Docker Whatsapp Group : https://chat.whatsapp.com/Gpf1oR8CYZv3ADC1hnfZx8

Application Architecture

1) frontend (user interface) : Angular / React / Vue JS

2) backend : Java / .Net / Python / PHP

3) database : Oracle / MySQL / SQL Server

Application Tech Stack

Frontend : Angular 13v

Backend : Java 17v

Database : MySQL 8.5v

Tomcat : 9.0v

Environment Setup To run our application

1) Take one machine (physical / virtual)

2) Install Angular 13v

3) Install Java 17v

4) Install Tomcat Server 9.0v

5) Install MySQL DB Server 8.5v

Application Environments

1) DEV : Developers will use it for integration testing

2) SIT : Testing team will use it for system integration testing

3) UAT : Client will use it for user acceptance testing

4) PILOT : Pre Production environment

5) PROD : Live Environment (end users can access our application running in prod)

Challenges in Deployment Process

1) Multiple Environments Setup

2) Setting up all required dependencies (softwares) in all machines

3) Version Conflicts

4) Environment Maintainence

5) Environment issues

==========
Docker
=========

-> It is free and open source software

-> It is used for Containerization

-> Containerization means package our "application code + required dependenices" as single unit for execution.

-> If we use Docker in our project then we can run our project in any system without bothering about underlying softwares.

====================
Docker Architecture
====================

1) Dockerfile : It contains set of instructions to build docker image

2) Docker Image : It is a package which contains code + dependencies

3) Docker Registry : It is a place where we can store our docker images

4) Docker Container : When we run docker image then docker container will be created. Our application will execute inside docker container.

Note: Every Docker container is one virtual machine.

=============
Docker Setup
=============

https://github.com/ashokitschool/DevOps-Documents/blob/main/Docker-Setup.md

=================
Docker Commands
================

docker images : To display list of docker images available in our system

docker ps : To display list of docker containers running in our system

docker pull <image-id / image-name> : To download docker image

docker run <image-id / image-name> : To run docker image (container creation)

docker rmi <image-id/name> : To delete docker image

docker rm <container-id> : To delete docker container

docker system prune -a : delete stopped container and unused images

docker run hello-world

=======================================
Running Spring Boot App using Docker
=======================================

```
  docker pull ashokit/spring-boot-rest-api

  docker run -d -p 9090:9090 ashokit/spring-boot-rest-api

  docker ps

  docker logs <container-id>
```