DEVELOPING

TESTING

CI/CD

Jenkins

DEVOPS MUSTAFA

Agenda

DEPLOY AN APPLICATION IN TOMCAT APPLICATION SERVER USING CI/CD

GIT: To maintain the source code.
MAVEN: To build the source code.
SONAR: For code quality test.
NEXUS: To store the artifact.
TOMCAT: Webserver to deploy an application.
JENKINS: To Integrate all the tools.

TOOLS USED

1. GIT
2. MAVEN
3. JENKINS
4. SONAR
5. NEXUS
6. TOMCAT

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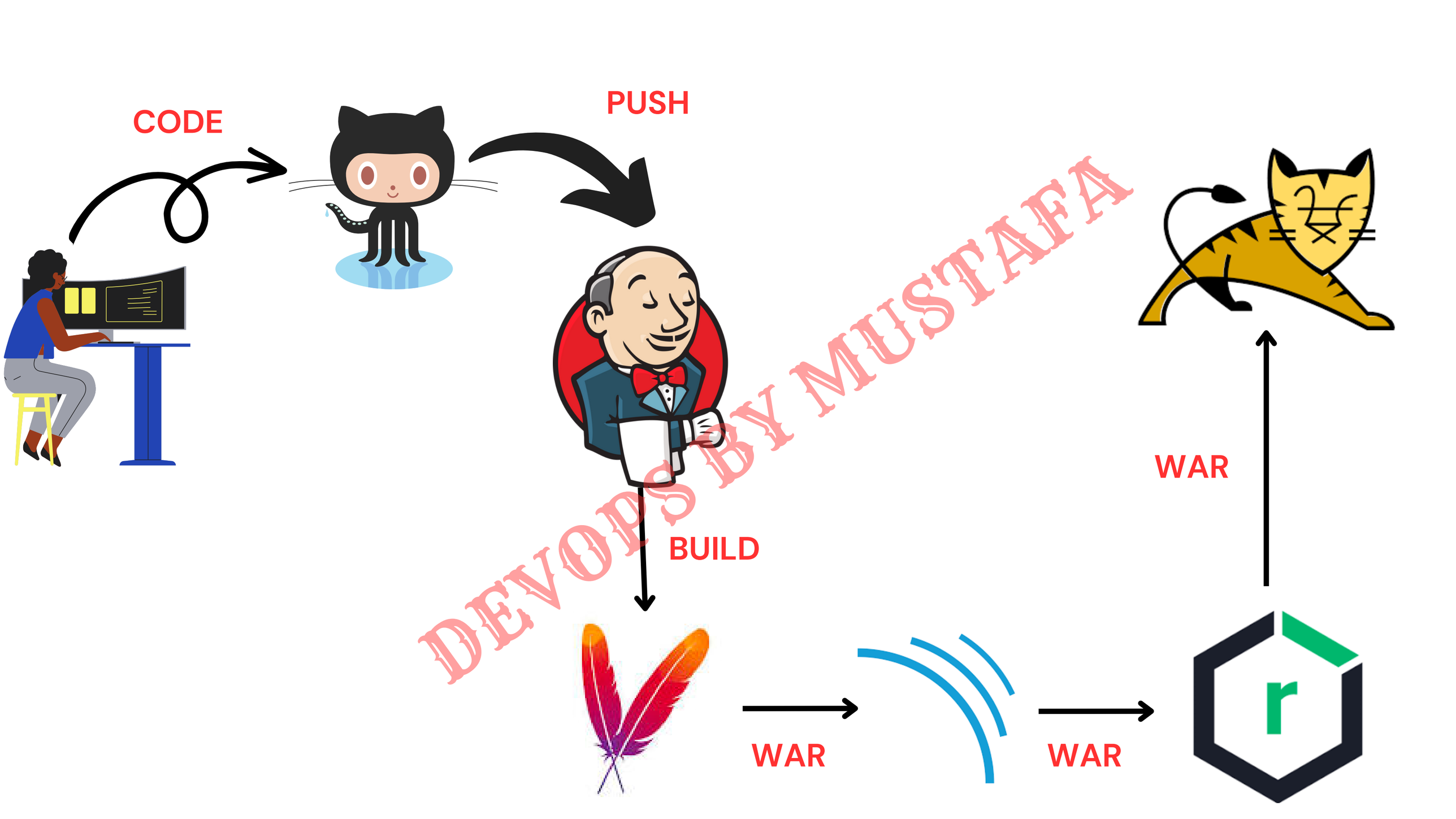
CODE
PUSH
BUILD
WAR
WAR
WAR
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DEPLOYMENT:

The term Deployments refers the installation of a Web-Application on WebApplication server.

WHY DEPLOYMENT:

The main reasons of the deployment are:

- Adding New Features to the Application.
- Removing the Bugs.
- Enhancing the New Features.
- Improving the Performance.
- Breaking Large Applications to MicroServices.

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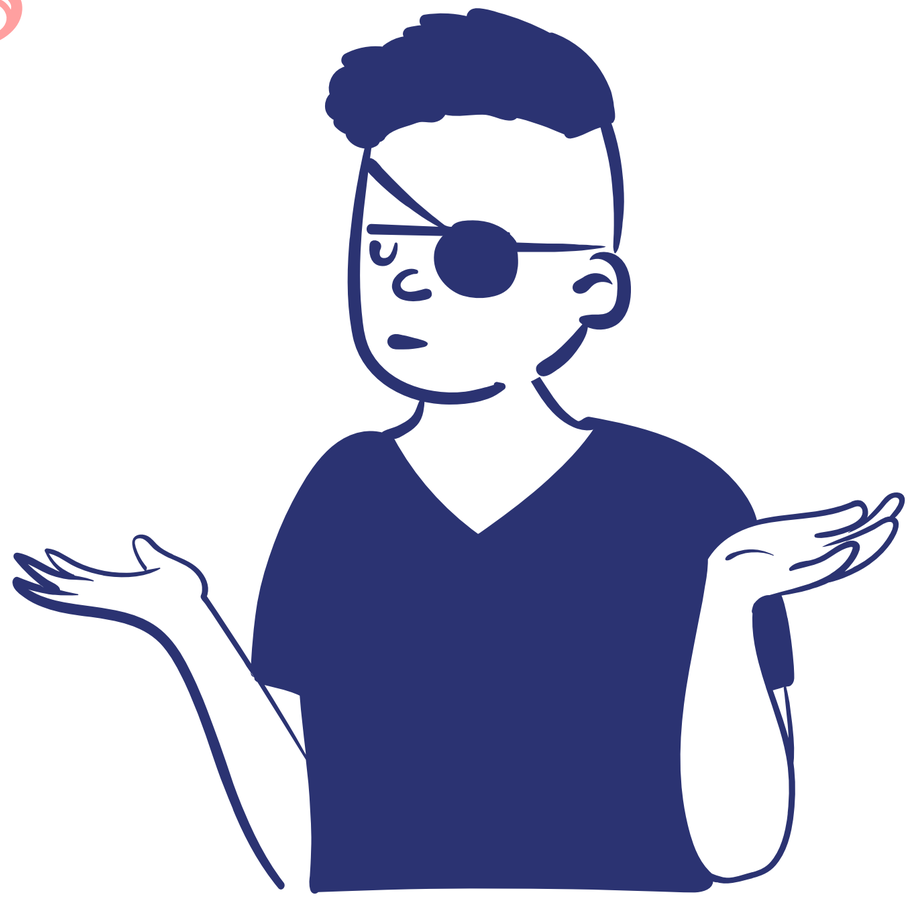

NEED FOR DEPLOYMENT:

- We need to have Infra Setup.
- New Release of code.
- Involvement of Dev, QA and DevOps Team.
- Creating New Db's If needed.
- Approval from RM (in case of New release).

PRECAUTIONS:

- Need to take Backups of the Current Builds and DataBases.
- Need To Provide Isolated Environments for Dev, Test and Prod.
- Can be able to do RollBack if the Deployment fails in some cases.
- Make sure we are deploying the correct env and Client Application.

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STEP-1:

LAUNCH 4 INSTANCES WITH SAME PEM FILE

1. JENKINS: T2.MICRO
2. TOMCAT: T2.MICRO
3. SONAR: T2.MEDIUM (20 GB OF EBS VOLUME)
4. NEXUS: T2.MEDIUM (20 GB OF EBS VOLUME)

SETUP SERVICES IN THEIR RESPECTIVE SERVERS.

STEP-2:

LOGIN INTO JENKINS DASHBOARD AND INSTALL THESE FOLLOWING PLUGINS

1. SONAR SCANNER: to scan the code
2. NEXUS ARTIFACTORY UPLOADED: to store the files in nexus
3. Deploy to Container: To send the war files to tomcat server

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STEP-3:

Create a jenkins pipeline job and write a Jenkins file for deploy a web application, usually we have 2 types of pipelines,

- scripted
- declarative

Here i am using scripted pipeline for the Jenkins file

STAGE-1 : GET THE CODE FROM GITHUB TO CI-SERVER

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```
node {
  stage ("code") {
    git "https://github.com/devops0014/one.git"
  }
}
```

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STAGE-2 : BUILD THE SOURCE CODE:

GO TO MANAGE JENKINS >> TOOL >> MAVEN
ADD INSTALLER WITH THE NAME OF maven WITH VERSION (3.8.6)
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```
node {
  stage ("build"){
    sh ‘mvn clean package’
  }
}
```

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STAGE-3 : SCAN THE SOURCE CODE:

LOGIN INTO SONAR
GO TO MY ACCOUNT >> SECURITY >> ENTER A TOKEN NAME AND GENERATE A TOKEN
NOW INTEGRATE THE SONAR TO JENKINS
MANAGE JENKINS >> CONFIGURE SYSTEM >> SONAR SERVER :
NAME: mysonar
Url: PublicIP:9000/
credentials: —— (secretkey)

```
node {
  stage("Test") {
    withSonarQubeEnv('mysonar')
    {
      def mavenHome = tool name: "maven", type: "maven"
      def mavenCMD = "${mavenHome}/bin/mvn"
      sh "${mavenCMD} sonar:sonar"
    }
  }
}
```

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STAGE-4 : UPLOAD WAR FILE INTO ARTIFACTORY:

CREATE A REPO IN NEXUS :
Name: mustafa-releases
formar: maven2 hosted
Version policy: releases
Deployment policy: allow redeploy
INSTALL NEXUS ARTIFACTORY UPLOAD PLUGIN
To GENERATE THE PIPELINE SYNTAX, WE NEED TO USE NEXUS ARTIFACTORY UPLOADER IN PIPELINE SYNTAX AND GIVE ALL INPUTS AND GENERATE PIPELINE SYNTAX
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```
node {
  stage ("upload") {
    nexusArtifactUploader artifacts: [[artifactId: 'myweb', classifier: '', file: 'target/myweb-8.3.5.war', type: '.war']], credentialsId: '4949746a-34ae-4d80-acaa-a73815fda645', groupId: 'in.javahome', nexusUrl: '18.117.135.27:8081', nexusVersion: 'nexus3', protocol: 'http', repository: 'mustafa-releases', version: '8.3.5'
  }
}
```

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STAGE-5 : DEPLOY THE APPLICATION INTO TOMCAT WEB SERVER:

AND USE PIPELINE SYNTAX

```
node {
  stage ("deploy") {
     generate a script and paste it here
    }
  }
}
```

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