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Jenkins CI CD
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## Jenkins workshop video : https://www.youtube.com/watch?v=4cG7dWKbrC8

1) Build & Deployment process

2) Challenges with Manual build & deployment

3) Jenkins Introduction

4) Jenkins Setup

5) Jenkins CI CD Pipeline

6) Git + Maven + Docker + Jenkins

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What is Build & Deployment
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1) Take latest source code from Git Hub

2) Compile project source code

3) Execute Unit Test cases

4) Package the application ( jar  / war )

5) Build Docker Image

6) Create Docker Container

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Challenges in Manual build & deployment
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1) Every day we need to deploy latest code

2) Deploy code in multiple environments

3) Takes lot of time

4) Repeated Work

5) Error Prone

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What is Jenkins ?
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1) Jenkins is free & open source software

2) Jenkins developed using Java language

3) Jenkins is used to automate Build & Deployment process

4) Using Jenkins we can implement CI CD

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Jenkins Setup
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https://github.com/ashokitschool/DevOps-Documents/blob/main/04-Jenkins-Docker-Project.md

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Jenkins Declarative Pipeline Syntax
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pipeline {

        agent any

        stages {
                stage('Hello'){
                        echo 'welcome to ashokit'
                }
        }
}

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Git + Maven + Docker + Jenkins Integration
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## Git Hub Repo :: https://github.com/ashokitschool/maven-web-app

1) Configure maven as global tool

2) Install docker in jenkins machine

3) Restart jenkins server

4) Create CI CD pipeline

5) Execute CI CD pipeline

6) Enable host port in ec2 vm security group inbound rules

7) Access our application in browser

                URL : http://public-ip:host-port/maven-web-app/

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final ci cd pipeline
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pipleline {

        agent any

        tools {
                maven "M3"
        }

        stages{
                stage('Git clone'){
                        steps{
                                git 'https://github.com/ashokitschool/maven-web-app.git'
                        }
                }
                stage('Maven Build'){
                        steps{
                                sh 'mvn clean package'
                        }
                }
                stage('Build Image'){
                        steps{
                                sh 'docker build -t ashokitapp .'
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                        }
                }
                stage('Deployment'){
                        steps{
                                sh 'docker run -d -p 9090:8080 --name ashokitc ashokitapp'
                        }
                }
        }
}
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Real-Time workflow
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=> DevOps team will setup Jenkins server in linux vm

=> DevOps team will manage users in jenkins server
(role based access)

=> For Development team members only jobs read & execute access will be available.

=> Development team will send request to DevOps team to create jenkins pipeline for the project

=> Based on Dev Team request, DevOps team will create CI CD pipeline for the project.

=> Dev Team members can run CI CD pipeline for project build & deployment process.

Note: If CI CD job execution got failed then we need to check job execution logs (console output).

Note: For production deployment seperate release team will be available.

Note: Production Jenkins server will be seperate.