

***System Admin***

***Training Assignments***

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| Program Code |  |
| Issue/Revision | x/y |
| Effective date | 04/Aug /2023 |

**Assignment day 17: Setting Up CI/CD with Jenkins**

**Task 1 - Setup Jenkins Server:**

Set up a virtual machine or cloud instance (e.g., AWS EC2) with Linux (Ubuntu) as the operating system. Install Jenkins on this server.

**Task 2 - Install Required Plugins:**

Inside Jenkins, install the necessary plugins for your CI/CD tasks. Commonly used plugins include Git, Pipeline, Docker, and GitHub.

**Task 3 - Create a Simple Pipeline:**

Create a Jenkins pipeline that builds a sample application (e.g., a simple "Hello World" web app) and deploys it.

**Task 4 - Trigger and Monitor the Pipeline:**

Trigger the pipeline manually and monitor the progress. Ensure that it builds, tests, and deploys the application as expected.

**Solution**

**Task 1 - Setup Jenkins Server:**

Install Jenkins on Ubuntu: Follow these steps to install Jenkins on Ubuntu:

* Update the package list:

$ *sudo apt update*

* Install Java:

$ *sudo apt install openjdk-11-jdk*

* Download and install Jenkins:

*$ wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -*

*sudo sh -c 'echo deb http://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'*

*$ sudo apt update*

*$ sudo apt install jenkins*

* Start Jenkins:

*$ sudo systemctl start jenkins*

* Enable Jenkins to start on boot:

*$ sudo systemctl enable jenkins*

* Retrieve the initial admin password:

*$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword*

* Access Jenkins in your web browser at **http://<your-server-IP>:8080**, and enter the initial admin password to complete the setup.

**Task 2 - Install Required Plugins:**

* Log in to Jenkins.
* Click on "Manage Jenkins" in the left sidebar.
* Click on "Manage Plugins."
* In the "Available" tab, search for and select the desired plugins. Click "Install without restart."

**Task 3 - Create a Simple Pipeline:**

* Create a Jenkinsfile (e.g., Jenkinsfile.groovy) in your project repository with the pipeline script. Here's a basic example:

*pipeline {*

*agent any*

*stages {*

*stage('Build') {*

*steps {*

*// Your build commands here (e.g., compiling code)*

*}*

*}*

*stage('Test') {*

*steps {*

*// Your testing commands here (e.g., running tests)*

*}*

*}*

*stage('Deploy') {*

*steps {*

*// Your deployment commands here (e.g., deploying to a web server)*

*}*

*}*

*}*

*}*

* Create a new Pipeline job in Jenkins, linking it to your project's Git repository and specifying the Jenkinsfile location.

**Task 4 - Trigger and Monitor the Pipeline:**

* In Jenkins, go to the pipeline job you created.
* Click "Build Now" to manually trigger the pipeline.
* Monitor the build progress and console output for any errors.