, memory, cpu's.

Docker Run : Runs the application

```
docker run -p 80:8080 < Image Name >
```

Make it available on host)

Port 8080 form the Container

Why Container ?

> Resource Utilization

> Speed

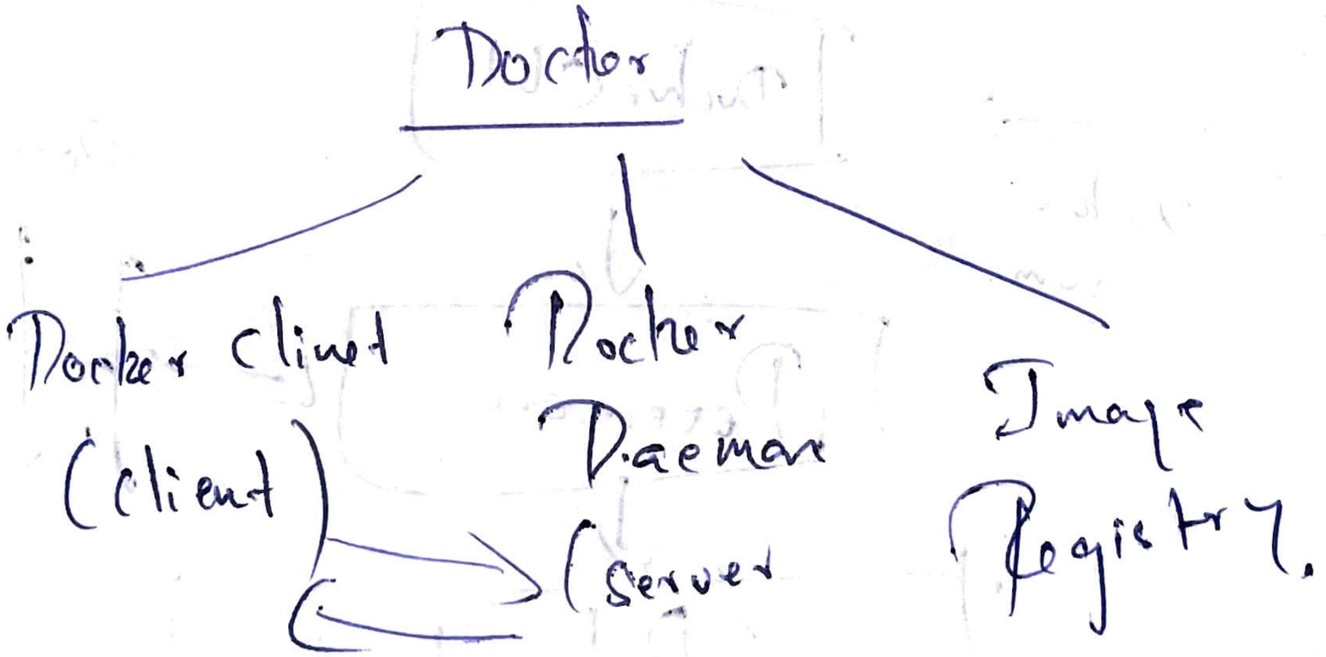
> Developer productivity

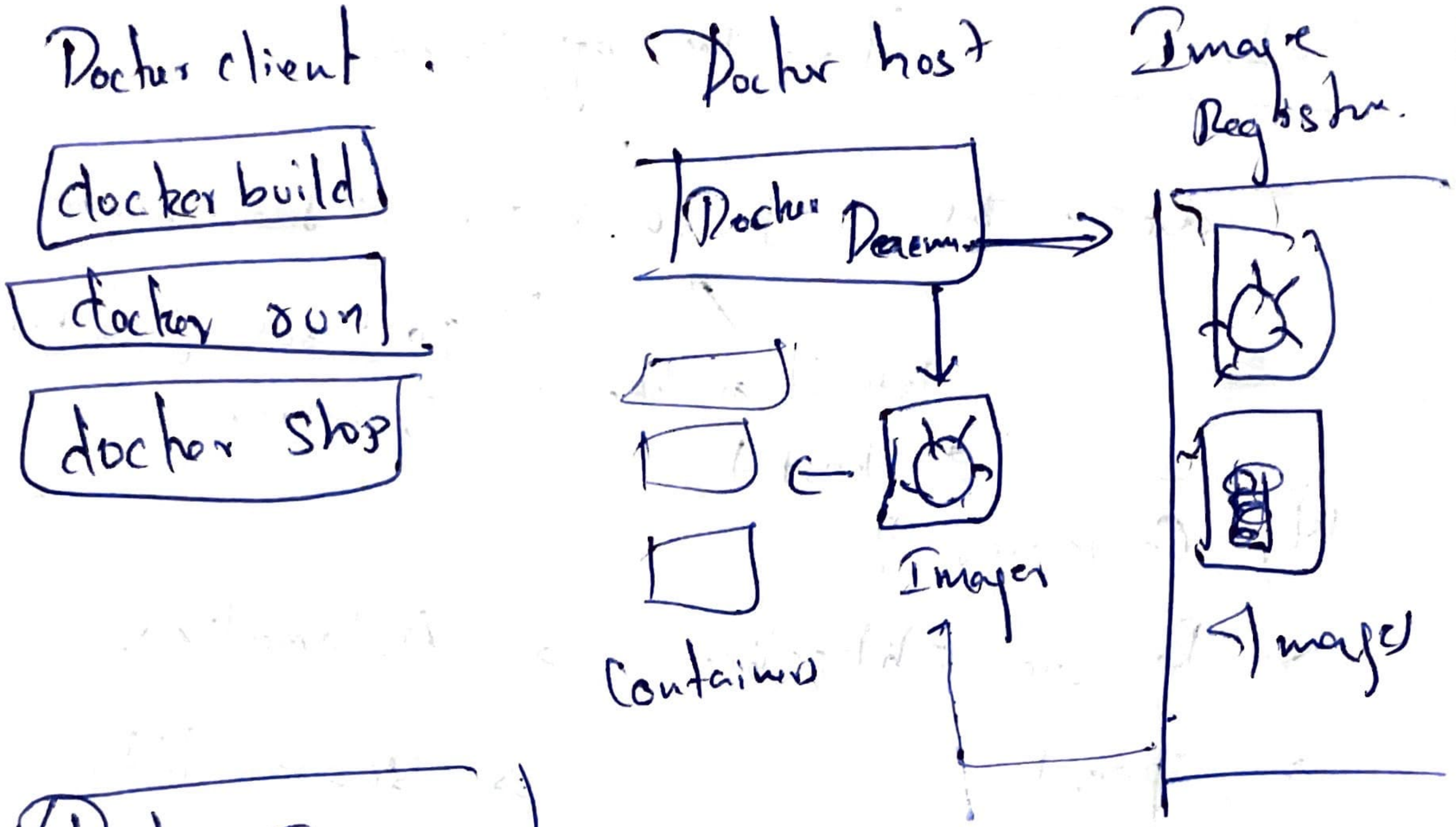
> Automation.

> Scalability

> Portability.

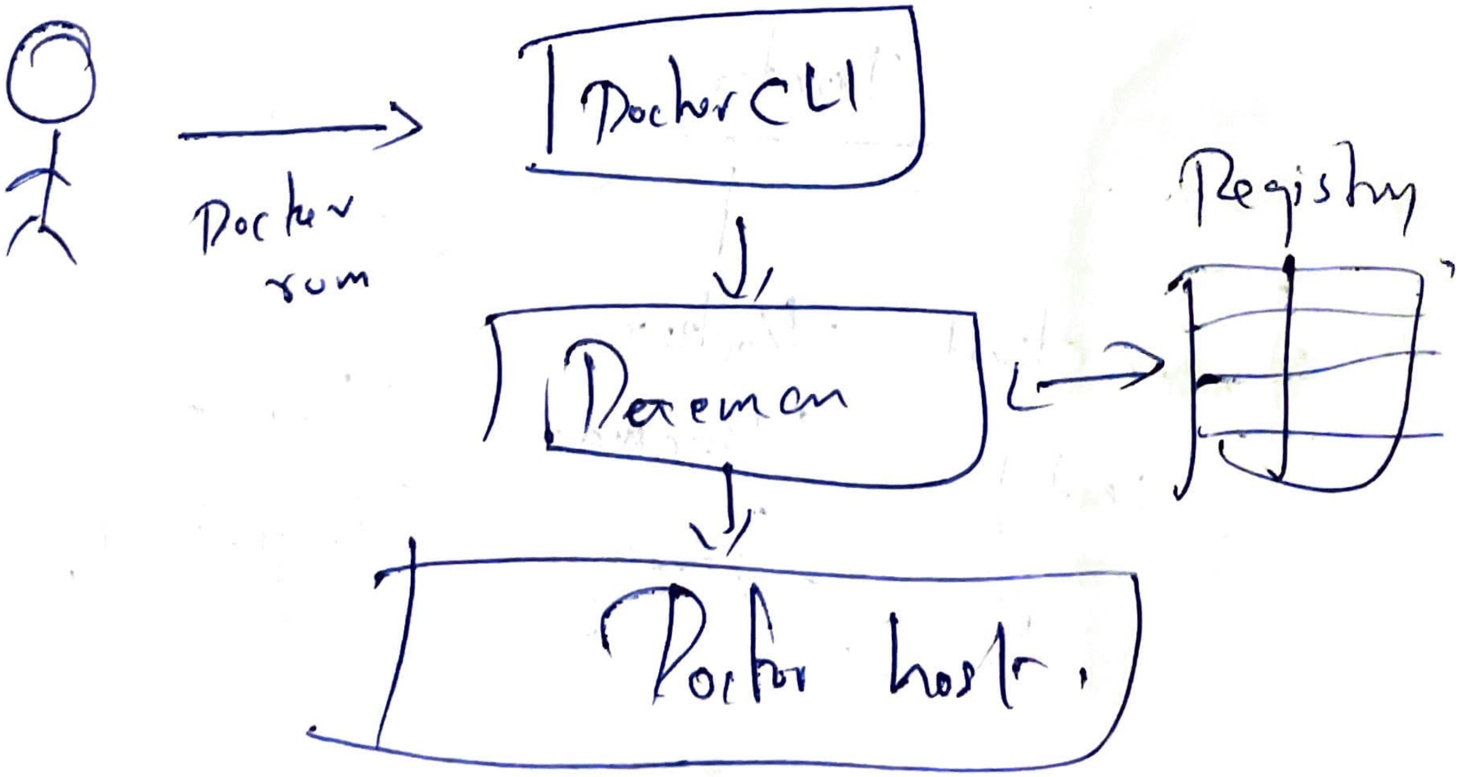
DOCKER BASICS.

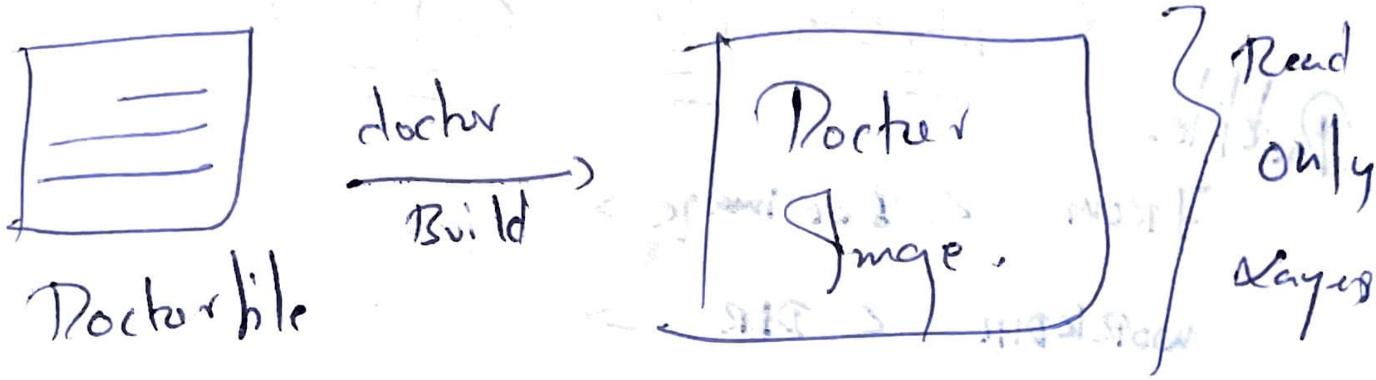




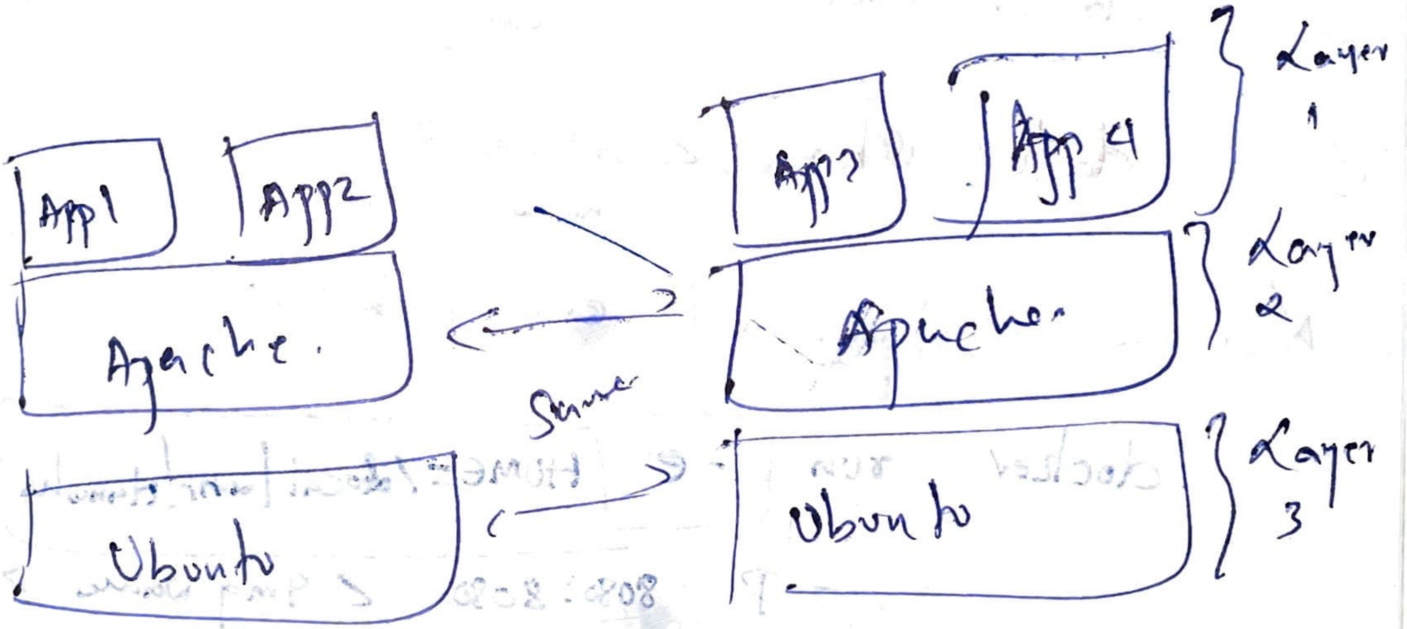
Docker Image

Light weight Application Package.





Layer -> Docker image is made up A lot of Layers. So this Layers might be used accross Other image.



uses Union file system.

Working with Containers

Dockfile.

```
FROM      < Base image >

WORKDIR   < DIR. >
```

① Docker image ls → lists the Docker Images

② Docker run -d -p < >:< > Image

-d → detached Mode.

-p → Port

③ docker exec -it <Container name> sh.

④ docker stop <Container name>.

⑤ Launch Container with env variable:

```
docker run -e HOME=/local/mnt/danusha
        -p 8080:8080 < Img Name >
```

⑥ To make a file available inside Container.

```
docker run -v ~/input.txt:/app/input.txt
    -p 8000: 8080 <Image name>.
```

Ex-1 Create a Container

AWS Cloud9 Instance

DynamoDB table

AWS CloudFormation:

① -> How can we run a Container in AWS ECS

Elastic Container Service.

- fast Container Management Service.
- Manage Containers on cluster

② Amazon EC2? Amazon Elastic Compute Cloud.

- provides Computing Capacity in AWS
- No need of Hardware for ur development.
- we can use this to launch as many virtual Servers as we need
- Virtual Computing env -> Instance.

- Storage Volume -> temp, So if you we need Permanent storage - Use Amazon Elastic Block store.

AWS CloudFormation

- Service That helps us models setup our AWS Resources.
- We can Create a template that describes all the AWS resource (x: ie Amazon EC2 instance (or) RDS (or) DB instance)
- This takes Care of provisioning and Configuring those resource for us.

AWS Cloud9

-> IDE

AWS CodeCommit repo } Our work is Stored here.

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AWS EC2 ~~env~~ instance + AWS Cloud9 env

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Computer + IDE in (AWS Cloud9) Browser

Registry

-> Registry is the place where we store the Docker images. For exam -> Dockerhub.

For private Registry: ECR (Elastic Container Registry)
(In AWS)

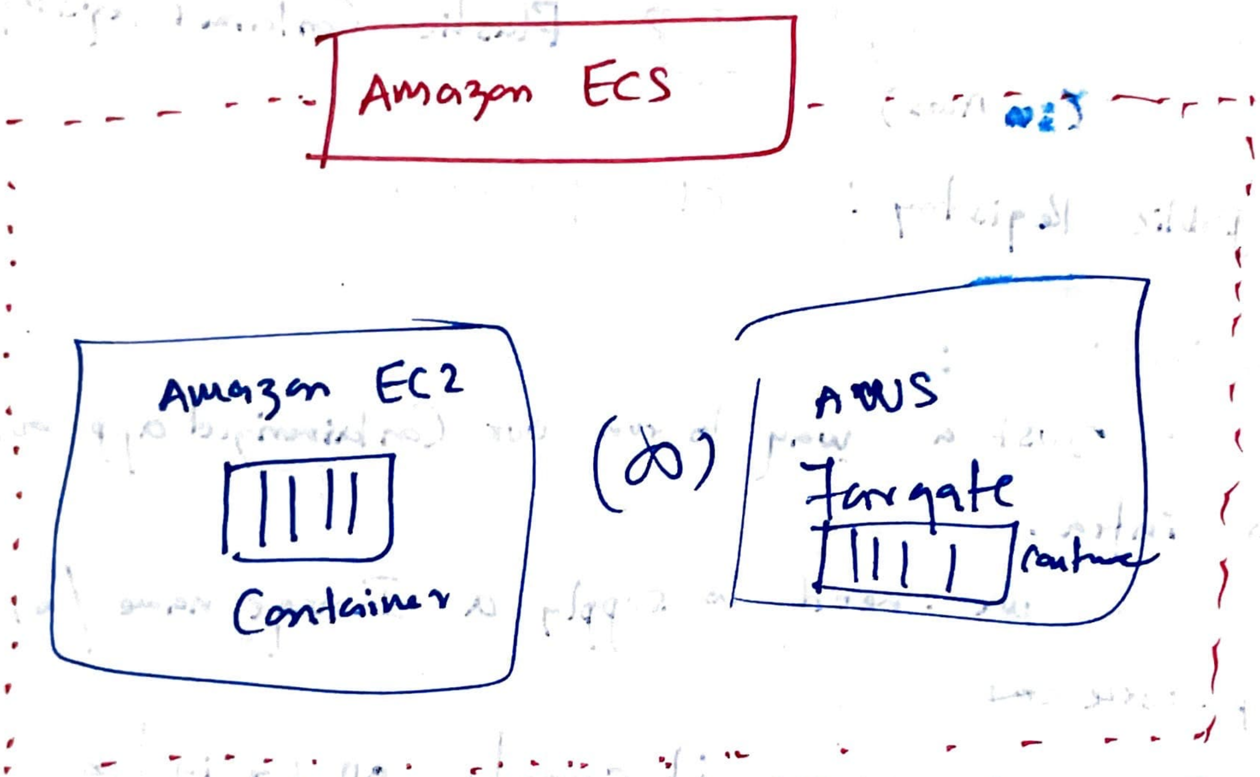
For public Registry: ECR - public.

AWS App Runner:

- Just a way to run our Containerized app on AWS infra.
- we need to supply a Image name (or) app source code
- App runner it creates all the infra need to host our app. & supplies http endpoint

AMAZON ELASTIC CONTAINER SERVICE

Amazon ECS -> Fully managed Container Orchestration service



Ecs handles the scheduling & placement a Containers on the clusters.

- Compute Rosourse can be EC2 instance in your account.

AWS Lambda : is a Serverless Compute service.

JUST TO KNOW

① AWS Batch : A Service for your batch Computing workloads

② Amazon SageMaker : Service to build, train and deploy ML models.

③ AWS IoT Greengrass: Runtime and Cloud Service for us to build, manage & deploy our IOT apps on our device.

④ AWS Codebuild: Fully managed Continuous Integration Service that Compiles Source Code, run tests & produces software package for dev tems

⑤ AWS Elastic Beanstalk: Service for deploying & scaling web development. Handles the deployment & Configuration of EC2 instances, load balances, autoscaling & health monitoring resource.