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SEMESTER: 7TH

SECTION: A

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Day 1: Installing Git and VsCode Configuration

Bash Commands:

Git clone : `git clone https://github.com/arpi2003ta/EV-Dashboard.git`

```
devops@cme615lab04 MINGW64 /d/Arpita/day1 (main)
```

```
$ cd EV-Dashboard/
```

```
devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)
```

```
$ git init
```

Reinitialized existing Git repository in D:/Arpita/day1/EV-Dashboard/.git/

```
devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)
```

```
$ git config --global user.email natharpita2004@gmail.com
```

```
devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)
```

```
$ git config --global user.name "arpita"
```

```
devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)
```

```
$ git push
```

Everything up-to-date

```
devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)
```

```
$ git status
```

On branch main

Your branch is up to date with 'origin/main'.

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git restore <file>..." to discard changes in working directory)

modified: README.md

no changes added to commit (use "git add" and/or "git commit -a")

devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)

\$ git add .

devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)

\$ git commit -am "new commit"

[main 094261d] new commit

1 file changed, 2 insertions(+), 1 deletion(-)

devops@cme615lab04 MINGW64 /d/Arpita/day1/EV-Dashboard (main)

\$ git push

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Delta compression using up to 8 threads

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 321 bytes | 321.00 KiB/s, done.

Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To <https://github.com/ arpi2003ta /EV-Dashboard.git>

9abde26..094261d main -> main

These are the commands used to setup Git with Visual Studio Code in our local machine along with the output beneath.

Day 2:

Installing chocolatey and other requirements

Link: <https://docs.chocolatey.org/en-us/choco/setup/>

To install chocolatey with cmd.exe run the command

```
@"%SystemRoot%\System32\WindowsPowerShell\v1.0\powershell.exe" -NoProfile -InputFormat None -ExecutionPolicy Bypass -Command "[System.Net.ServicePointManager]::SecurityProtocol = 3072; iex ((New-Object System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1'))" && SET "PATH=%PATH%;%ALLUSERSPROFILE%\chocolatey\bin"
```

```
C:\Windows\System32>@"%SystemRoot%\System32\WindowsPowerShell\v1.0\powershell.exe" -NoProfile -InputFormat None -ExecutionPolicy Bypass -Command "[System.Net.ServicePointManager]::SecurityProtocol = 3072; iex ((New-Object System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1'))" && SET "PATH=%PATH%;%ALLUSERSPROFILE%\chocolatey\bin"
WARNING: 'choco' was found at 'C:\ProgramData\chocolatey\bin\choco.exe'.
WARNING: An existing Chocolatey installation was detected. Installation will not continue. This script will not overwrite existing installations.
If there is no Chocolatey installation at 'C:\ProgramData\chocolatey', delete the folder and attempt the installation again.

Please use choco upgrade chocolatey to handle upgrades of Chocolatey itself.
If the existing installation is not functional or a prior installation did not complete, follow these steps:
- Backup the files at the path listed above so you can restore your previous installation if needed.
- Remove the existing installation manually.
- Rerun this installation script.
- Reinstall any packages previously installed, if needed (refer to the lib folder in the backup).

Once installation is completed, the backup folder is no longer needed and can be deleted.
```

Via Powershell (Required):

Install with PowerShell.exe

With PowerShell, there is an additional step. You must ensure [Get-ExecutionPolicy](#) is not Restricted. We suggest using `Bypass` to bypass the policy to get things installed or `AllSigned` for quite a bit more security.

- Run `Get-ExecutionPolicy`. If it returns `Restricted`, then run `Set-ExecutionPolicy AllSigned` or `Set-ExecutionPolicy Bypass -Scope Process`.
- Now run the following command:

After this we need to execute:

```
Set-ExecutionPolicy Bypass -Scope Process -Force;
```

```
[System.Net.ServicePointManager]::SecurityProtocol =
```

```
[System.Net.ServicePointManager]::SecurityProtocol -bor 3072; iex ((New-Object
```

```
System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1'))
```

Next we need to install all the required tools:

Vagrant

Git

correto11jdk

maven

awscli

intellijidea community

vscode

sublimetext3.app

For this we need to go to:

1. Open Powershell as an administrator.
2. <https://community.chocolatey.org/packages> to get the required packages.

Here we can search for the required packages and install them in our machine.

```
PS C:\WINDOWS\system32> choco install vagrant -y
Chocolatey v1.3.1
Installing the following packages:
vagrant
By installing, you accept licenses for the packages.
Progress: Downloading vagrant 2.4.9... 100%

vagrant v2.4.9 [Approved]
vagrant package files install completed. Performing other installation steps.
Downloading vagrant 64 bit
from 'https://releases.hashicorp.com/vagrant/2.4.9/vagrant_2.4.9_windows_amd64.msi'
Progress: 100% - Completed download of C:\Users\...\AppData\Local\Temp\chocolatey\vagrant\2.4.9\vagrant_2.4.9_windows_amd64.msi (236.43 MB).
Download of vagrant_2.4.9_windows_amd64.msi (236.43 MB) completed.
Hashes match.
Installing vagrant...
vagrant has been installed.
```

Git:

```
PS C:\WINDOWS\system32> choco install git -y
Chocolatey v1.3.1
Installing the following packages:
git
By installing, you accept licenses for the packages.
Progress: Downloading git.install 2.51.2... 100%
Progress: Downloading git 2.51.2... 100%

git.install v2.51.2 [Approved]
git.install package files install completed. Performing other installation steps.
Using Git LFS
Installing 64-bit git.install...
git.install has been installed.
git.install installed to 'C:\Program Files\Git'
git.install can be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type `refreshenv`).
The install of git.install was successful.
Software installed to 'C:\Program Files\Git\'

git v2.51.2 [Approved]
git package files install completed. Performing other installation steps.
The install of git was successful.
Software installed to 'C:\ProgramData\chocolatey\lib\git'

Chocolatey installed 2/2 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
```

Corretto11jdk

```

PS C:\WINDOWS\system32> choco install corretto11jdk -y
Chocolatey v1.3.1
Installing the following packages:
corretto11jdk
By installing, you accept licenses for the packages.
Progress: Downloading corretto11jdk 11.0.29.71... 100%

corretto11jdk v11.0.29.71 [Approved]
corretto11jdk package files install completed. Performing other installation steps.
Downloading corretto11jdk 64 bit
  from 'https://corretto.aws/downloads/resources/11.0.29.71/amazon-corretto-11.0.29.71-windows-x64.msi'
Progress: 100% - Completed download of C:\Users\... \AppData\Local\Temp\chocolatey\corretto11jdk\11.0.29.71\amazon-co
rretto-11.0.29.71-windows-x64.msi (161.7 MB).
Download of amazon-corretto-11.0.29.71-windows-x64.msi (161.7 MB) completed.
Hashes match.
Installing corretto11jdk...
corretto11jdk has been installed.
  corretto11jdk may be able to be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type 'refreshenv').
The install of corretto11jdk was successful.
  Software installed as 'msi', install location is likely default.

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

```

Maven

```

PS C:\WINDOWS\system32> choco install maven -y
Chocolatey v1.3.1
Installing the following packages:
maven
By installing, you accept licenses for the packages.
Progress: Downloading maven 3.9.11... 100%

maven v3.9.11 [Approved] - Possibly broken
maven package files install completed. Performing other installation steps.
C:\Users\... \.m2
PATH environment variable does not have C:\ProgramData\chocolatey\lib\maven\apache-maven-3.9.11\bin in it. Adding...
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type 'refreshenv').
The install of maven was successful.
  Software installed to 'C:\ProgramData\chocolatey\lib\maven\apache-maven-3.9.11'

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

Enjoy using Chocolatey? Explore more amazing features to take your
experience to the next level at
https://chocolatey.org/compare

```

AWSCLI

```

PS C:\WINDOWS\system32> choco install awscli -y
Chocolatey v1.3.1
Installing the following packages:
awscli
By installing, you accept licenses for the packages.
Progress: Downloading awscli 2.31.34... 100%

awscli v2.31.34 [Approved]
awscli package files install completed. Performing other installation steps.
Downloading awscli 64 bit
  from 'https://awscli.amazonaws.com/AWSCLIV2-2.31.34.msi'
Progress: 100% - Completed download of C:\Users\ [redacted]\AppData\Local\Temp\chocolatey\awscli\2.31.34\AWSCLIV2-2.31.34.msi
(39.65 MB).
Download of AWSCLIV2-2.31.34.msi (39.65 MB) completed.
Hashes match.
Installing awscli...
awscli has been installed.
  awscli may be able to be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type 'refreshenv').
The install of awscli was successful.
  Software installed as 'MSI', install location is likely default.

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

```

IntelliJidea

```

PS C:\WINDOWS\system32> choco install intelliijidea-community -y
Chocolatey v1.3.1
Installing the following packages:
intelliijidea-community
By installing, you accept licenses for the packages.
Progress: Downloading intelliijidea-community 2025.2.4... 100%

intelliijidea-community v2025.2.4 [Approved]
intelliijidea-community package files install completed. Performing other installation steps.
WARNING: No registry key found based on 'IntelliJ IDEA Community Edition*'
C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2025.2.4
Downloading intelliijidea-community 64 bit
  from 'https://download.jetbrains.com/idea/ideaIC-2025.2.4.exe'
Progress: 100% - Completed download of C:\Users\ [redacted]\AppData\Local\Temp\chocolatey\intelliijidea-community\2025.2.4\ideaIC-2025.2.4.exe (952.62 MB).
Download of ideaIC-2025.2.4.exe (952.62 MB) completed.
Hashes match.
Installing intelliijidea-community...
intelliijidea-community has been installed.
  intelliijidea-community may be able to be automatically uninstalled.
The install of intelliijidea-community was successful.
  Software installed to 'C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2025.2.4'

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

```

Sublimetext3

```

PS C:\WINDOWS\system32> choco install sublimetext3 -y
Chocolatey v1.3.1
Installing the following packages:
sublimetext3
By installing, you accept licenses for the packages.
Progress: Downloading SublimeText3 3.2.2... 100%

SublimeText3 v3.2.2 [Approved]
sublimetext3 package files install completed. Performing other installation steps.
Downloading SublimeText3 64 bit
  from 'https://download.sublimetext.com/Sublime%20Text%20Build%203211%20x64%20Setup.exe'
Progress: 100% - Completed download of C:\Users\ [redacted]\AppData\Local\Temp\chocolatey\SublimeText3\3.2.2\Sublime Text Build 3211 x64 Setup.exe (10.42 MB).
Download of Sublime Text Build 3211 x64 Setup.exe (10.42 MB) completed.
Hashes match.
Installing SublimeText3...
SublimeText3 has been installed.
  sublimetext3 can be automatically uninstalled.
The install of sublimetext3 was successful.
  Software installed to 'C:\Program Files\Sublime Text 3\'

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

```


DAY 3 (Installing via vagrant)

```

devops@cme615lab04 MINGW64 ~
$ cd "D:\Arpita"

devops@cme615lab04 MINGW64 /d/Arpita
$ ls
day1/

devops@cme615lab04 MINGW64 /d/Arpita
$ mkdir centos

devops@cme615lab04 MINGW64 /d/Arpita
$ cd centos/

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant init generic/centos7 --box-version 4.3.12
A `Vagrantfile` has been placed in this directory. You are now
ready to `vagrant up` your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
`vagrantup.com` for more information on using Vagrant.

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ ls
Vagrantfile

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ cat Vagrantfile
# -*- mode: ruby -*-
# vi: set ft=ruby :

# All Vagrant configuration is done below. The "2" in Vagrant.configure
# configures the configuration version (we support older styles for
# backwards compatibility). Please don't change it unless you know what
# you're doing.
Vagrant.configure("2") do |config|
  # The most common configuration options are documented and commented below.
  # For a complete reference, please see the online documentation at
  # https://docs.vagrantup.com.

  # Every Vagrant development environment requires a box. You can search for
  # boxes at https://vagrantcloud.com/search.
  config.vm.box = "generic/centos7"
  config.vm.box_version = "4.3.12"

  # Disable automatic box update checking. If you disable this, then
  # boxes will only be checked for updates when the user runs
  # `vagrant box outdated`. This is not recommended.
  # config.vm.box_check_update = false

  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine. In the example below,
  # accessing "localhost:8080" will access port 80 on the guest machine.
  # NOTE: This will enable public access to the opened port
  # config.vm.network "forwarded_port", guest: 80, host: 8080

  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine and only allow access
  # via 127.0.0.1 to disable public access
  # config.vm.network "forwarded_port", guest: 80, host: 8080, host_ip: "127.0.0.1"

  # Create a private network, which allows host-only access to the machine
  # using a specific IP.
  # config.vm.network "private_network", ip: "192.168.33.10"

  # Create a public network, which generally matched to bridged network.
  # Bridged networks make the machine appear as another physical device on

```

```

# your network.
# config.vm.network "public_network"

# Share an additional folder to the guest VM. The first argument is
# the path on the host to the actual folder. The second argument is
# the path on the guest to mount the folder. And the optional third
# argument is a set of non-required options.
# config.vm.synced_folder "../data", "/vagrant_data"

# Disable the default share of the current code directory. Doing this
# provides improved isolation between the vagrant box and your host
# by making sure your Vagrantfile isn't accessible to the vagrant box.
# If you use this you may want to enable additional shared subfolders as
# shown above.
# config.vm.synced_folder ".", "/vagrant", disabled: true

# Provider-specific configuration so you can fine-tune various
# backing providers for Vagrant. These expose provider-specific options.
# Example for VirtualBox:
#
# config.vm.provider "virtualbox" do |vb|
#   # Display the VirtualBox GUI when booting the machine
#   vb.gui = true
#
#   # Customize the amount of memory on the VM:
#   vb.memory = "1024"
# end
#
# View the documentation for the provider you are using for more
# information on available options.

# Enable provisioning with a shell script. Additional provisioners such as
# Ansible, Chef, Docker, Puppet and Salt are also available. Please see the
# documentation for more information about their specific syntax and use.
# config.vm.provision "shell", inline: <<-SHELL
#   apt-get update
#   apt-get install -y apache2
# SHELL
end

```

devops@cme615lab04 MINGW64 /d/Arpita/centos

```

$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Box 'generic/centos7' could not be found. Attempting to find and
install...
    default: Box Provider: virtualbox
    default: Box Version: 4.3.12
==> default: Loading metadata for box 'generic/centos7'
    default: URL: https://vagrantcloud.com/api/v2/vagrant/generic/centos7
==> default: Adding box 'generic/centos7' (v4.3.12) for provider: virtualbox
(amd64)
    default: Downloading:
https://vagrantcloud.com/generic/boxes/centos7/versions/4.3.12/providers/virtualbox
/amd64/vagrant.box
    default:
An error occurred while downloading the remote file. The error
message, if any, is reproduced below. Please fix this error and try
again.

Recv failure: Connection was reset

```

devops@cme615lab04 MINGW64 /d/Arpita/centos

```

$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Box 'generic/centos7' could not be found. Attempting to find and
install...
    default: Box Provider: virtualbox
    default: Box Version: 4.3.12
==> default: Loading metadata for box 'generic/centos7'
    default: URL: https://vagrantcloud.com/api/v2/vagrant/generic/centos7
==> default: Adding box 'generic/centos7' (v4.3.12) for provider: virtualbox
(amd64)
    default: Downloading:
https://vagrantcloud.com/generic/boxes/centos7/versions/4.3.12/providers/virtualbox
/amd64/vagrant.box
==> default: Box download is resuming from prior download progress
    default:

```

```

default: Calculating and comparing box checksum...
==> default: Successfully added box 'generic/centos7' (v4.3.12) for 'virtualbox
(amd64)'!
==> default: Importing base box 'generic/centos7'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'generic/centos7' version '4.3.12' is up to date...
==> default: Setting the name of the VM: centos_default_1753957188636_24730
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
default: Adapter 1: nat
==> default: Forwarding ports...
default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
default:
default: Vagrant insecure key detected. Vagrant will automatically replace
default: this with a newly generated keypair for better security.
default:
default: Inserting generated public key within guest...
default: Removing insecure key from the guest if it's present...
default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version of
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you
see
default: shared folder errors, please make sure the guest additions within the
default: virtual machine match the version of VirtualBox you have installed on
default: your host and reload your VM.
default:
default: Guest Additions Version: 5.2.44
default: VirtualBox Version: 7.1

```

```

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant status
Current machine states:

```

```

default                               running (virtualbox)

```

The VM is running. To stop this VM, you can run `vagrant halt` to shut it down forcefully, or you can run `vagrant suspend` to simply suspend the virtual machine. In either case, to restart it again, simply run `vagrant up`.

```

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant ssh
[vagrant@centos7 ~]$ pwd
/home/vagrant
[vagrant@centos7 ~]$ exit
logout

```

```

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant status
Current machine states:

```

```

default                               running (virtualbox)

```

The VM is running. To stop this VM, you can run `vagrant halt` to shut it down forcefully, or you can run `vagrant suspend` to simply suspend the virtual machine. In either case, to restart it again, simply run `vagrant up`.

```

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant halt
==> default: Attempting graceful shutdown of VM...

```

```

devops@cme615lab04 MINGW64 /d/Arpita/centos
$ vagrant status
Current machine states:

```

```

default                               poweroff (virtualbox)

```

The VM is powered off. To restart the VM, simply run `vagrant up`

```
devops@cme615lab04 MINGW64 /d/Arpita/centos
```

```
$ ls -a
./ ../ .vagrant/ vagrantfile
```

```
devops@cme615lab04 MINGW64 /d/Arpita/centos
```

```
$ vagrant destroy
default: Are you sure you want to destroy the 'default' VM? [y/N] y
==> default: Destroying VM and associated drives...
```

```
devops@cme615lab04 MINGW64 /d/Arpita/centos
```

```
$ ls -a
./ ../ .vagrant/ vagrantfile
```

```
devops@cme615lab04 MINGW64 /d/Arpita/centos
```

```
$ vagrant status
Current machine states:
```

```
default                                not created (virtualbox)
```

The environment has not yet been created. Run `vagrant up` to create the environment. If a machine is not created, only the default provider will be shown. So if a provider is not listed, then the machine is not created for that environment.

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ vagrant init ubuntu/jammy64 --box-version 20241002.0.0
A `Vagrantfile` has been placed in this directory. You are now
ready to `vagrant up` your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
`vagrantup.com` for more information on using Vagrant.
```

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ cat Vagrantfile
# -*- mode: ruby -*-
# vi: set ft=ruby :
```

```
# All Vagrant configuration is done below. The "2" in Vagrant.configure
# configures the configuration version (we support older styles for
# backwards compatibility). Please don't change it unless you know what
# you're doing.
```

```
Vagrant.configure("2") do |config|
  # The most common configuration options are documented and commented below.
  # For a complete reference, please see the online documentation at
  # https://docs.vagrantup.com.
```

```
  # Every Vagrant development environment requires a box. You can search for
  # boxes at https://vagrantcloud.com/search.
  config.vm.box = "ubuntu/jammy64"
  config.vm.box_version = "20241002.0.0"
```

```
  # Disable automatic box update checking. If you disable this, then
  # boxes will only be checked for updates when the user runs
  # `vagrant box outdated`. This is not recommended.
  # config.vm.box_check_update = false
```

```
  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine. In the example below,
  # accessing "localhost:8080" will access port 80 on the guest machine.
  # NOTE: This will enable public access to the opened port
  # config.vm.network "forwarded_port", guest: 80, host: 8080
```

```
  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine and only allow access
  # via 127.0.0.1 to disable public access
  # config.vm.network "forwarded_port", guest: 80, host: 8080, host_ip: "127.0.0.1"
```

```
  # Create a private network, which allows host-only access to the machine
  # using a specific IP.
  # config.vm.network "private_network", ip: "192.168.33.10"
```

```
  # Create a public network, which generally matched to bridged network.
  # Bridged networks make the machine appear as another physical device on
  # your network.
  # config.vm.network "public_network"
```

```

# Share an additional folder to the guest VM. The first argument is
# the path on the host to the actual folder. The second argument is
# the path on the guest to mount the folder. And the optional third
# argument is a set of non-required options.
# config.vm.synced_folder "../data", "/vagrant_data"

# Disable the default share of the current code directory. Doing this
# provides improved isolation between the vagrant box and your host
# by making sure your Vagrantfile isn't accessible to the vagrant box.
# If you use this you may want to enable additional shared subfolders as
# shown above.
# config.vm.synced_folder ".", "/vagrant", disabled: true

# Provider-specific configuration so you can fine-tune various
# backing providers for Vagrant. These expose provider-specific options.
# Example for VirtualBox:
#
# config.vm.provider "virtualbox" do |vb|
#   # Display the VirtualBox GUI when booting the machine
#   vb.gui = true
#
#   # Customize the amount of memory on the VM:
#   vb.memory = "1024"
# end
#
# View the documentation for the provider you are using for more
# information on available options.

# Enable provisioning with a shell script. Additional provisioners such as
# Ansible, Chef, Docker, Puppet and Salt are also available. Please see the
# documentation for more information about their specific syntax and use.
# config.vm.provision "shell", inline: <<-SHELL
#   apt-get update
#   apt-get install -y apache2
# SHELL
end

```

devops@cme615lab04 MINGW64 /d/Arpita/ubuntu

```

$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Box 'ubuntu/jammy64' could not be found. Attempting to find and
install...
    default: Box Provider: virtualbox
    default: Box Version: 20241002.0.0
==> default: Loading metadata for box 'ubuntu/jammy64'
    default: URL: https://vagrantcloud.com/api/v2/vagrant/ubuntu/jammy64
==> default: Adding box 'ubuntu/jammy64' (v20241002.0.0) for provider: virtualbox
    default: Downloading:
https://vagrantcloud.com/ubuntu/boxes/jammy64/versions/20241002.0.0/providers/virtu
albox/unknown/vagrant.box
    default:
==> default: Successfully added box 'ubuntu/jammy64' (v20241002.0.0) for
'virtualbox'!
==> default: Importing base box 'ubuntu/jammy64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/jammy64' version '20241002.0.0' is up to
date...
==> default: Setting the name of the VM: ubuntu_default_1753958298574_19591
Vagrant is currently configured to create VirtualBox synced folders with
the `SharedFoldersEnableSymlinksCreate` option enabled. If the Vagrant
guest is not trusted, you may want to disable this option. For more
information on this option, please refer to the VirtualBox manual:

https://www.virtualbox.org/manual/ch04.html#sharedfolders

This option can be disabled globally with an environment variable:

VAGRANT_DISABLE_VBOXSYMLINKCREATE=1

or on a per folder basis within the Vagrantfile:

    config.vm.synced_folder '/host/path', '/guest/path',
    SharedFoldersEnableSymlinksCreate: false
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
==> default: Forwarding ports...

```

```

default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
default:
default: Vagrant insecure key detected. Vagrant will automatically replace
default: this with a newly generated keypair for better security.
default:
default: Inserting generated public key within guest...
default: Removing insecure key from the guest if it's present...
default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version of
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you
see
default: shared folder errors, please make sure the guest additions within the
default: virtual machine match the version of VirtualBox you have installed on
default: your host and reload your VM.
default:
default: Guest Additions Version: 6.0.0 r127566
default: VirtualBox Version: 7.1
==> default: Mounting shared folders...
default: D:/Arpita/ubuntu => /vagrant

```

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ vagrant status
```

```
Current machine states:
```

```
default                running (virtualbox)
```

The VM is running. To stop this VM, you can run ``vagrant halt`` to shut it down forcefully, or you can run ``vagrant suspend`` to simply suspend the virtual machine. In either case, to restart it again, simply run ``vagrant up``.

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ vagrant ssh
```

```
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 5.15.0-144-generic x86_64)
```

```

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/pro

```

```
System information as of Thu Jul 31 10:38:45 UTC 2025
```

```

System load:            0.82
Usage of /:             3.8% of 38.70GB
Memory usage:          21%
Swap usage:            0%
Processes:             122
Users logged in:       0
IPv4 address for enp0s3: 10.0.2.15
IPv6 address for enp0s3: fd17:625c:f037:2:29:1eff:fe73:1fd5

```

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: `sudo pro status`

New release '24.04.2 LTS' available.
Run `'do-release-upgrade'` to upgrade to it.

```

vagrant@ubuntu-jammy:~$ pwd
/home/vagrant
vagrant@ubuntu-jammy:~$ exit
logout

```

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ vagrant halt  
==> default: Attempting graceful shutdown of VM...
```

```
devops@cme615lab04 MINGW64 /d/Arpita/ubuntu
```

```
$ vagrant status  
Current machine states:
```

```
default                                poweroff (virtualbox)
```

The VM is powered off. To restart the VM, simply run `vagrant up`

Now doing it manually

Open Oracle VM Virtual Box :

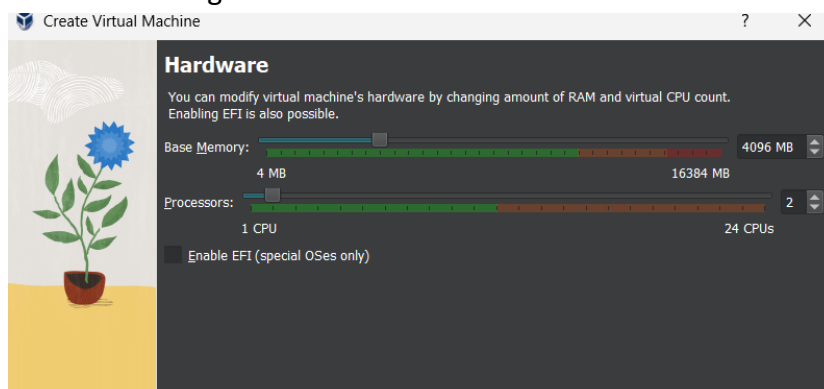
Go To Machine

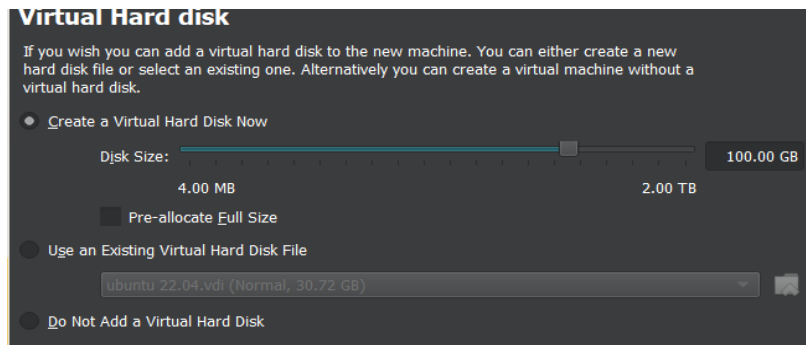
Then Click on New

After that give the iso image downloaded from: <https://ubuntu.com/download/server>



Use these configurations:





After that select default language and default keyboard

Going by this we can do it manually in VM Virtual Box.

DAY 4:

Jenkins: Introduction and Freestyle Projects

Installation:

Step 1: Start your Ubuntu Server.

Step 2: From Git Bash SSH into your Ubuntu server

Step 3: run "sudo apt update" OR first write "su -", give root password, and then execute "apt update".

Step 4: run "apt upgrade"

Step 5: Steps to Install Jenkins:

- Open URL: <https://www.jenkins.io/doc/book/installing/>
- Click on Linux in left panel
- Click on Ubuntu. Follow the steps given under Ubuntu in the following order.
- First execute the steps under the section "Installation of Java"
- Then execute the steps given under "Long Term Support release". Do not write the commands. Copy and paste to avoid mistakes.
- Now go to the section "Start Jenkins" and execute the commands.
- Next go to the section "Unlocking Jenkins" and see if the application is running in the URL given.
- To unlock Jenkins you require a password. To get the password read the first point given under the section "Note" and execute the same.
- You will then be taken to a customize jenkins page. Click on install suggested plugins. If you see that many plugins have not been installed refresh the page. Continue refreshing till most/all plugins are installed.
- You will be taken to a setup login ID and password page
- You will be taken to an instance configuration page. Keep the default settings.

ABOUT JENKINS:

What is Jenkins?

At its core, **Jenkins is an open-source automation server**. It is a very popular tool used primarily to automate the repetitive tasks involved in building, testing, and deploying software.

Its main purpose is to enable **Continuous Integration (CI)** and **Continuous Delivery (CD)**, which are foundational practices in modern software development (DevOps).

- **Continuous Integration (CI):** The practice of developers frequently merging their code changes into a central repository. Jenkins automates the next step: it automatically builds the application and runs a suite of automated tests to ensure the new code didn't break anything.
- **Continuous Delivery (CD):** An extension of CI. After the build and tests are successful, Jenkins can automatically deploy the application to a testing, staging, or even production environment.

In short, Jenkins acts as the central hub for your entire software delivery pipeline, from the moment a developer commits code to the moment it's running for users.

First Job:

1) we enter the name of the new job that has to be created and select the type of job that we have to do. (Here we have chosen Freestyle project)

2) Give a short description.

3) We can connect our job to a source code manager but for this project we select it as None

Source Code Management

Connect and manage your code repository to automatically pull the latest code for your builds.

- ☒ None
- ☐ Bitbucket Server
- ☐ Git ?
- ☐ OpenShift ImageStreams

4) Afterwards we move on to the build steps: Here we want to execute shell commands.

Build Steps

Automate your build process with ordered tasks like code compilation, testing, and deployment.

≡ Execute shell ?

Command

See [the list of available environment variables](#)

```
id
whoami
pwd
```

5) We then save and apply changes and build our job to see the console output:

```
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/FirstJenkinsJob
[FirstJenkinsJob] $ /bin/sh -xe /tmp/jenkins10569208798115566110.sh
+ id
uid=130(jenkins) gid=137(jenkins) groups=137(jenkins)
+ whoami
jenkins
+ pwd
/var/lib/jenkins/workspace/FirstJenkinsJob
Finished: SUCCESS
```

6) We then proceed to write more shell scripts:

≡ Execute shell ?

Command

See [the list of available environment variables](#)

```
echo "This is a test job....." >> myfile.txt
ls -l
echo
echo "#####"
echo "Printing my files."
```

```
cat myfile.txt
```

7) After applying build again when we move to the console to see the output it shows this:

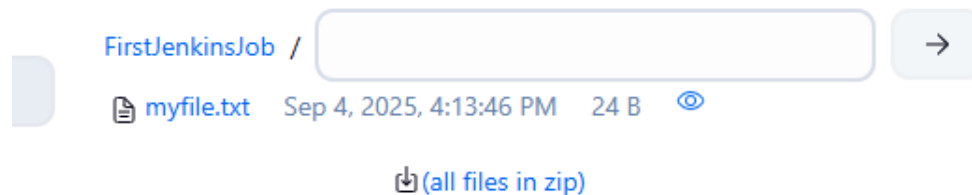
```
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/FirstJenkinsJob
[FirstJenkinsJob] $ /bin/sh -xe /tmp/jenkins8713281843428836465.sh
+ id
uid=130(jenkins) gid=137(jenkins) groups=137(jenkins)
+ whoami
jenkins
+ pwd
/var/lib/jenkins/workspace/FirstJenkinsJob
[FirstJenkinsJob] $ /bin/sh -xe /tmp/jenkins3997582976138882623.sh
+ echo This is a test job.....
+ ls -l
total 4
-rw-r--r-- 1 jenkins jenkins 24 Sep  4 16:13 myfile.txt
+ echo

+ echo #####
#####
+ echo Printing my files.
Printing my files.

+ cat myfile.txt
This is a test job.....
Finished: SUCCESS
```

Additionally, we can take a look at our workspace and we can download the zip containing all the files make(In this case: **myfile.txt**)

Workspace of FirstJenkinsJob on Built-In Node



GIT PULL JOB

Now we are going to perform a git pull job and it will be a freestyle project.

1) As seen earlier we provide the name and description of our build job.

New Item

Enter an item name

GitPullJob

Select an item type



Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

General

Description

Compiling vprofile code from github

2) We mention the version JDK needed to use for this project:

JDK

JDK to be used for this project

JDK 9.0.4

3) For this job we will be using Git as our source code manager:

Source Code Management

Connect and manage your code repository to automatically pull the latest code for your builds.

☐ None

☐ Bitbucket Server

☒ Git ?

Repositories ?

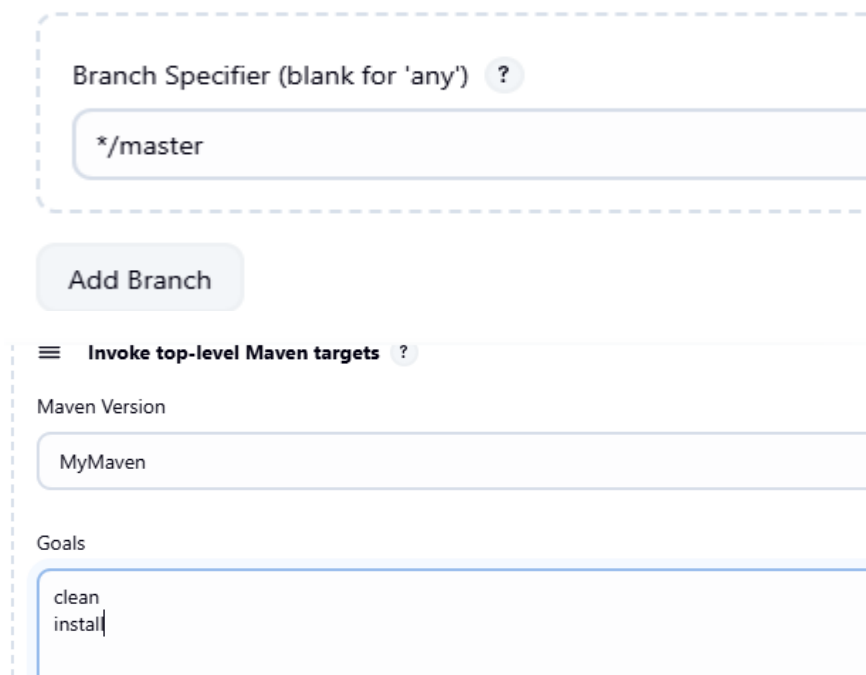
Repository URL ?

https://github.com/ReshmaMitra/sparkjava-war-example.git

Credentials ?

- none -

We will need to specify a branch to build because a single Git repository often contains many different versions of our code at the same time, and Jenkins needs to know exactly **which version** it should build and test.



The screenshot shows a Jenkins configuration page. At the top, there is a section titled "Branch Specifier (blank for 'any')" with a question mark icon. Below this title is a text input field containing the value `*/master`. Below the input field is a button labeled "Add Branch". Below this section is another section titled "Invoke top-level Maven targets" with a question mark icon. Below this title is a section labeled "Maven Version" with a text input field containing the value "MyMaven". Below the "Maven Version" section is a section labeled "Goals" with a text input field containing the values "clean" and "install" on separate lines.

We invoke top-level Maven targets Jenkins job to tell Maven exactly what we want it to do.

In simple terms, "top-level Maven targets" are just the goals or phases we want Maven to run, like **clean**, **install**, or **deploy**.

This is necessary because Maven projects are built using a **lifecycle**, which is a predefined sequence of steps (called phases). We need to tell Jenkins *which phase* in that lifecycle we want to run.

After we save and then apply changes and start the build:


Console Output

 Download
  Copy
  View

```

Started by user 
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/GitPullJob
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/RashmiPitra/sparkjava-war-example.git
> git init /var/lib/jenkins/workspace/GitPullJob # timeout=10
Fetching upstream changes from https://github.com/RashmiPitra/sparkjava-war-example.git
> git --version # timeout=10
> git --version # "git version 2.34.1"
> git fetch --tags --force --progress -- https://github.com/RashmiPitra/sparkjava-war-example.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
> git config remote.origin.url https://github.com/RashmiPitra/sparkjava-war-example.git # timeout=10
> git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 9948429886decc6d7967293a8d88ff8e363d880f (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 9948429886decc6d7967293a8d88ff8e363d880f # timeout=10
Commit message: "Add alfa4-simle for loazine"

First time build. Skipping changelog.
Unpacking https://repo.maven.apache.org/maven2/org/apache/maven/apache-maven/3.9.11/apache-maven-3.9.11-bin.zip to
/var/lib/jenkins/tools/hudson.tasks.Maven_MavenInstallation/MyMaven on Jenkins
[GitPullJob] $ /var/lib/jenkins/tools/hudson.tasks.Maven_MavenInstallation/MyMaven/bin/mvn clean install
[INFO] Scanning for projects...
[INFO]
[INFO] -----< sparkjava-hello-world:sparkjava-hello-world >-----
[INFO] Building sparkjava-hello-world 1.0
[INFO] from pom.xml
[INFO] -----[ war ]-----
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-enforcer-
plugin/1.3.1/maven-enforcer-plugin-1.3.1.pom
Progress (1): 1.4/6.5 kB
Progress (1): 2.8/6.5 kB
Progress (1): 4.1/6.5 kB
Progress (1): 5.5/6.5 kB
Progress (1): 6.5 kB
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-enforcer-
plugin/1.3.1/maven-enforcer-plugin-1.3.1.pom (6.5 kB at 22 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/enforcer/enforcer/1.3.1/enforcer-
4.0.1.jar (193 kB at 2.0 MB/s)
[INFO] Installing /var/lib/jenkins/workspace/GitPullJob/pom.xml to /var/lib/jenkins/.m2/repository/sparkjava-hello-
world/sparkjava-hello-world/1.0/sparkjava-hello-world-1.0.pom
[INFO] Installing /var/lib/jenkins/workspace/GitPullJob/target/sparkjava-hello-world-1.0.war to
/var/lib/jenkins/.m2/repository/sparkjava-hello-world/sparkjava-hello-world/1.0/sparkjava-hello-world-1.0.war
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 11.666 s
[INFO] Finished at: 2025-09-04T16:33:26+05:30
[INFO] -----
Finished: SUCCESS

```

DAY 5


Pipeline Job in Jenkins


1 Enter the name and type of job. In this case we will choose Pipeline


Enter an item name

PipelineJob1

Select an item type

 **Freestyle project**
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

 **Maven project**
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

 **Pipeline**
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

General

Description

This is the first pipeline job.

About pipeline jobs:

A Jenkins Pipeline is the modern standard for defining and running our entire build, test, and deployment process as code.

Instead of creating multiple "Freestyle jobs" and manually linking them together in the web UI, we define our entire workflow in a single text file called a **Jenkinsfile**.

This Jenkinsfile lives with our project's source code (e.g., in our Git repository). This approach is called **Pipeline-as-Code**.

In this job we will be using Pipeline Script inside our Jenkins job.

Pipeline script

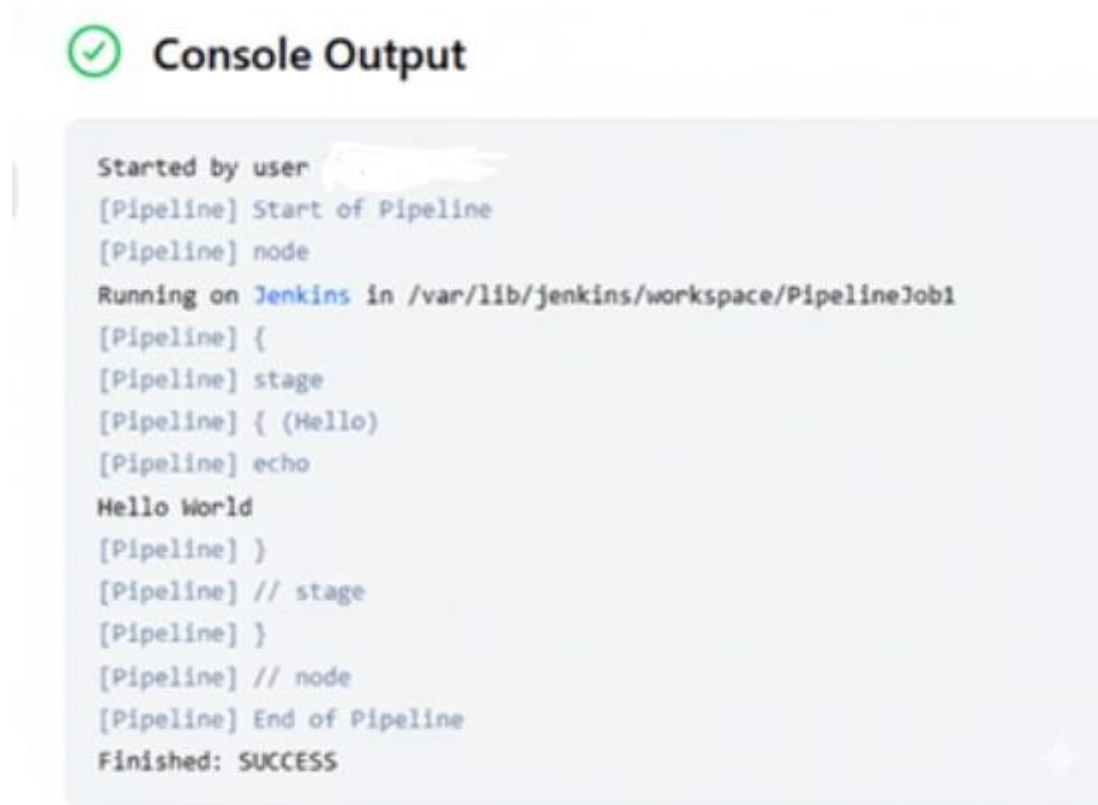
Script ?

```
1 pipeline {
2   agent any
3
4   stages {
5     stage('Hello') {
6       steps {
7         echo 'Hello World'
8       }
9     }
10  }
11 }
12
```

Hello World

This is a Hello world script.

After applying the changes and running the build job, we get this Console Output:

A screenshot of the Jenkins 'Console Output' window. At the top left, there is a green checkmark icon followed by the text 'Console Output'. Below this, the output text is displayed in a light blue box with a dark blue border. The text shows the pipeline execution steps: 'Started by user', '[Pipeline] Start of Pipeline', '[Pipeline] node', 'Running on Jenkins in /var/lib/jenkins/workspace/PipelineJob1', '[Pipeline] {', '[Pipeline] stage', '[Pipeline] { (Hello)', '[Pipeline] echo', 'Hello World', '[Pipeline] }', '[Pipeline] // stage', '[Pipeline] }', '[Pipeline] // node', '[Pipeline] End of Pipeline', and 'Finished: SUCCESS'.

```
Started by user  
[Pipeline] Start of Pipeline  
[Pipeline] node  
Running on Jenkins in /var/lib/jenkins/workspace/PipelineJob1  
[Pipeline] {  
[Pipeline] stage  
[Pipeline] { (Hello)  
[Pipeline] echo  
Hello World  
[Pipeline] }  
[Pipeline] // stage  
[Pipeline] }  
[Pipeline] // node  
[Pipeline] End of Pipeline  
Finished: SUCCESS
```

We perform another Pipeline Job using git:

PipelineGit

This is a pipeline job using git.

In the pipeline script we have used maven as our build tool for java project:

```

1 pipeline{
2     agent any
3     tools{
4         maven "MyMaven"
5     }
6     stages{
7         stage('Build'){
8             steps{
9                 git 'https://github.com/jglick/simple-maven-project-with-tests.git'
10                sh "mvn -Dmaven.test.failure.ignore=true clean package"
11            }
12        }
13        post{
14            success{
15                junit '**/target/surefire-reports/TEST-*.xml'
16                archiveArtifacts 'target/*.jar'
17            }
18        }
19    }
20 }

```

Running on Jenkins in /var/lib/jenkins/workspace/PipelineGit

```

[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Tool Install)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] git

```

The recommended git tool is: NONE

```

No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/PipelineGit/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/jglick/simple-maven-project-with-tests.git # timeout=10
Fetching upstream changes from https://github.com/jglick/simple-maven-project-with-tests.git
> git --version # timeout=10
> git --version # 'git version 2.34.1'
> git fetch --tags --force --progress -- https://github.com/jglick/simple-maven-project-with-tests.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 9a5e9832814aa17fa7e514e5890fc6cf913d9a77 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 9a5e9832814aa17fa7e514e5890fc6cf913d9a77 # timeout=10
> git branch -a -v --no-abbrev # timeout=10
> git branch -D master # timeout=10
> git checkout -b master 9a5e9832814aa17fa7e514e5890fc6cf913d9a77 # timeout=10
Commit message: "Creating a main class so there is something for 'javadoc:javadoc' to do"
> git rev-list --no-walk 9a5e9832814aa17fa7e514e5890fc6cf913d9a77 # timeout=10
[Pipeline] sh
+ mvn -Dmaven.test.failure.ignore=true clean package
[INFO] Scanning for projects...
[INFO]
[INFO] -----< test:simple-maven-project-with-tests >-----
[INFO] Building simple-maven-project-with-tests 1.0-SNAPSHOT

```

```

[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- clean:3.2.0:clean (default-clean) @ simple-maven-project-with-tests ---
[INFO] Deleting /var/lib/jenkins/workspace/PipelineGit/target
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ simple-maven-project-with-tests ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/PipelineGit/src/main/resources
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ simple-maven-project-with-tests ---
[INFO] Recompiling the module because of changed source code.
[INFO] Compiling 1 source file with javac [debug target 1.8] to target/classes
[WARNING] bootstrap class path not set in conjunction with -source 8
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ simple-maven-project-with-tests ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/PipelineGit/src/test/resources
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ simple-maven-project-with-tests ---
[INFO] Recompiling the module because of changed dependency.
[INFO] Compiling 3 source files with javac [debug target 1.8] to target/test-classes
[WARNING] bootstrap class path not set in conjunction with -source 8
[INFO] /var/lib/jenkins/workspace/PipelineGit/src/test/java/test/Base.java:
/var/lib/jenkins/workspace/PipelineGit/src/test/java/test/Base.java uses or overrides a deprecated API.
[INFO] /var/lib/jenkins/workspace/PipelineGit/src/test/java/test/Base.java: Recompile with -Xlint:deprecation for
details.
[INFO]
[INFO] --- surefire:2.10.1:test (default-test) @ simple-maven-project-with-tests ---
[INFO] Surefire report directory: /var/lib/jenkins/workspace/PipelineGit/target/surefire-reports

-----
T E S T S
-----
Running test.OtherTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.017 sec - in test.OtherTest
Running test.SomeTest
Tests run: 6, Failures: 0, Errors: 0, Skipped: 2, Time elapsed: 0.001 sec - in test.SomeTest

Results :

Tests run: 7, Failures: 0, Errors: 0, Skipped: 2

[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ simple-maven-project-with-tests ---
[INFO] Building jar: /var/lib/jenkins/workspace/PipelineGit/target/simple-maven-project-with-tests-1.0-SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.455 s

```

```

[INFO] Finished at: 2025-09-11T16:36:35+05:30
[INFO] -----
Post stage
[Pipeline] junit
Recording test results
[Checks API] No suitable checks publisher found.
[Pipeline] archiveArtifacts
Archiving artifacts
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS

```

Here we see how pipeline jobs are executed in Jenkins.

Day 6 (Installation and docker commands)

To install docker: <https://docs.docker.com/engine/install/ubuntu/>

We also need to create an account on docker hub at hub.docker.com

Docker Commands

1) docker run nginx: Runs a new container using the **nginx** image in the foreground.

```

ACroot@jenkins-minikube:~# sudo docker run nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
8c7716127147: Pull complete
250b90fb2b9a: Pull complete
5d8ea9f4c626: Pull complete
58d144c4badd: Pull complete
b459da543435: Pull complete
8da8ed3552af: Pull complete
54e822d8ee0c: Pull complete
Digest: sha256:3b7732505933ca591ce4a6d860cb713ad96a3176b82f7979a8dfa9973486a0d6
Status: Downloaded newer image for nginx:latest
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2025/10/13 05:14:17 [notice] 1#1: using the "epoll" event method
2025/10/13 05:14:17 [notice] 1#1: nginx/1.29.2
2025/10/13 05:14:17 [notice] 1#1: built by gcc 14.2.0 (Debian 14.2.0-19)
2025/10/13 05:14:17 [notice] 1#1: OS: Linux 6.8.0-79-generic
2025/10/13 05:14:17 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/10/13 05:14:17 [notice] 1#1: start worker processes
2025/10/13 05:14:17 [notice] 1#1: start worker process 29
2025/10/13 05:14:17 [notice] 1#1: start worker process 30
^C2025/10/13 05:16:09 [notice] 1#1: signal 2 (SIGINT) received, exiting
2025/10/13 05:16:09 [notice] 30#30: exiting
2025/10/13 05:16:09 [notice] 29#29: exiting
2025/10/13 05:16:09 [notice] 30#30: exit
2025/10/13 05:16:09 [notice] 29#29: exit
2025/10/13 05:16:09 [notice] 1#1: signal 17 (SIGCHLD) received from 30
2025/10/13 05:16:09 [notice] 1#1: worker process 30 exited with code 0
2025/10/13 05:16:09 [notice] 1#1: signal 29 (SIGIO) received
2025/10/13 05:16:09 [notice] 1#1: signal 17 (SIGCHLD) received from 29
2025/10/13 05:16:09 [notice] 1#1: worker process 29 exited with code 0
2025/10/13 05:16:09 [notice] 1#1: exit
root@jenkins-minikube:~# |

```

2) docker ps and docker ps -a: We use “*docker ps*” to quickly check the status of our active services, and use “*docker ps -a*” when we need to manage the complete list of containers on your system, such as removing old, stopped containers.

```

root@jenkins-minikube:~# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
root@jenkins-minikube:~# |

```

```

root@jenkins-minikube:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
17975cbef52b   hello-world  "/hello"                About a minute ago    Exited (0) About a minute ago    silly_haslett
root@jenkins-minikube:~# |

```

3) docker images: Lists all Docker images available locally.

```
root@jenkins-minikube:~# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	07ccdb783875	5 days ago	160MB
ubuntu	latest	97bed23a3497	11 days ago	78.1MB
hello-world	latest	1b44b5a3e06a	2 months ago	10.1kB

4) docker rm <container name>: Removes a stopped container from the system.

```
root@jenkins-minikube:~# docker rm 7f60 5fbd 5e9a dd13 1797
7f60
5fbd
dd13
1797
Error response from daemon: cannot remove container "5e9a": container is running: stop the container before removing or force remove
root@jenkins-minikube:~# docker stop 5e9a
5e9a
root@jenkins-minikube:~# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
5e9ade575225	nginx	"/docker-entrypoint..."	15 minutes ago	Exited (0) 4 seconds ago		infallible_perlman

```
root@jenkins-minikube:~# docker rm 5e9a
5e9a
```

6) docker rmi <image_name>: Deletes a Docker image.

```
root@jenkins-minikube:~# docker rmi 07cc 97be 1b44
Untagged: nginx:latest
Untagged: nginx@sha256:3b7732505933ca591ce4a6d860cb713ad96a3176b82f7979a8dfa9973486a0d6
Deleted: sha256:07ccdb7838758e758a4d52a9761636c385125a327355c0c94a6acff9babff938
Deleted: sha256:71b75b17511f67932ccf71e2046c6d1b4fe17a594134c765bf71c874dedc7027
Deleted: sha256:c76da83ebfb3e35184d1a7105d03cecfb144d07cb4dae12378392040fbd44615
Deleted: sha256:f825da5ac2d31a2c717db4fa159b6728b33a94bcb7285bd1dfecbbe23ebd185
Deleted: sha256:31333e0f1ecf5940213f8b1ed4eb3e4d78d77fa5fb59c1cd05a6672690ed133c
Deleted: sha256:e72eb931613f8c1b5baf39f864877beee0780af9f9d20c5a02790d0146f0b012
Deleted: sha256:775e3183eed457c31a0855ac7a55b6e0cb8d40554e9524cb6d503cb2351e0b10
Deleted: sha256:1d46119d249f7719e1820e24a311aa7c453f166f714969cffe89504678eaa447
Untagged: ubuntu:latest
Untagged: ubuntu@sha256:59a458b76b4e8896031cd559576eac7d6cb53a69b38ba819fb26518536368d86
Deleted: sha256:97bed23a34971024aa8d254abbe67b7168772340d1f494034773bc464e8dd5b6
Deleted: sha256:073ec47a8c22dcaa4d6e5758799ccfe2f9bde943685830b1bf6fd2395f5eabc
Untagged: hello-world:latest
Untagged: hello-world@sha256:54e66cc1dd1fcb1c3c58bd8017914dbed8701e2d8c74d9262e26bd9cc1642d31
Deleted: sha256:1b44b5a3e06a9aae883e7bf25e45c100be0bb81a0e01b32de604f3ac44711634
Deleted: sha256:53d204b3dc5ddbc129df4ce71996b8168711e211274c785de5e0d4eb68ec3851
```

7) docker pull ubuntu: Downloads the ubuntu image from Docker Hub.

```
root@jenkins-minikube:~# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
4b3ffd8ccb52: Pull complete
Digest: sha256:59a458b76b4e8896031cd559576eac7d6cb53a69b38ba819fb26518536368d86
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
root@jenkins-minikube:~#
```

8) docker run ubuntu sleep 100: Runs an Ubuntu container and executes sleep 100 (runs for 100 seconds).

```
C:\Users\...>docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
9fd13c618b27	ubuntu	"sleep 100"	2 minutes ago	Exited (0) 51 seconds ago		fervent_einstein

9) docker run -d ubuntu sleep 50: Runs the container in detached mode (background).

```
C:\Users\...>docker run -d ubuntu sleep 50
6d5940101a8164221e48db53e4cbbf877f6bd4b236735bb651e5c6db19d668b

C:\Users\...>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
6d5940101a81	ubuntu	"sleep 50"	5 seconds ago	Up 4 seconds		loving_johnson

10) `docker attach <container_name>`: Attaches your terminal to the container's ongoing output/session.

```
C:\Users\...>docker run -d ubuntu sleep 100
5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc

C:\Users\...>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
5a47096e54b8   ubuntu   "sleep 100"   2 seconds ago   Up 2 seconds           vigorous_moser

C:\Users\...>docker attach vigorous_moser
```

11) `docker exec <container_name> cat /etc/hosts`: Runs a command inside a running container without attaching.

```
C:\Users\...>docker exec awesome_cerf cat /etc/hosts
127.0.0.1        localhost
::1             localhost ip6-localhost ip6-loopback
fe00::0         ip6-localnet
ff00::0         ip6-mcastprefix
ff02::1         ip6-allnodes
ff02::2         ip6-allrouters
172.17.0.2      92074656510e
```

12) `docker exec <id> cat /etc/hosts`: Runs a command inside a running container using its container ID prefix.

13) `docker attach <id>`: Attaches to the container with ID starting with its container ID prefix.

14) `docker inspect 5a`: Shows detailed JSON metadata for the container/image with ID/name 5a.

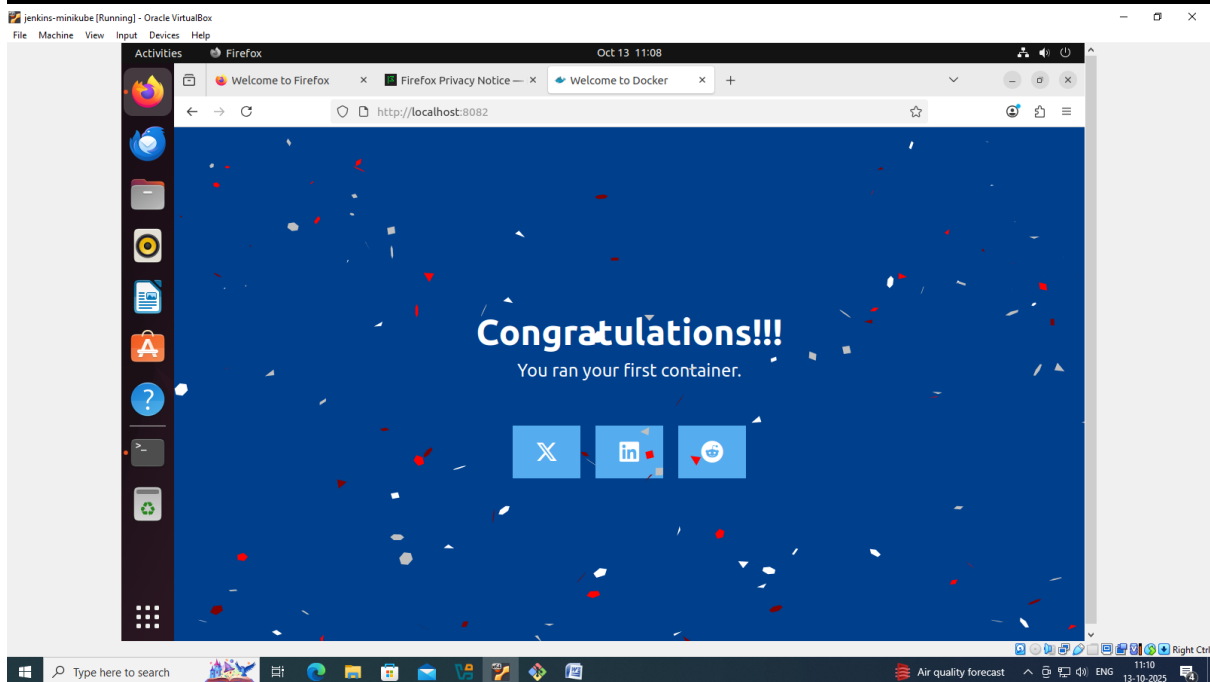
```
C:\Users\...>docker inspect 5a
[
  {
    "Id": "5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc",
    "Created": "2025-11-15T19:18:43.376234453Z",
    "Path": "sleep",
    "Args": [
      "100"
    ],
    "State": {
      "Status": "exited",
      "Running": false,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 0,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2025-11-15T19:18:43.528984869Z",
      "FinishedAt": "2025-11-15T19:20:23.726418381Z"
    },
    "Image": "sha256:c35e29c9450151419d9448b6fd75374fec4fff364a27f176fb458d472dc9e54",
    "ResolvConfPath": "/var/lib/docker/containers/5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc/resolv.conf",
    "HostnamePath": "/var/lib/docker/containers/5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc/hostname",
    "HostsPath": "/var/lib/docker/containers/5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc/hosts",
    "LogPath": "/var/lib/docker/containers/5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc/5a47096e54b84a044461004b3558113d984092f5737eff705e707c8b0506dc-json.log",
    "Name": "/vigorous_moser",
    "RestartCount": 0,
    "Driver": "overlayfs",
    "Platform": "linux",
    "MountLabel": "",
    "ProcessLabel": "",
    "AppArmorProfile": "",
    "ExecIDs": null,
    "HostConfig": {
      "Binds": null,
      "ContainerIDFile": "",
      "LogConfig": {
        "Type": "json-file",
```

15) `docker run -it ubuntu bash`: Runs an Ubuntu container interactively with a Bash shell.

```
C:\Users\>docker run -it ubuntu bash
root@ee7ac88c2a7b:/# pwd
/
root@ee7ac88c2a7b:/# whoami
root
root@ee7ac88c2a7b:/# |
```

16) `docker run -d -p 8082:80 docker/welcome-to-docker`: Runs a web app container in background and maps **host port 8082** → **container port 80**.

```
root@jenkins-minikube:~# sudo docker run -d -p 8082:80 docker/welcome-to-docker
Unable to find image 'docker/welcome-to-docker:latest' locally
latest: Pulling from docker/welcome-to-docker
9824c27679d3: Pull complete
a5585638209e: Pull complete
fd372c3c84a2: Pull complete
958a74d6a238: Pull complete
c1d2dc189e38: Pull complete
828fa206d77b: Pull complete
bdaad27fd04a: Pull complete
9745203f5d34: Pull complete
Digest: sha256:c4d56c24da4f009ecf8352146b43497fe78953edb4c679b841732beb97e588b0
Status: Downloaded newer image for docker/welcome-to-docker:latest
e12b5ed7d84cfadd6f8015fb8971a4c2ce03ad0baa01cb84b5feefb6062b33b4
root@jenkins-minikube:~# |
```



DAY 7:

Building our own docker image:

Source: <https://devopscube.com/build-docker-image/>

```
root@jenkins-minikube:~# ls
kubectl  minikube_latest_amd64.deb  nginx-image  snap  vboxpostinstall.sh
root@jenkins-minikube:~#
```

We create the following files:

```
mkdir nginx-image && cd nginx-image
mkdir files
```

The file structure becomes:

```
root@jenkins-minikube:~# cd nginx-image
root@jenkins-minikube:~/nginx-image# ls
Dockerfile  files
root@jenkins-minikube:~/nginx-image#
```

Next we create index.html and default file:

```
root@jenkins-minikube:~/nginx-image# cd files
root@jenkins-minikube:~/nginx-image/files# ls
default  index.html
root@jenkins-minikube:~/nginx-image/files#
```

Index.html

```
<html>
  <head>
    <title>Dockerfile</title>
  </head>
  <body>
    <div class="container">
      <h1>My App</h1>
      <h2>This is my first app</h2>
      <p>Hello everyone, This is running via Docker container</p>
    </div>
  </body>
</html>
```


Create this using *vi index.html*

Next we do *vi default* for the Default file

```
server {
    listen 80 default_server;
    listen [::]:80 default_server;

    root /usr/share/nginx/html;
    index index.html index.htm;

    server_name _;
    location / {
        try_files $uri $uri/ =404;
    }
}
```

The contents of the Dockerfile will be:

```
FROM ubuntu:18.04
LABEL maintainer="contact@devopscube.com"
RUN apt-get -y update && apt-get -y install nginx
COPY files/default /etc/nginx/sites-available/default
COPY files/index.html /usr/share/nginx/html/index.html
EXPOSE 80
CMD ["/usr/sbin/nginx", "-g", "daemon off;"]
```

To build the docker image we use: `docker build -t nginx:<tag>`

Then we can run the docker image on our machine

```
root@jenkins-minikube:~# docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
2a82fc529c61   gcr.io/k8s-minikube/kicbase:v0.0.48 /usr/local/bin/entr...  46 minutes ago Up 39 minutes 127.0.0.1:32773->22/tcp, 127.0.0.1:32774->2376/tcp, 127.0.0.1:32775->5000/tcp, 12
root@jenkins-minikube:~#
```

After pushing the image to docker hub we can view it in our repositories:

Repositories

All repositories within the dockernewbie09 namespace.

Search by repository name

All content

▼

Create a repository

Name	Last Pushed ↑	Contains	Visibility	Scout
dockernewbie09/nginx	30 days ago	IMAGE	Public	Inactive
dockernewbie09/dockerrepo	about 1 month ago		Private	Inactive

1-2 of 2

Day 8:**Installing Kubernetes and Commands**

Step 1: <https://kubernetes.io/docs/tasks/tools/install-kubect-linux/>

We go to this link and follow the required steps

Step 2: Installing minikube by using this command:

```
C:\Users\.....>curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube_latest_amd64.deb
% Total    % Received % Xferd Average Speed   Time    Time     Time  Current
   Dload  Upload   Total   Spent    Left   Speed
```

Kubernetes Commands:

To check minikube status we use *minikube status*

```
root@jenkins-minikube:~# minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
```

kubectl cluster-info: Displays information about the Kubernetes cluster, including the control plane and API server URLs. It helps verify if the cluster is up and running.

```
root@jenkins-minikube:~# kubectl cluster-info
Kubernetes control plane is running at https://192.168.49.2:8443
CoreDNS is running at https://192.168.49.2:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
root@jenkins-minikube:~#
```

kubectl config view: Shows the details of the current Kubernetes configuration, including the cluster, context, and user settings. It's useful for checking the kubeconfig file to ensure you are connected to the correct cluster.

```
root@jenkins-minikube:~# kubectl cluster-info
To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
root@jenkins-minikube:~# kubectl config view
apiVersion: v1
clusters:
- cluster:
    certificate-authority: /root/.minikube/ca.crt
    extensions:
    - extension:
        last-update: Thu, 30 Oct 2025 15:33:39 IST
        provider: minikube.sigs.k8s.io
        version: v1.37.0
      name: cluster_info
      server: https://192.168.49.2:8443
    name: minikube
contexts:
- context:
    cluster: minikube
    extensions:
    - extension:
        last-update: Thu, 30 Oct 2025 15:33:39 IST
        provider: minikube.sigs.k8s.io
        version: v1.37.0
      name: context_info
      namespace: default
      user: minikube
    name: minikube
current-context: minikube
kind: Config
users:
- name: minikube
  user:
    client-certificate: /root/.minikube/profiles/minikube/client.crt
    client-key: /root/.minikube/profiles/minikube/client.key
root@jenkins-minikube:~#
```

`kubectl get nodes`: Lists all nodes in the Kubernetes cluster, showing their status, roles, and other details. This helps in checking the availability and health of the cluster's nodes.

```
client-key: /root/.minikube/profiles/minikube/client-key
root@jenkins-minikube:~# kubectl get nodes
NAME          STATUS    ROLES    AGE   VERSION
minikube      Ready     control-plane  8m54s  v1.34.0
root@jenkins-minikube:~#
```

`kubectl get pods --all-namespaces`: Retrieves information about all pods running in all namespaces in the Kubernetes cluster. This is useful for monitoring pod status across the entire cluster.

```
root@jenkins-minikube:~# kubectl get pods --all-namespaces
NAMESPACE     NAME                                READY   STATUS    RESTARTS   AGE
kube-system    coredns-66bc5c9577-rw7qn           1/1     Running   1 (4m51s ago)  9m27s
kube-system    etcd-minikube                       1/1     Running   1 (4m49s ago)  9m34s
kube-system    kube-apiserver-minikube             1/1     Running   1 (4m46s ago)  9m34s
kube-system    kube-controller-manager-minikube    1/1     Running   1 (4m56s ago)  9m34s
kube-system    kube-proxy-f5559                   1/1     Running   1 (4m56s ago)  9m28s
kube-system    kube-scheduler-minikube             1/1     Running   1 (4m56s ago)  9m34s
kube-system    storage-provisioner                 1/1     Running   3 (2m9s ago)   9m30s
root@jenkins-minikube:~#
```

`minikube addons enable metrics-server`: Enables the metrics-server add-on in Minikube. The metrics-server collects resource usage metrics (like CPU and memory usage) for the Kubernetes cluster, enabling features like horizontal pod autoscaling.

```
root@jenkins-minikube:~# minikube addons enable metrics-server
* metrics-server is an addon maintained by Kubernetes. For any concerns contact minikube on GitHub.
You can view the list of minikube maintainers at: https://github.com/kubernetes/minikube/blob/master/OWNERS
- Using image registry.k8s.io/metrics-server/metrics-server:v0.8.0
* The 'metrics-server' addon is enabled
root@jenkins-minikube:~#
```

`minikube dashboard`: Starts the Minikube dashboard, which opens a web-based UI to visualize and manage the cluster. It provides an interactive interface to view and manage Kubernetes resources like pods, services, and deployments.

```
root@jenkins-minikube:~# minikube dashboard
* Enabling dashboard ...
- Using image docker.io/kubernetesui/dashboard:v2.7.0
- Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
* Some dashboard features require the metrics-server addon. To enable all features please run:

    minikube addons enable metrics-server

* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
http://127.0.0.1:34565/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/
^C
root@jenkins-minikube:~#
```

Day 9 and 10:**Jenkins CI/CD Pipeline job:**

First, we need to configure authentication credentials that will allow this process to be possible.

The credentials of Docker Hub are given:

New credentials

Kind
Secret text

Scope ?
Global (Jenkins, nodes, items, all child items, etc)

Secret
.....

ID ?
docker_hub

Description ?
Docker Hub Authentication

Create

Global credentials (unrestricted)

+ Add Credentials

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
docker_hub	Docker Hub Authentication	Secret text	Docker Hub Authentication

Icon: S M L

Next we need to download the “Kubernetes-cd.hpi” plugin for Kubernetes from internet to our local machine:

<https://updates.jenkins.io/download/plugins/kubernetes-cd/1.0.0/kubernetes-cd.hpi>

Download progress

Preparation

kubernetes-cd Success

→ [Go back to the top page](#)

(you can start using the installed plugins right away)

→ ☐ Restart Jenkins when installation is complete and no jobs are running

After this we need to restart the Jenkins service (from Ubuntu server)
`sudo systemctl restart jenkins`

Next we run: `kubectl config view --flatten`

[illegible]

We enter the output of the command directly into the Kubernetes Credentials:

☒ Enter directly

Content ?

```

CKWVbZ2ttrKRWtbdvXQ4QmnoMLeBm0E5E0rWwVandTtWzN4W0ZarXvB13E4Q0rVtMbR02Y0E7hagpb0cy0EY0bVd0R0KZ2M2NtVQ3WwE00VrWwV
mMvSHkwbTNDUVB1SU03bU5WTTTRqQUw3a1NTcEhLRzl5MGfMCI9NcTNGY3lzY2pwTzBleXdKRIM3K3dLQmdRQ3FSaTBKSmVIRnloNjVxa0hibHloWjduRFJabjdHb2g
2NUF3dZgKMVlrMzdrTE5NSW80TF11VIBkbgjyZDcvbll4NEVVeVJBMGtGWHdyOHBSR0JjRmR6UWJveWZMSUJwUWY2UUI0RQpsTGYxdWoySGxlZGFxTXpTN1VTL3ITS
E50Rk1Tdk1haUxuWHNITHILQ1dBOjF6RW1QZ0Z0HWWV4VUhwTVJkVSs4CnF1ZWQ0UUtCZ0hrS2RsSk0wTjAyaWZwUWU0c0cnNz5EduVGtkbDVua1dV2JIR2I4eS9x
V2I0TWNoeGVUck8Kd0IGZzBKA29EeWtZWklZZjNsODBPcndKKZlqc2ZpRkdMb29Juitxc3lVZ1J5dVpxS21mZEFwzRyszShjK1JKRgp4MTZLWGN4c3d5Um41amw1MUJt
m1Z0XVpOXVLRGs0QjJSeVZLZG5nVVRyEGJURzBURFVvCi0tLS0tRU5EIFJTQSBQUkIWQVRFIeTFSW0tLS0tCg==

```

☐ From a file on the Jenkins master

New credentials

Kind

Kubernetes configuration (kubeconfig)

Scope ?

Global (Jenkins, nodes, items, all child items, etc)

ID ?

k8_auth

Description ?

Kubernetes Authentication





Kubeconfig

☒ Enter directly

Content ?

Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

Credentials that should be available irrespective of domain specification to requirements matching.				
ID	Name	Kind	Description	
 docker_hub	Docker Hub Authentication	Secret text	Docker Hub Authentication	
 k8_auth	k8_auth (Kubernetes Authentication)	Kubernetes configuration (kubeconfig)	Kubernetes Authentication	

Icon: S M **L**

Next we set up the CI/CD pipeline:

We will need a Dockerfile to create the image and a Kubernetes definition file that defines the deployment and service to expose the deployment

First, we need to configure authentication credentials that will allow this process to be possible.

The credentials are configured are as follows:

New Item

Enter an item name

DockerDemo

Select an item type



Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.



Maven project

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.



Pipeline

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.



Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments,

OK

We put the name of the github repository:



Do not allow concurrent builds



Do not allow the pipeline to resume if the controller restarts



GitHub project

Project url ?

<https://github.com/sauvikdevops/dockerdemo.git>

Here we use the GitHub hook trigger: The integration between GitHub and Jenkins enables continuous integration (CI) and continuous delivery (CD) workflows by automatically initiating builds and other processes when specific events occur in the GitHub repo.

Triggers

Set up automated actions that start your build based on specific events

- ☐ Bitbucket webhook trigger ?
- ☐ Build after other projects are built ?
- ☐ Build periodically ?
- ☒ GitHub hook trigger for GITScm polling ?
- ☐ Monitor Docker Hub/Registry for image changes ?
- ☐ Poll SCM ?
- ☐ Trigger builds remotely (e.g., from scripts) ?

We get our Pipeline script (Jenkinsfile) from the repo itself

Define your Pipeline using Groovy directly or pull it from source control.

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/sauvikdevops/dockerdemo.git

Credentials ?

- none -

Next we create the Jenkinsfile and push the code into github.

```
pipeline {
  agent any

  stages {
    stage('Checkout Github repo') {
      steps {
        checkout scmGit(branches: [[name: '**/main']], extensions: [], userRemoteConfigs: [[url: 'https://github.com/dockernewbie09/dockerdemo.git']])
      }
    }
    stage('Build and Tag Docker Image') {
      steps {
        script {
          sh 'docker build . -t hellodocker'
          sh 'docker tag hellodocker dockernewbie09/learning'
        }
      }
    }
    stage('Push the Docker Image to DockerHub') {
      steps {
        script {
          withCredentials([string(credentialsId: 'docker_hub', variable: 'docker_hub')]) {
            sh """
            echo "${docker_hub}" | docker login -u dockernewbie09 --password-stdin
            docker push dockernewbie09/learning
            """
          }
        }
      }
    }
    stage('Deploy deployment and service file') {
      steps {
        script {
          kubernetesDeploy configs: 'deploymentsvc.yaml', kubeconfigId: 'k8_auth'
        }
      }
    }
  }
}
```