Jenkins

- Jenkins is a open-source automation tool written in java with plugins built for continuous integration purposes.
- Jenkins integrates the development life-cycle process of all kinds including build, document, test packages, stage, deploy, static analysis and much more.
- Jenkins achieves continuous integration with the help of plugins

Process

=> Developers check their source code

=> Jenkins will pick up the changed source code and trigger a build and run any task it required for CI

=> The build output will be available in the Jenkins dashboards. Then required notification automatically send to the developer

Continuous Integration (CI)

- It is a development practice can configure the shared repository which will make changes on code in every day.
- By this we can find issues easily.

Continuous Deployment and Delivery (CD)

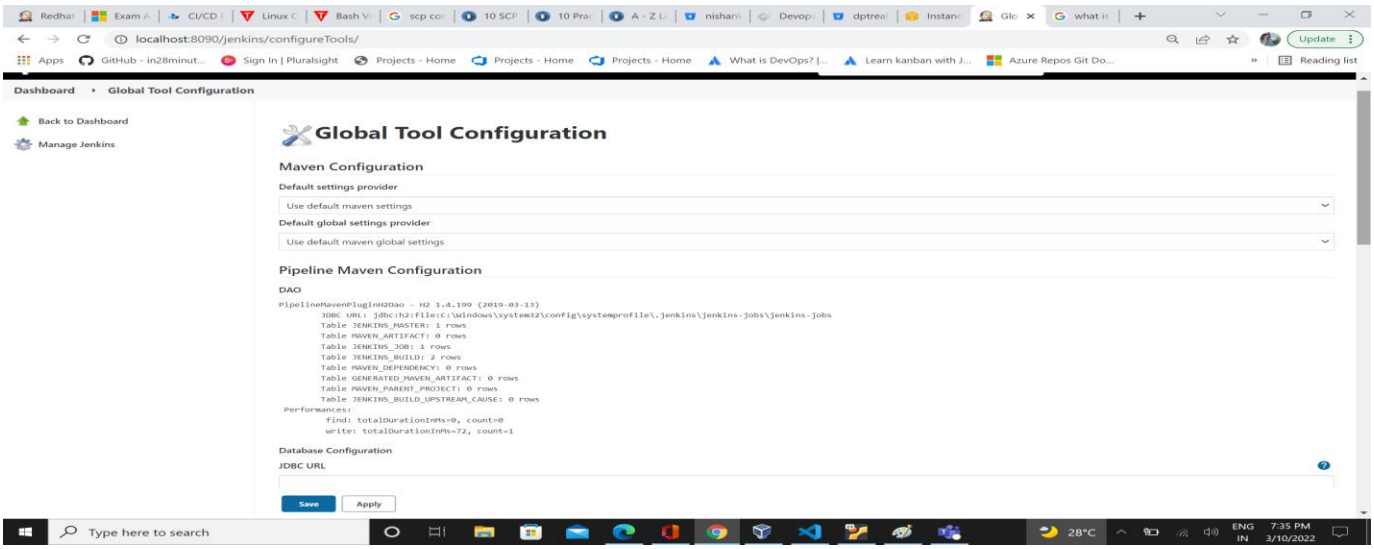
- Continuous deployment is a strategy for software releases where in any code commit that passes the automated testing phase is automatically released into the production environment, making changes that are visible to the software's users.
- The key difference is that with Continuous Deployment, your application is run through an automated pipeline workflow. Whereas with Continuous Delivery, your application is ready to be deployed whenever your team decides it's time to do so.
- Example of continuous delivery:
    - Updating software automatically on a mobile phone.

Install Jenkins in Ubuntu

- Step 1: check java installed or not
    - Command: java
- Step 2: install java
    - Command: sudo apt install default –jre
    - Check version – java –version
- Step 3: Install jenkins
        - Commands:
            - curl -fsSL https://pkg.jenkins.io/debian/jenkins.io.key | sudo tee \ /usr/share/keyrings/jenkins-keyring.asc > /dev/null
            - echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \ https://pkg.jenkins.io/debian binary/ | sudo tee \ /etc/apt/sources.list.d/jenkins.list > /dev/null
            - sudo apt-get update
            - Sudo apt install Jenkins
            - sudo Systemctl enable Jenkins
            - Sudo systemctl start Jenkins
- Step 4: Add password
    - After completing the installation, you need to give admin password for further process.
    - Copy and paste the password in the respective file which is shown in browser.
    - Better to install suggested plugins.
- Step 5: User credentials
    - Give user credentials and password for you Jenkins workspace
    -

Tool Configuration in Jenkins

- Go to Manage Jenkins on Jenkins dashboard
- Select Global tool configurations



Install Plugins

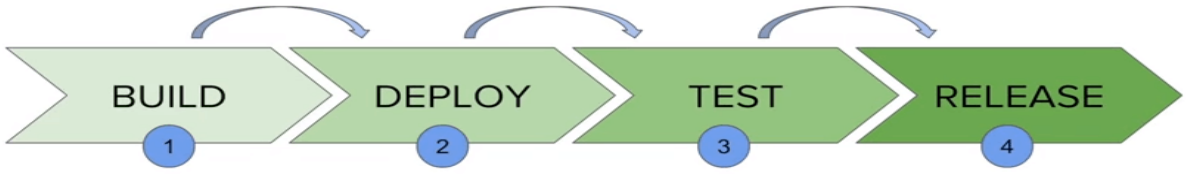
- Go to Manage Jenkins on Jenkins dashboard
- Select Manage Jenkins
    - Select plugins and install

Job Creation

- Step 1:
    - Login to the jenkins dashboard
- Step 2:
    - Select New item
- Step 3:
    - Select job type
- Step 4:
    - Configure job preferences
- Step 5:
    - Build and execute the job

Pipeline

- Jenkins pipeline is a single platform to manage the entire workflow by creating the pipeline as a code and put it in the Jenkins file.
- To define a jenkins we use DSL (Domain Specific Language) plugins whish is used to define a job in programmatic form.
- Jenkins job described by Groovy Based Language (Scripting Language).
- Groovy Based Language is similar to java, simple and dynamic.



Pipeline plugins

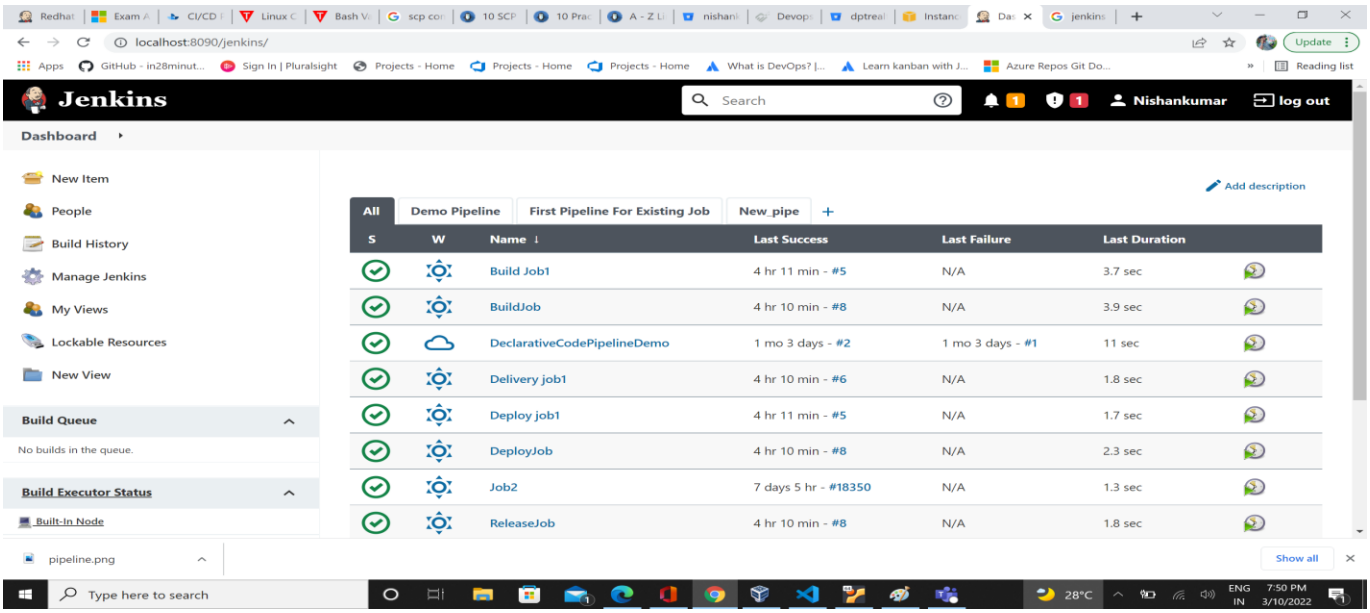
- Jenkins pipeline
- Delivery pipeline

Types of Pipelines

- Declarative pipeline
- Scripted pipeline

Demo Jobs

Jobs in dashboard



Upstream and Downstream integration

Step 1:

First job is the upstream job of all the remaining jobs. So, no need to configure anything here.

Step 2:

- Go to 2nd job
    - Select configure.
    - In the build triggers section select “Build after other projects are built”.
    - Provide the upstream job of present job.

Step 3:

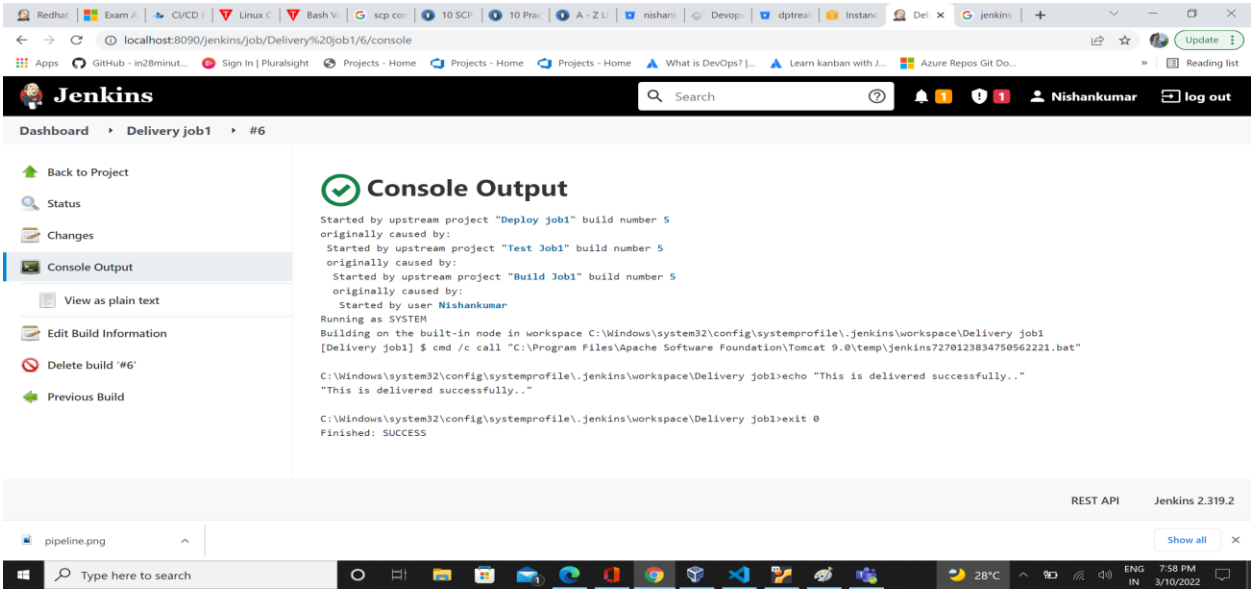
Same as 2nd job configuration for all the jobs till the end job.

Step 4:

Go and execute (Build now) in the 1st job.

Step 5:

Verify all the jobs are executed automatically.



This above image is confirmed you; all the jobs are executed successfully.