Day 6

Docker

How to containerization

how to deploy a container using CI/CD

integration the concept in the devops cycle

Would need proper difference on container and VM

Create image and run web application image using nginx server

If we want to create web application

Frontend technologies.

Html, CSS or bootstrap, JavaScript or jQuery, typescript, angular, react js or vue js

create index.html file

index.html

```
<html>
        <head>
        </head>
    <body>
        <h2>WElcome to simple web app created by akash</h2>
    </body>
</html>
```

Dockerfile

```
FROM nginx
COPY index.html /usr/share/nginx/html
```

docker build -t my-web . -f Dockerfile

then check docker images

if image is responsible to run web application then we need to run using below syntax.

docker run -d -p 80:80 my-web

-d detached mode or background

-p public port

Right side port number actual port number of server ie 80 by default nginx server run on default port number 80.

Left side port number public or expose port number it can be same or different

docker ps to check running container

open browser http://localhost:80

docker images

docker ps it display only running container

docker ps -a it display running as well as stop container

This command is use to run application on port number 81 with user defined container name.

docker run -d --name=my-web-container -p 81:80 my-web

docker rm containerId/containerName if container is running we can't remove

then we need to stop and remove else remove by force using -f

docker rm containerId/containerName -f

docker rename oldcontaienrname newcontainername

docker start containerName/containerId

docker stop containerName/containerId

docker rmi imageName/imageId

or

docker rmi imageName/imageId -f

docker system prune -a

it is use to remove all stopped container, images, network and cache memory.

docker build -t my-web . -f Dockerfile

before publish this image in Docker hub account we need to create tag ie unique identity for that image

docker tag imageName dockerHubAccountId/imageName:version

docker tag my-web akashkale/my-web:1.0

docker login

it will ask accounted and password please provide

so local machine terminal link with docker hub account.

after tag created now you can publish or push your image

docker push accountId/imageName:version

docker pull akashkale/my-web:123

docker run -d -p 80:80 akashkale/my-web:123

http://localhost:80

docker run -d -p 82:80 karanvirmani21/my-web:1.0

Docker Compose

Docker compose is a toolkit or command which help to run more than one containers.

Docker compose read yml configuration which contains all docker images and container details.

Those containers are running independently or they can communicate with each others.

Create the file using touch command

docker-compose.yml

vi docker-compose.yml

then copy and paste the code

esc

:wq!

Then read the data from file using cat command

cat docker-compose.yml

docker-compose up --build -d

then docker ps

to stop the container

docker-compose down

We use AWS:

EC2 instance : Using EC2 instance we can create Virtual Server machine

As we can install required software to deploy the application.

Git --→ Using Git we can push the code to Git Hub Account

CI and CD tools ie Jenkin → Using Jenkin we can create job or pipeline to pull the project.

In Jenkin We can run Docker or Docker-compose to run the project.

Jenkin we will run in EC2 instance.