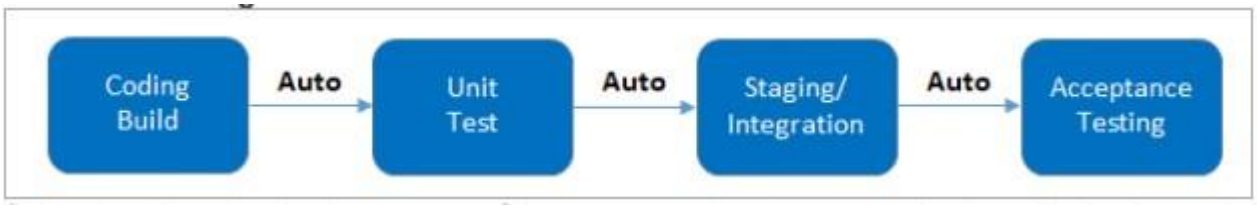
JENKINS

What is Jenkins

1. Jenkins is an open-source automation server
2. Jenkins is used for continuous integration (CI) and continuous deployment (CD) in software development
3. It helps to automate the process of building, testing and deployment.
4. It can consist of plugins
5. It was developed by sun micro systems but Oracle buy from them and they named as Jenkins

What is continuous integration (CI)



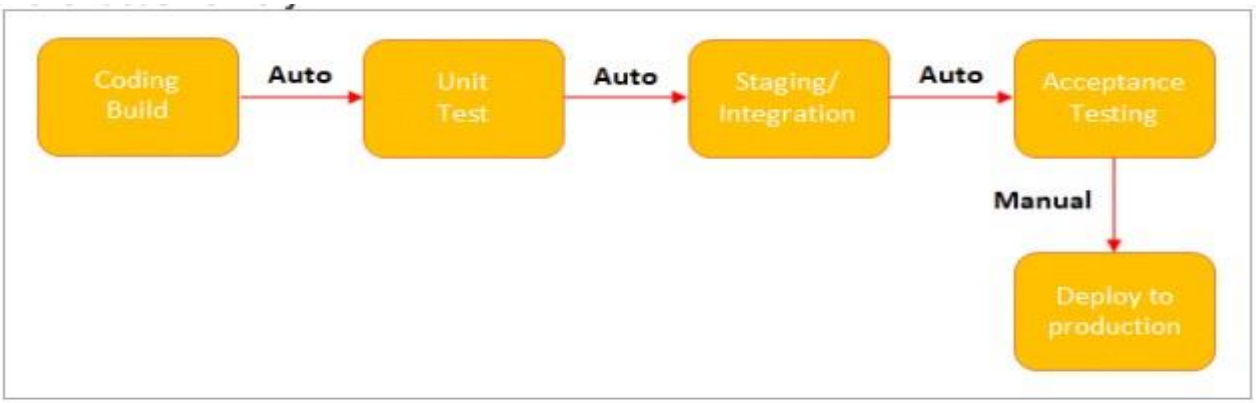
Continuous integration means when developer can release the code for build and test, if the code can fail to build then that code can be return to the developer and after modifying the code it will again perform the build, if code failed in any stage, it can repeat the process until code get success

What is continuous deployment (CD)

There are two types of deployments

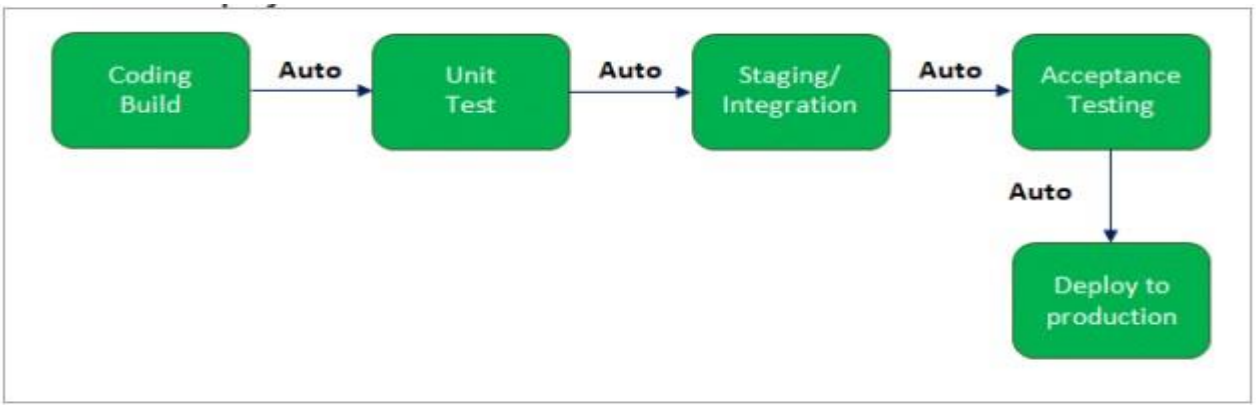
1. Continuous delivery
2. Continuous deployment

Continuous delivery:



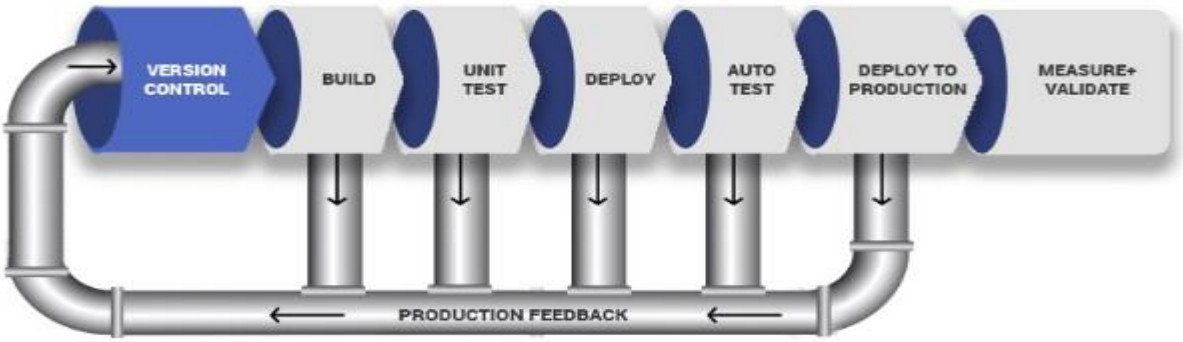
In continuous delivery the production deployment is done by manually

Continuous deployment:



In continuous deployment the production deployment is done by automatically

what is pipe line in (CI/CD)



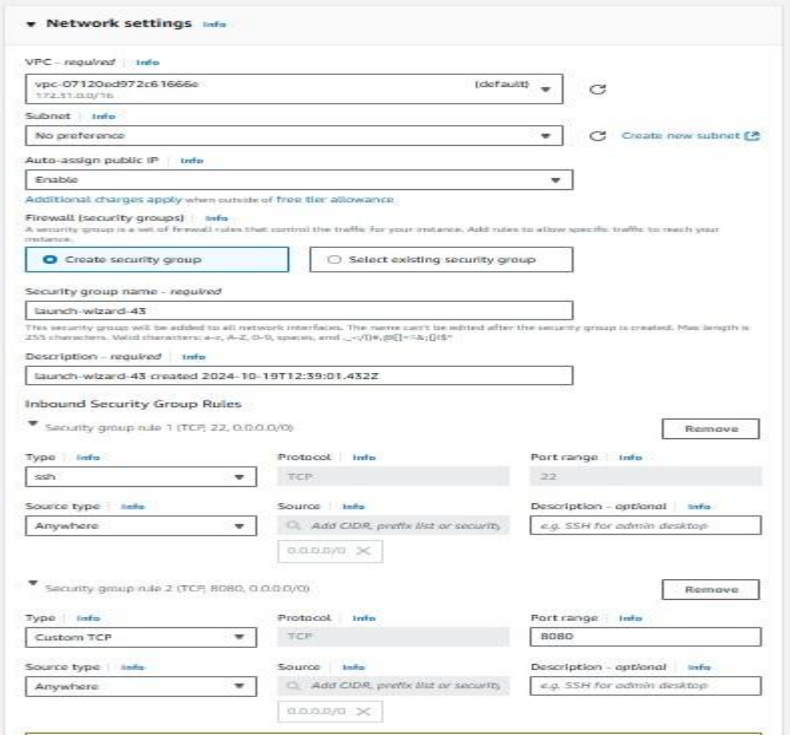
In (CI/CD) pipeline after developing the code from developers it can perform the build stage, if build is success, then the code will move to unit test, if unit test is success, then the code will move to deploy stage, if deployment get success, then the code will move to auto test if auto test is done then code will deploy to the production if the code is fail in any stage then the code can return to the developer and again starts from first step and after that we will monitor the code.

Steps to create Jenkins server

Step 1:

1. Launch the instance with ubuntu
2. Click on launch instance

    - Give the name for instance
    - Select the AMI as ubuntu
    - Select the created key pair
    - Click on edit for network settings in that click on add security group rules with port number 8080



- Finally click on launch instance

Step 2:

1. Select the created instance and click on connect and connect directly to the terminal
2. After connecting to the Jenkins terminal go through with some command

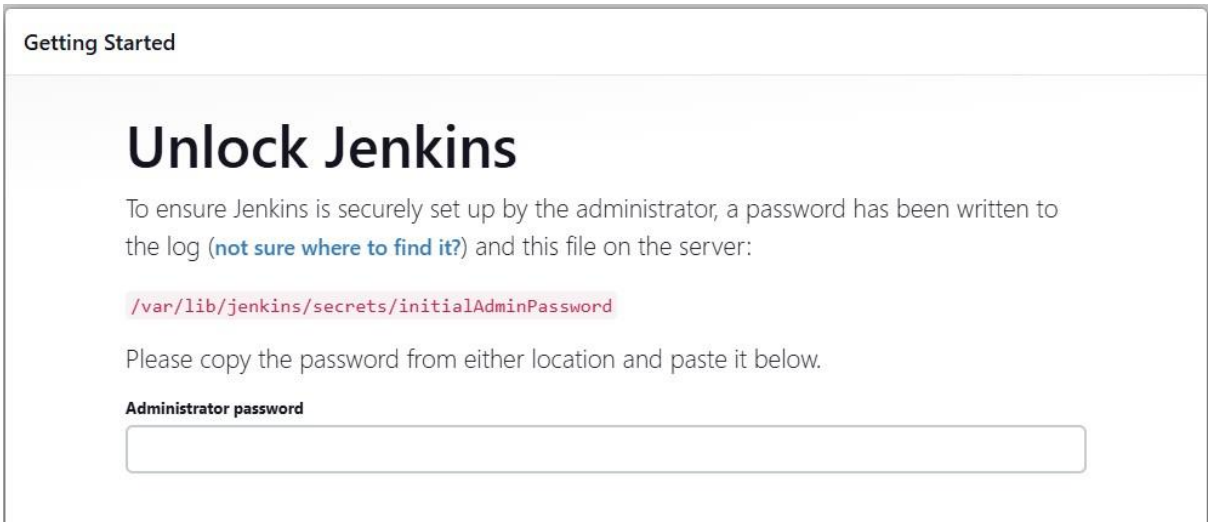
Commands	
sudo -i	To switch root user
apt update -y	To update the server
apt install openjdk-17-jre -y	To install java packages
java --version	To check the version of java
apt install maven -y	To install maven packages
mvn -v	To see the version of maven
mvn clean package	To get build packages

3. Install Jenkins package in terminal
4. Type Jenkins.io in new web page
    - Select the installing Jenkins
    - Select the Linux option
    - Copy the path sudo wget -O /usr/share/keyrings/jenkins-keyring.asc\https://pkg.jenkins.io/debianstable/jenkins.io-2023.key and paste in terminal
    - Copy the second path echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]" \ https://pkg.jenkins.io/debian-stable binary/ | sudo tee \ /etc/apt/sources.list.d/jenkins.list > /dev/null and paste in terminal
    - Type apt-get update -y in terminal to update server
    - Type apt-get install Jenkins in terminal to install jenkins

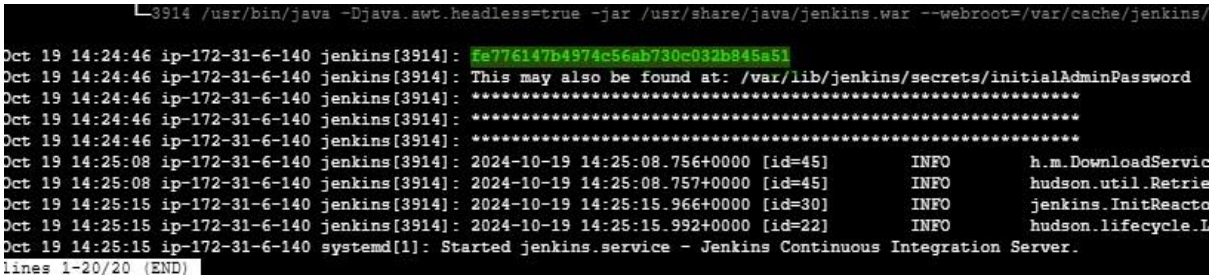
- Type systemctl start Jenkins in terminal to start the Jenkins server
- Type systemctl status Jenkins in terminal to check the status of Jenkins

Step 3:

1. Copy the Jenkins public IP and paste the public IP with port number :8080 in new web page
2. It will connect Jenkins server as shown in below figure



3. Go to Jenkins terminal
4. Copy the key in terminal as shown in below figure



5. Otherwise, to copy the key we use command

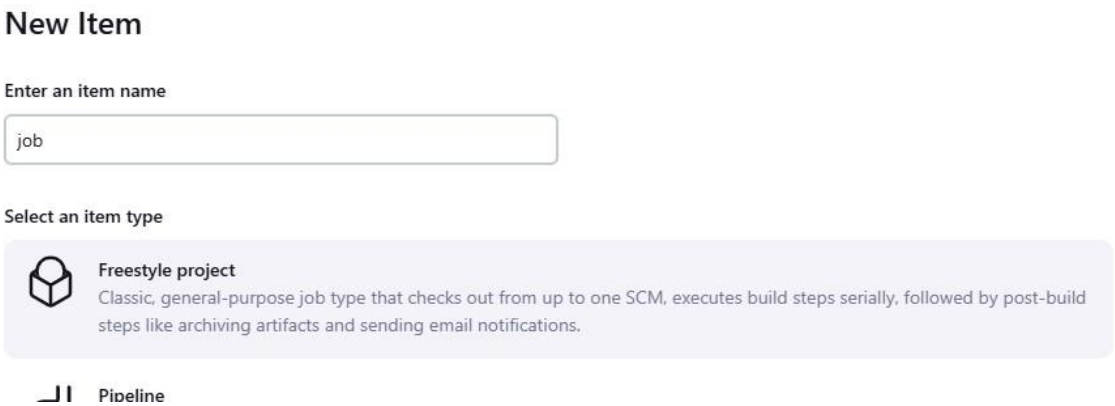
Command	
cd /var/lib/jenkins	It is default path in jenkins
ll	It is used to list the files
cd secrets	To change directory

ll	To list the files
cat initialAdminpassword	To see password

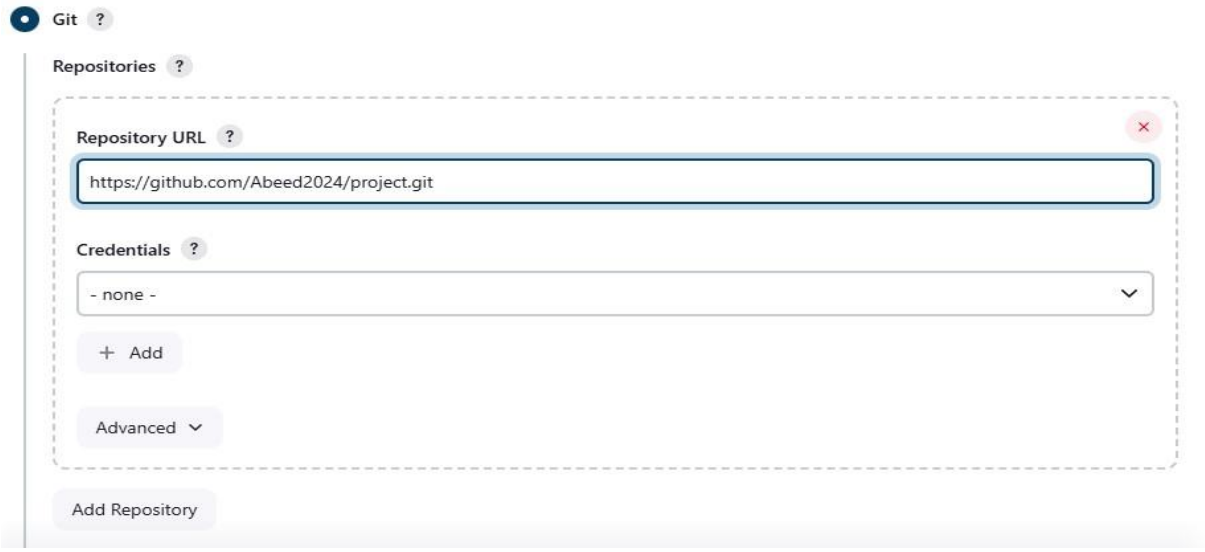
6. After seeing the password just copy the password and paste in jenkins server in administrator password block and click on continue
7. Select the install suggested plugins
8. Provide user name as user and password as jenkins and confirm password as created password and full name as optional and email as any email and click on save continue
9. Click on save and finish
10. Then you see jenkins dashboard

Step 4:

1. Click on new item in jenkins dashboard to create a new job with freestyle or pipeline it is optional
2. Give name as job and select free style and click on ok option as shown in below figure



3. Select git in source code management
    - Copy the URL of java code in github
    - No need to provide credentials for git as shown in below figure



- Provide main in branch specifier block

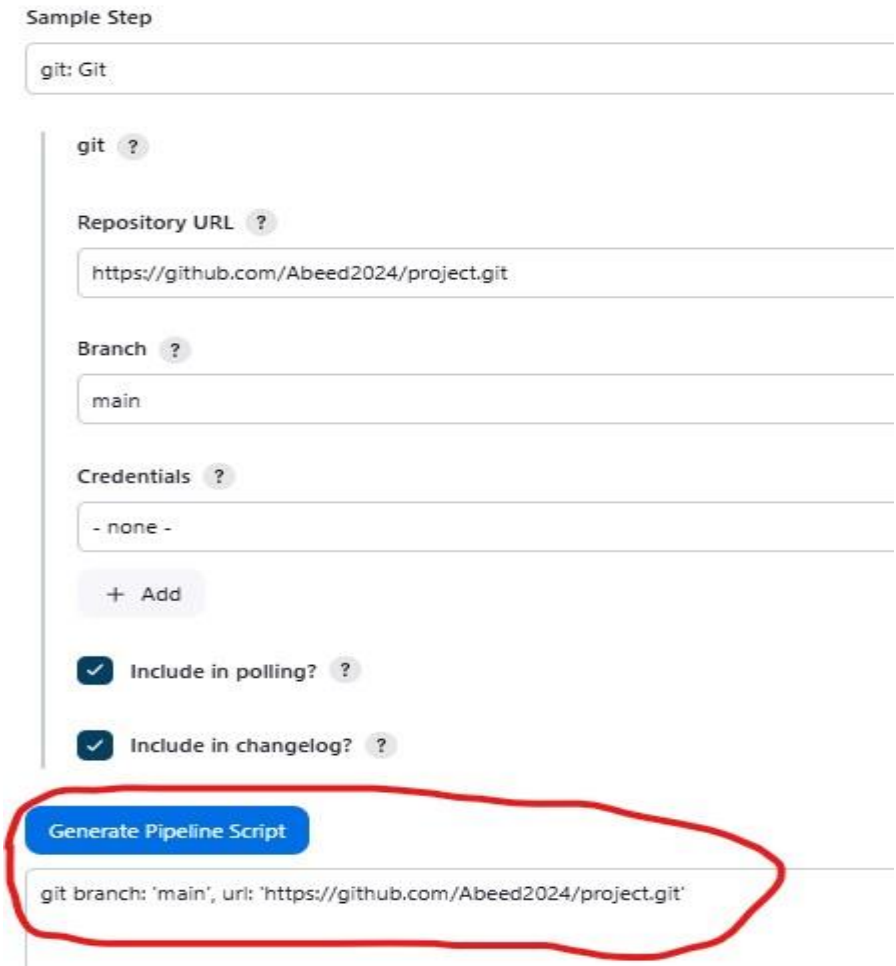
- Select invoke top-level maven targets in add build steps
- Give clean package in goals block as shown in below figure

- Click on apply and save

- Click on build now option then it will show build is success or failed

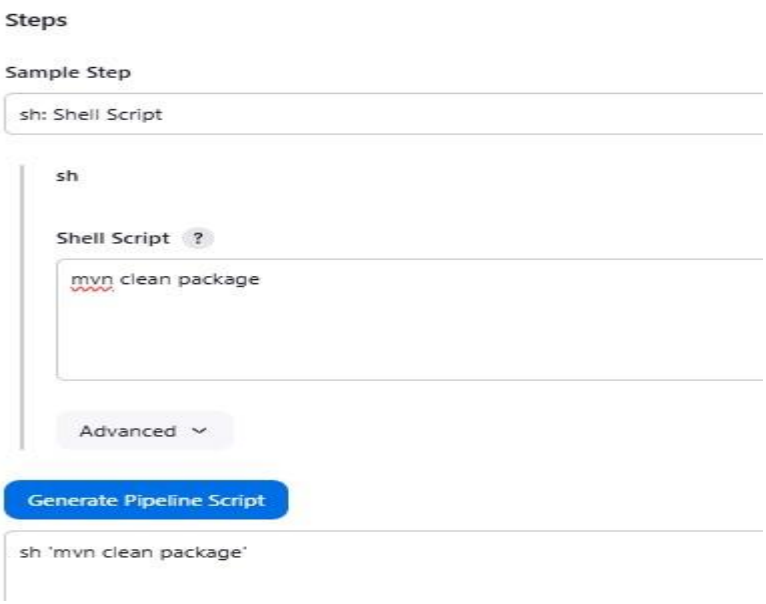
Step 5:

1. Click on dashboard
2. Click on new item and create a job with pipeline and click on ok
3. Select pipeline script and select hello world then sample script is created
4. Click on pipeline syntax
5. Select git in sample step
6. Paste the github URL in repository URL
7. Give main in branch
8. Click on generate pipeline script and copy the URL as shown in below figure



9. Paste the copied URL in pipeline script as shown in below figure

10. Click on apply and save
11. Click on build now option it can show the build is success are failed
12. Create pipeline script for build
13. Click on pipeline script
14. Select the sh: shell script in sample step
15. Give mvn clean package in shell script
16. Click on generate pipe line script then script is generated
17. Copy the generated script as shown in below figure



18. Paste the copied URL in pipeline script as shown in below figure

19. Click on apply and save
20. Click on build now option it can show the build is success or fail
21. If build is success or fail that can be seen in build history as shown in below figure