Ex.No.1 Install Virtual box/VMware Work station with different Flavours of Linux or windows

Aim:

Find procedure to Install Virtual box / VMware Work station with different flavours of linux or windows OS on top of windows 7 or 8.

PROCEDURE

Step1-Download VMware work station

Linkfordownloadingthesoftwareis

https://www.vmware.com/products/workstation-pro/workstation-pro-evaluation.html

Download the software for windows. Good thing is that there is no sign up process. Click and download begins. Software is around 541MB.

Step2-Download the installer file

Starting installer in VMware

1. Download the Fedora 13 ISO image file from the download section.

   Using the link
   https://archive.fedoraproject.org/pub/archive/fedora/linux/releases/13/fedora/i386/iso

2. Launch the VMware Player, and start creating a new virtual machine.
3. Select the ISO image file of Fedora13, and use the default settings for the virtual machine.
4. Start the virtual machine and go to the Fedora13 installer.

Starting installer in Virtual Box

1. Download the Fedora13 ISO image file from the download section.
2. Launch the Virtual box application on your computer, and start creating a new virtual machine.
3. Select Ubuntu and use default settings for the virtual machine.
4. Start VM and when it asks to select the Host Drive, and then select the downloaded Fedora13 ISO file in step1.

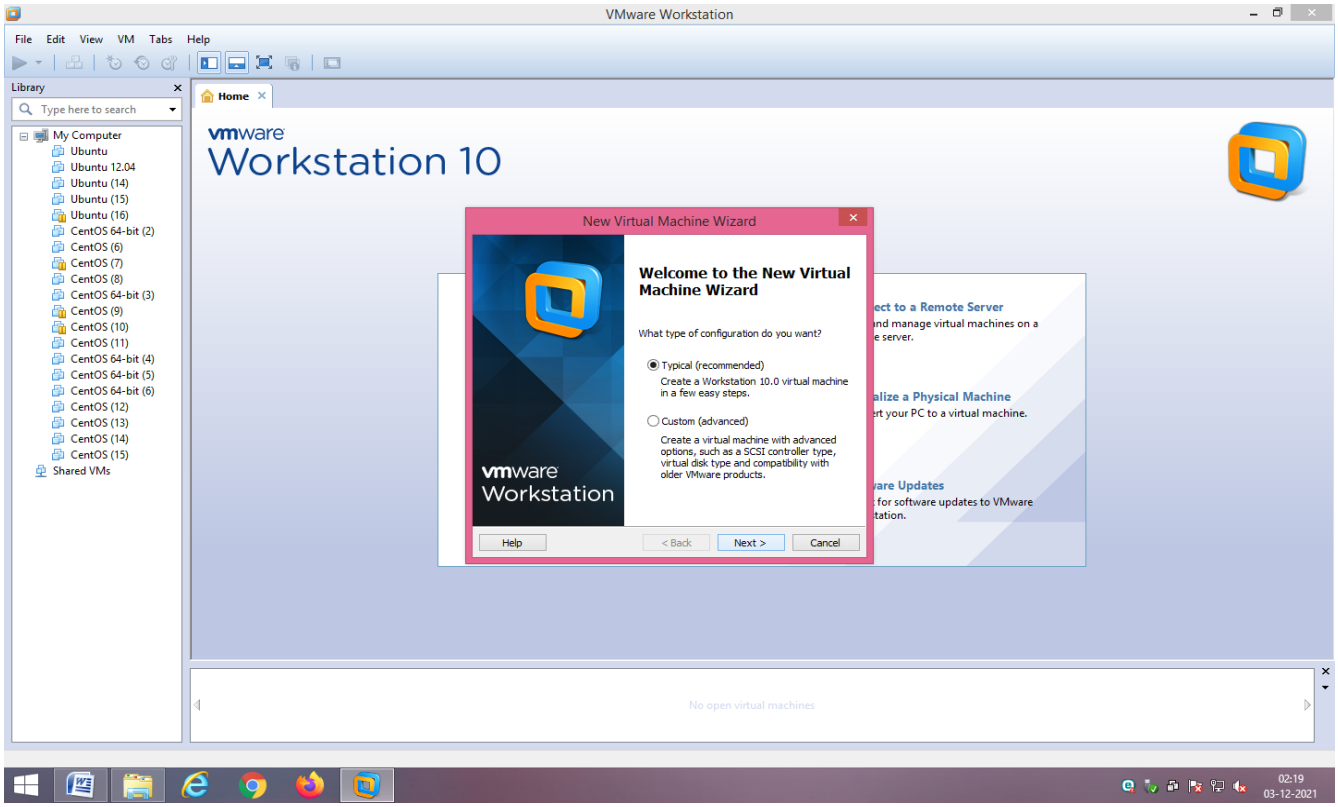
Last step

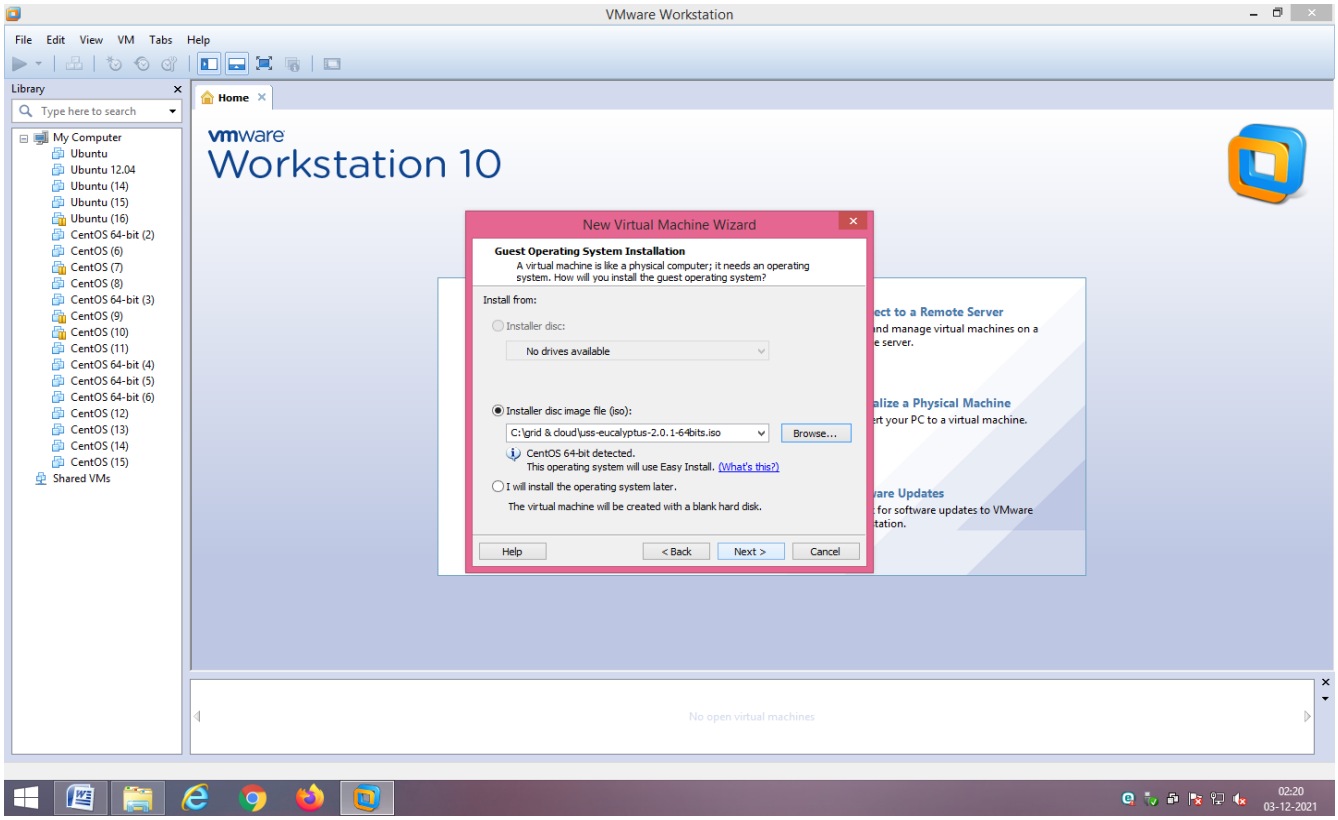
As soon as you go to the Fedora Welcome Screen, follow the steps given below:

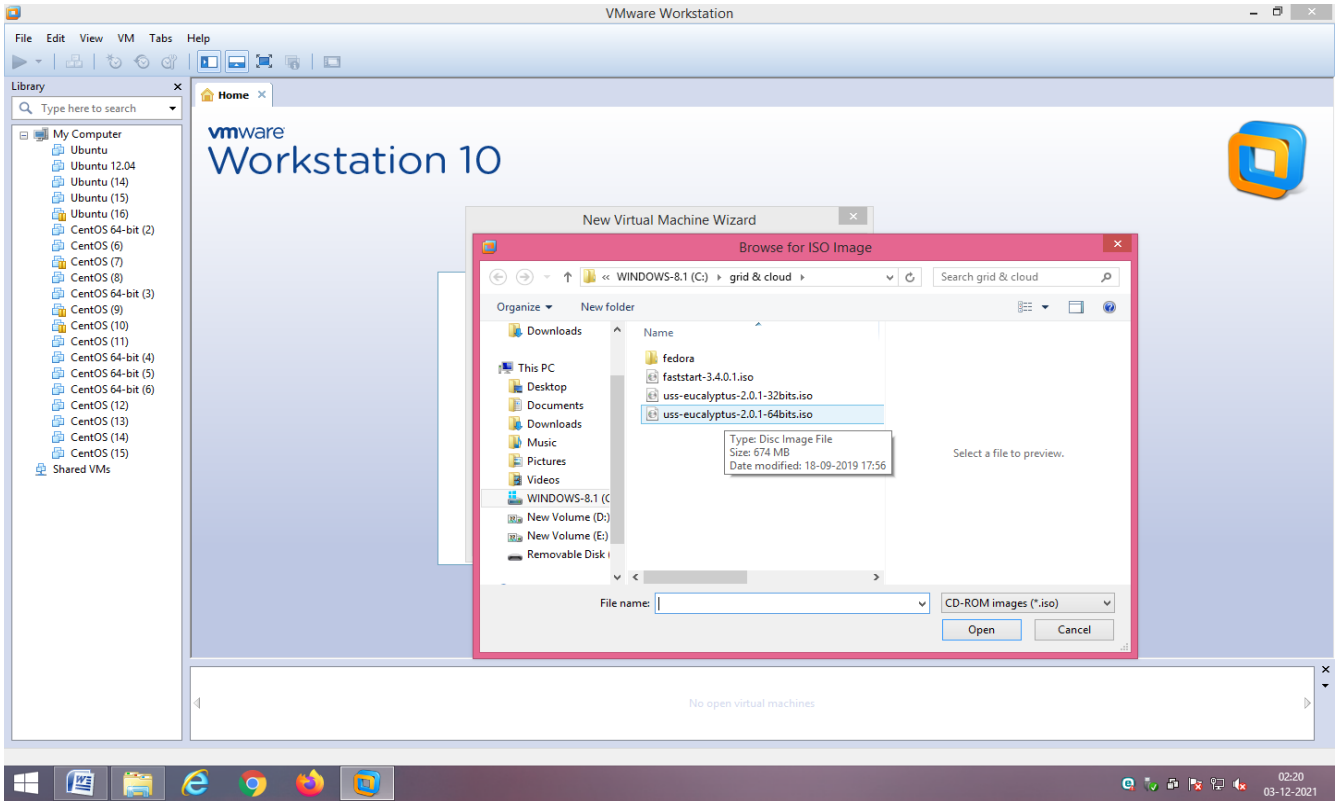
1. Proceed on the welcome screen.
2. Accept the license agreement, and proceed.
3. Configure firewall , date/time, etc.
4. Create root user.
5. Follow on-screen instructions, and complete the installation.
6. Login to Fedora using your username and password.

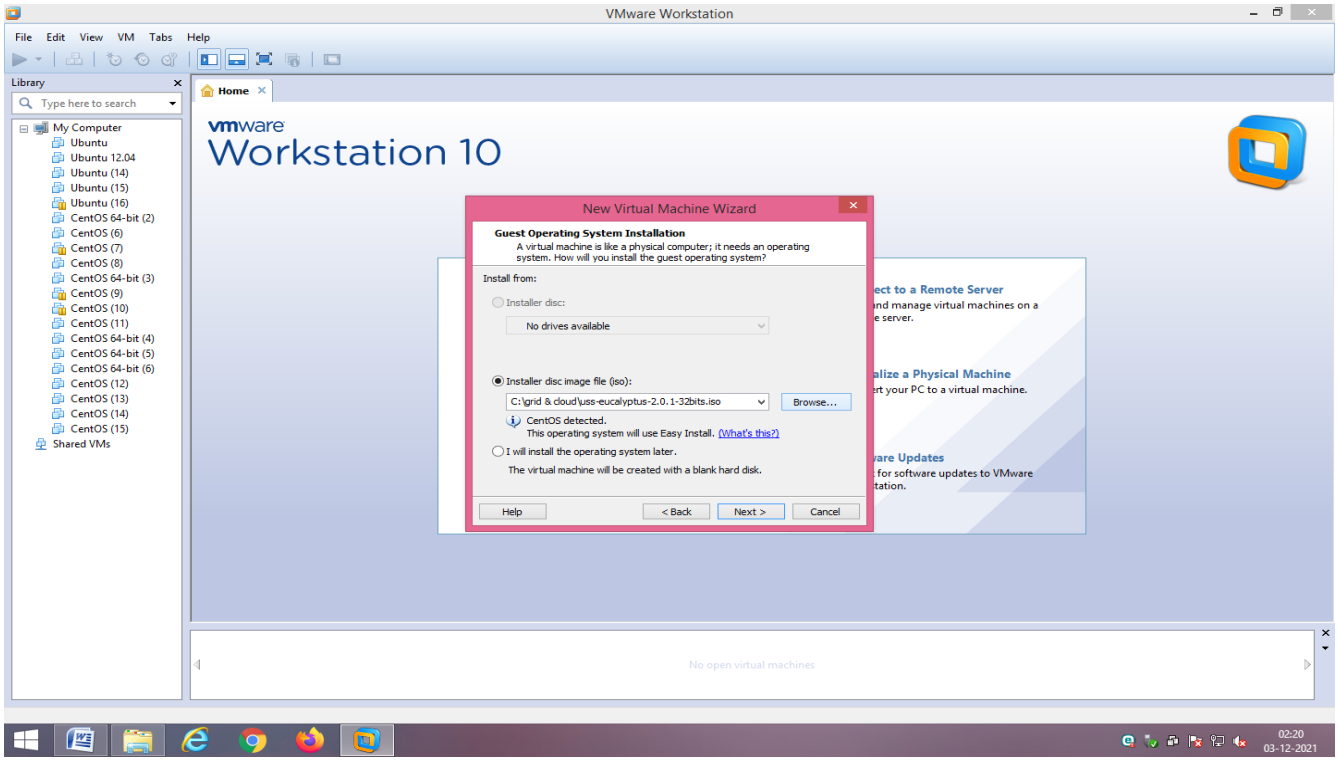
Do not forget to remove the installation medium from the computer (for example, USB, CD/DV

Screenshots:






VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Browse for ISO Image
WINDOWS-8.1 (C:) ▸ grid & cloud ▸
Search grid & cloud
Organize
New folder
Downloads
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
WINDOWS-8.1 (C
New Volume (D:)
New Volume (E:)
Removable Disk
Name
fedora
faststart-3.4.0.1.iso
uss-eucalyptus-2.0.1-32bits.iso
uss-eucalyptus-2.0.1-64bits.iso
Type: Disc Image File
Size: 674 MB
Date modified: 18-09-2019 17:56
Select a file to preview.
File name:
CD-ROM images (*.iso)
Open
Cancel
No open virtual machines
02:20
03-12-2021


VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
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CentOS (8)
CentOS 64-bit (3)
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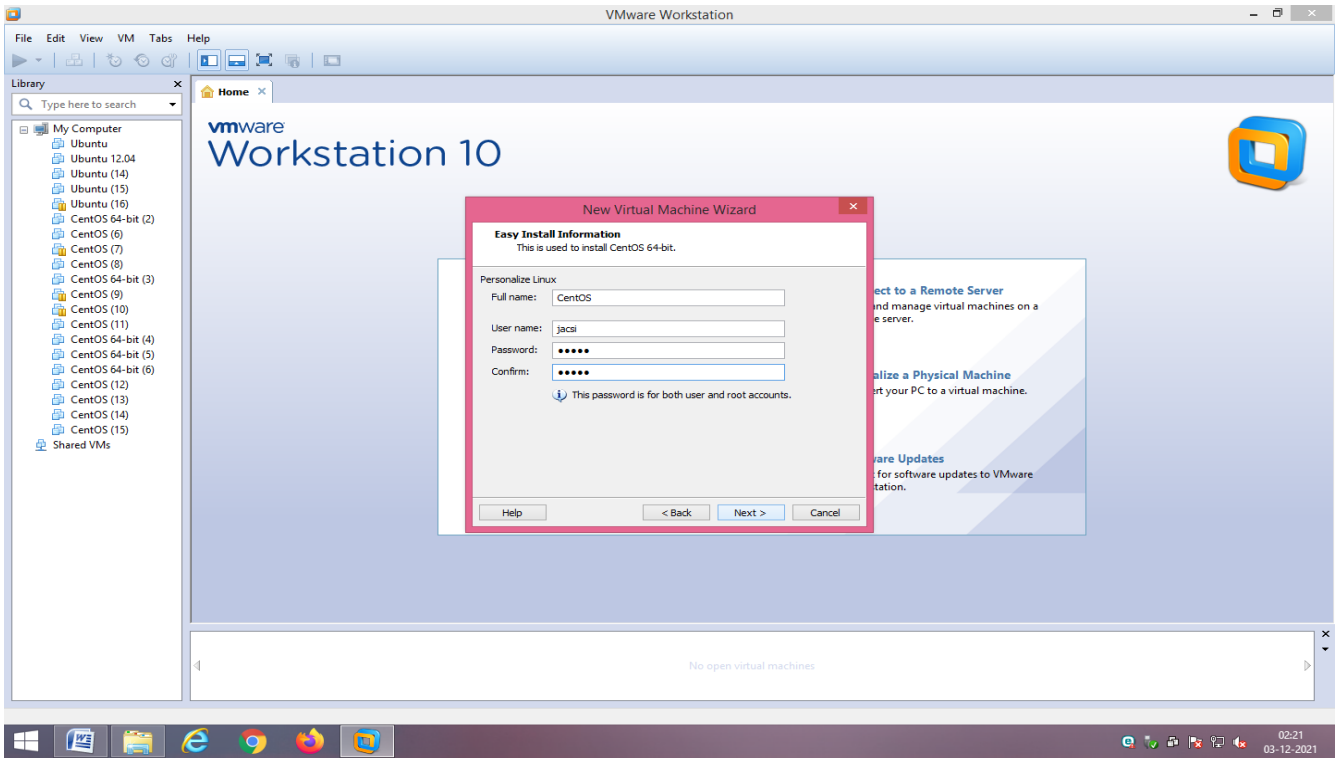
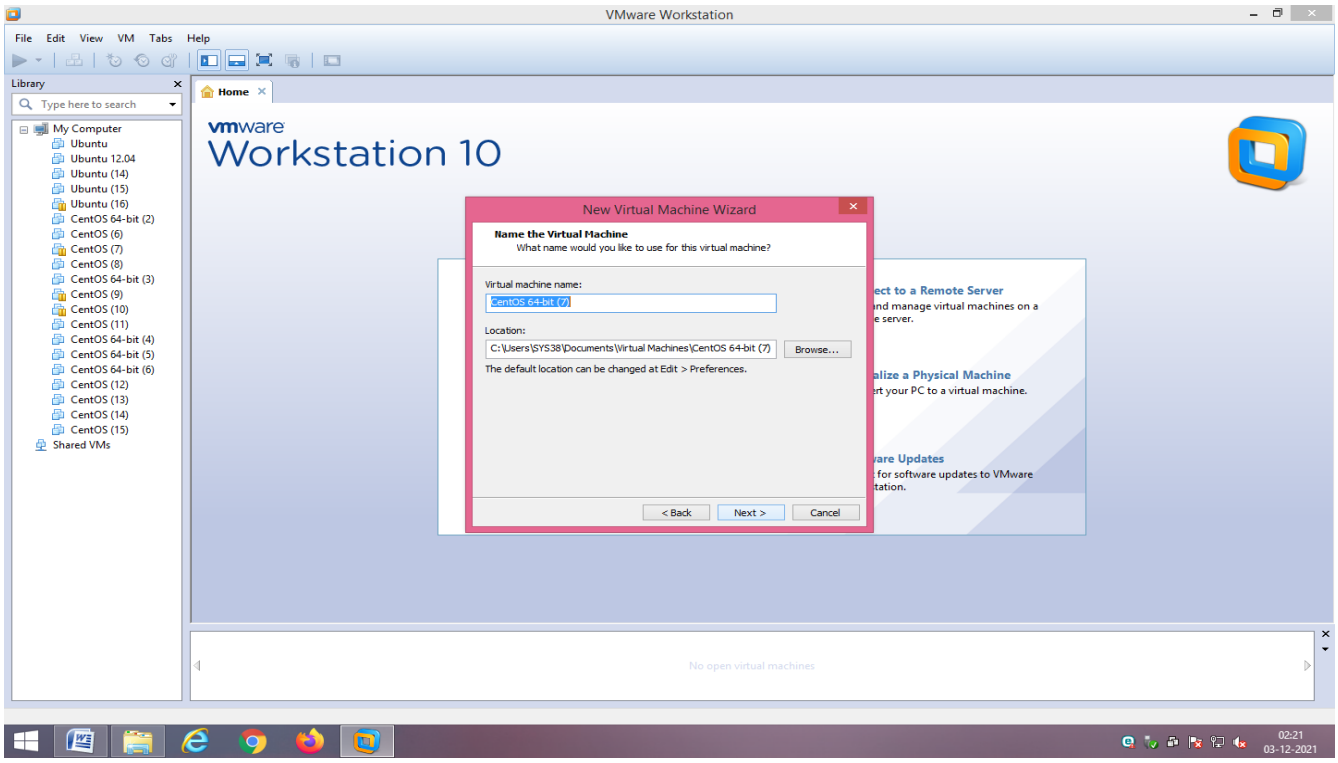
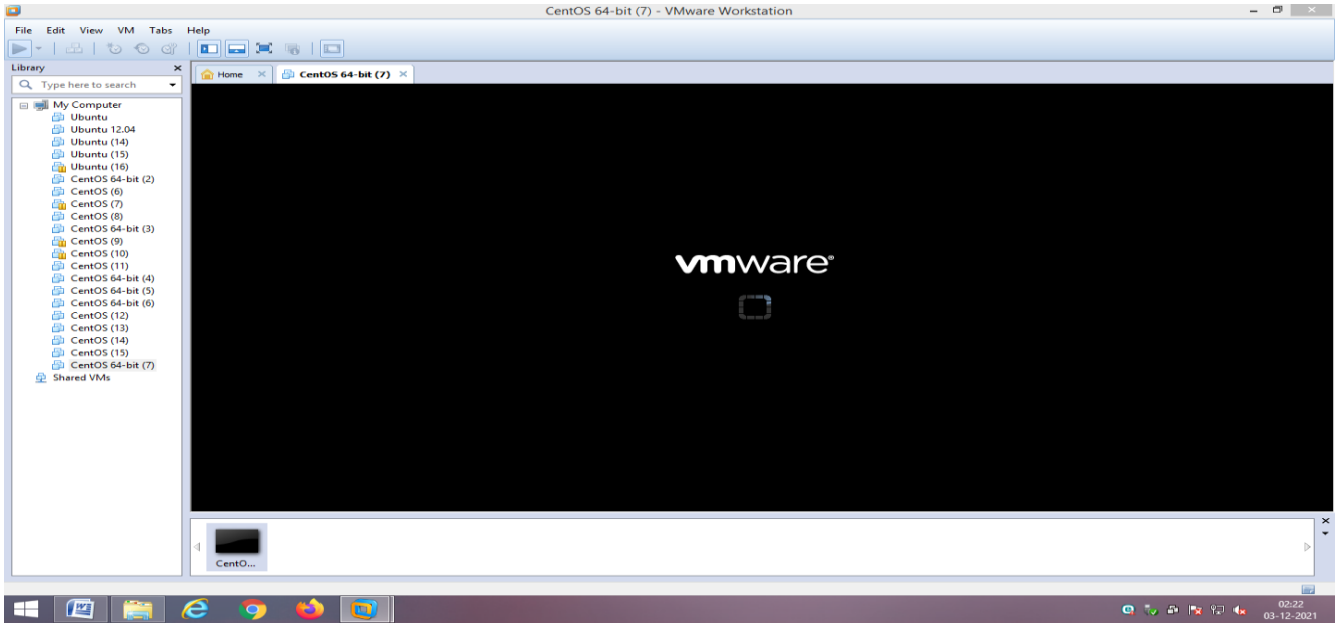
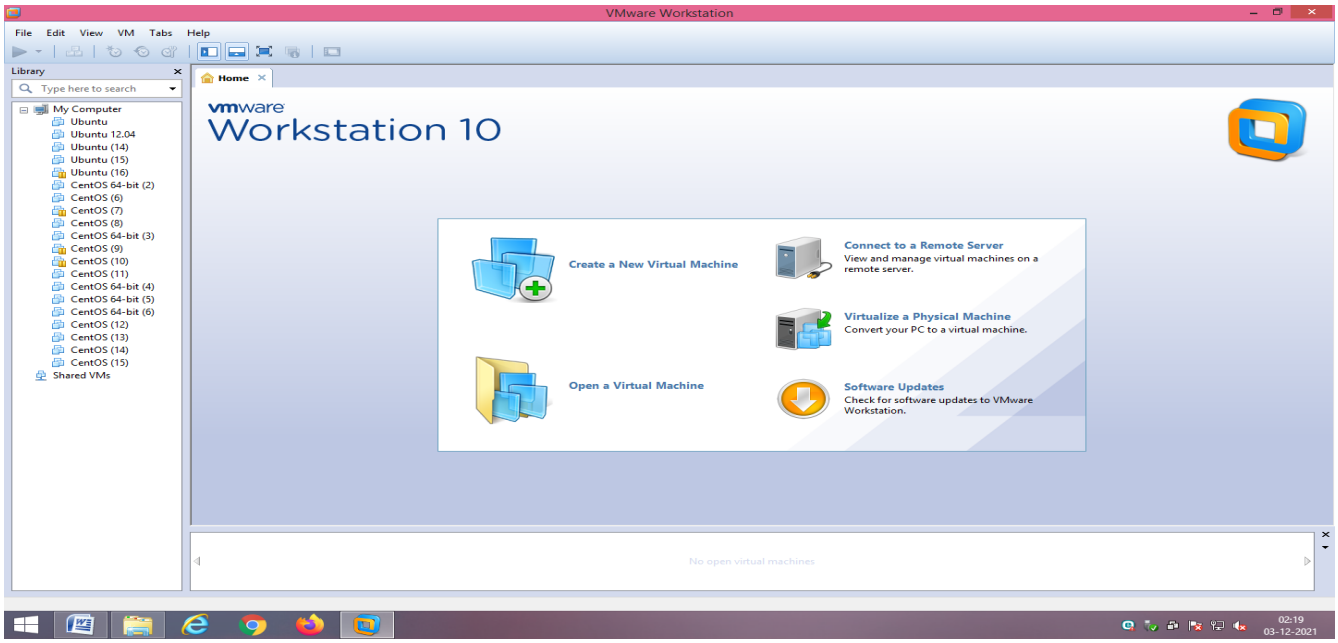
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Guest Operating System Installation
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?
Install from:
Installer disc:
No drives available
Installer disc image file (iso):
C:\grid & cloud\uss-eucalyptus-2.0.1-32bits.iso
Browse...
CentOS detected.
This operating system will use Easy Install. (What's this?)
I will install the operating system later.
The virtual machine will be created with a blank hard disk.
Help
< Back
Next >
Cancel
ect to a Remote Server
nd manage virtual machines on a
e server.
alize a Physical Machine
rt your PC to a virtual machine.
are Updates
for software updates to VMware
tation.
No open virtual machines
02:20
03-12-2021


VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Easy Install Information
This is used to install CentOS 64-bit.
Personalize Linux
Full name: CentOS
User name: jacsi
Password: •••••
Confirm: •••••
This password is for both user and root accounts.
Help
< Back
Next >
Cancel
No open virtual machines
02:21
03-12-2021


VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Name the Virtual Machine
What name would you like to use for this virtual machine?
Virtual machine name:
CentOS 64-bit (7)
Location:
C:\Users\SYS38\Documents\Virtual Machines\CentOS 64-bit (7)
Browse...
The default location can be changed at Edit > Preferences.
< Back
Next >
Cancel
No open virtual machines
02:21
03-12-2021





Result:

Thus the VM ware Workstation was downloaded and installed with CentosOS on top of windows8 successfully.

Ex.No2. Install a C compiler in the virtual machine created using Vm Ware

Aim:

Write procedure to download virtual box create a virtual machine and install c compiler to run c program.

Procedure

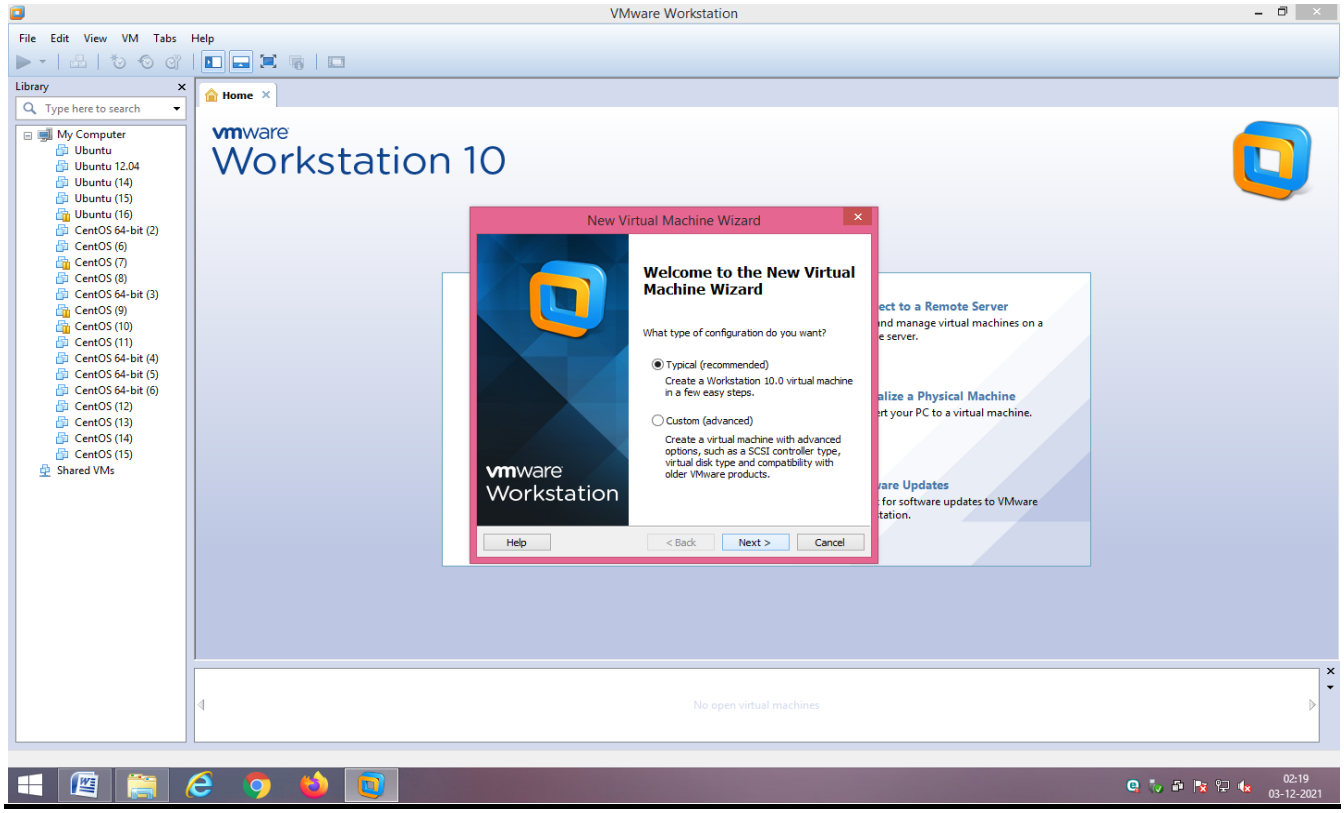
1. Download VM ware and install in your OS.
2. When finished installation, close the window.
3. Download fedora OS and install in VM ware.
4. Install c compiler and write the program in edit.

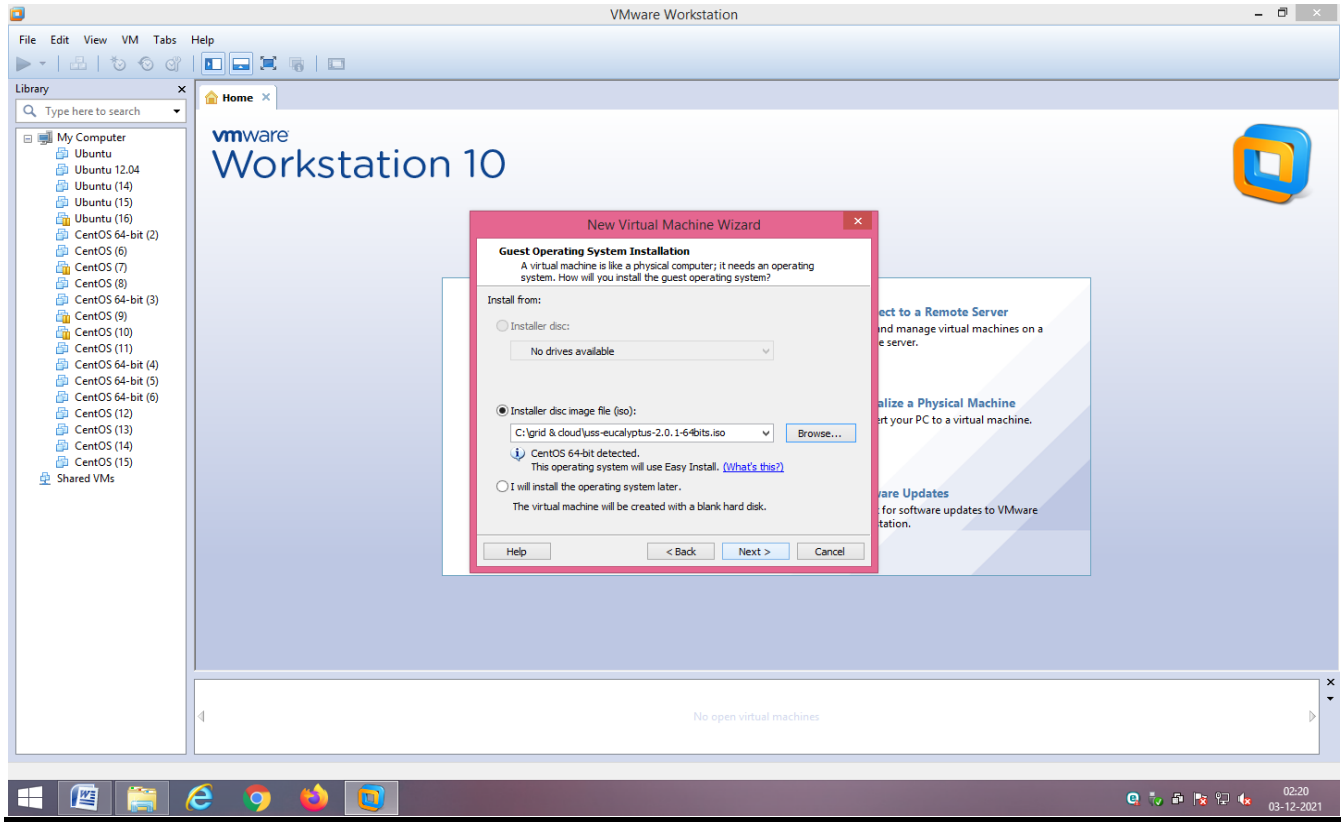
Program

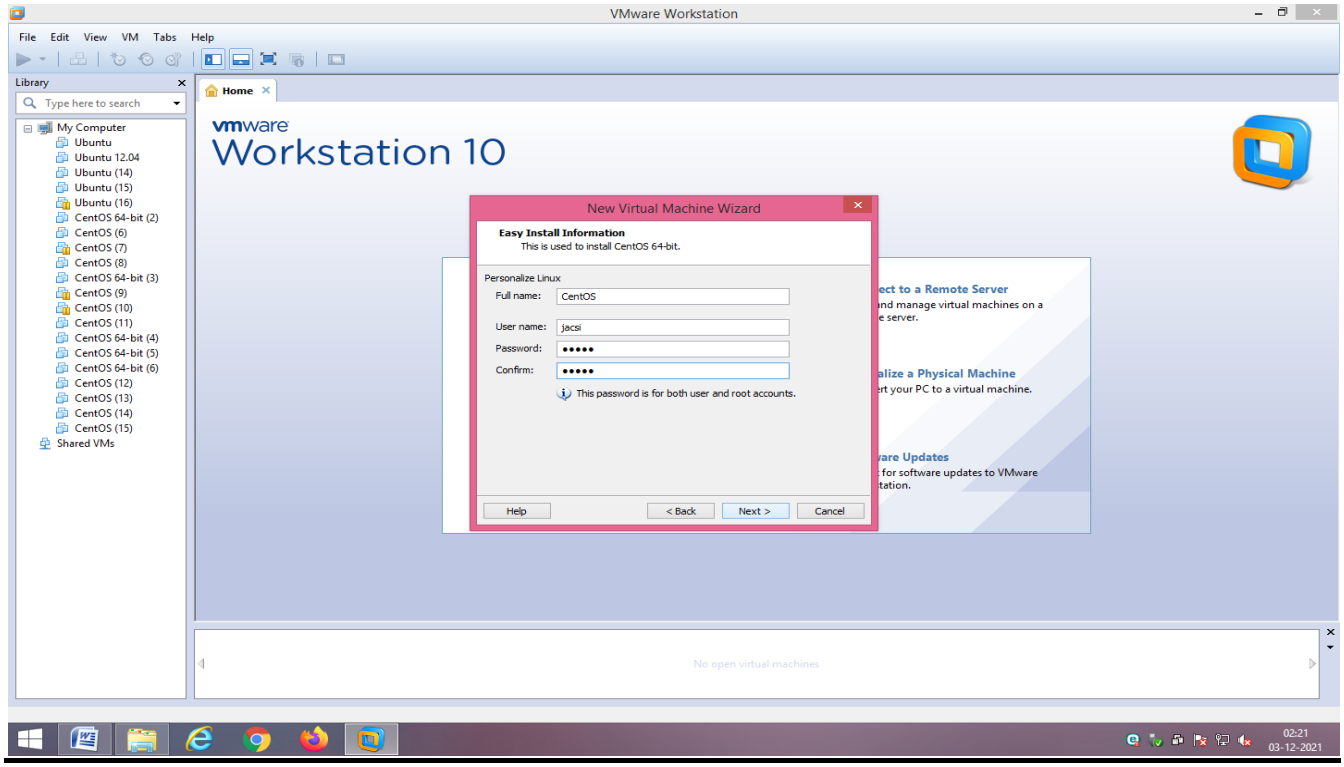
```
#include<stdio.h>

Int main()

{

int n1,n2,sum;

printf(“enter two numbers”);

scanf(“%d%d”,&n1&n2);

sum=n1+n2;

printf(“The sum is:”);

printf(“%d+%d=%d”,n1,n2,sum);

return 0;

}
```

- run the c program

SCREEN SHOTS:






VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Easy Install Information
This is used to install CentOS 64-bit.
Personalize Linux
Full name: CentOS
User name: jacsi
Password: •••••
Confirm: •••••
This password is for both user and root accounts.
Help
< Back
Next >
Cancel
ect to a Remote Server
nd manage virtual machines on a
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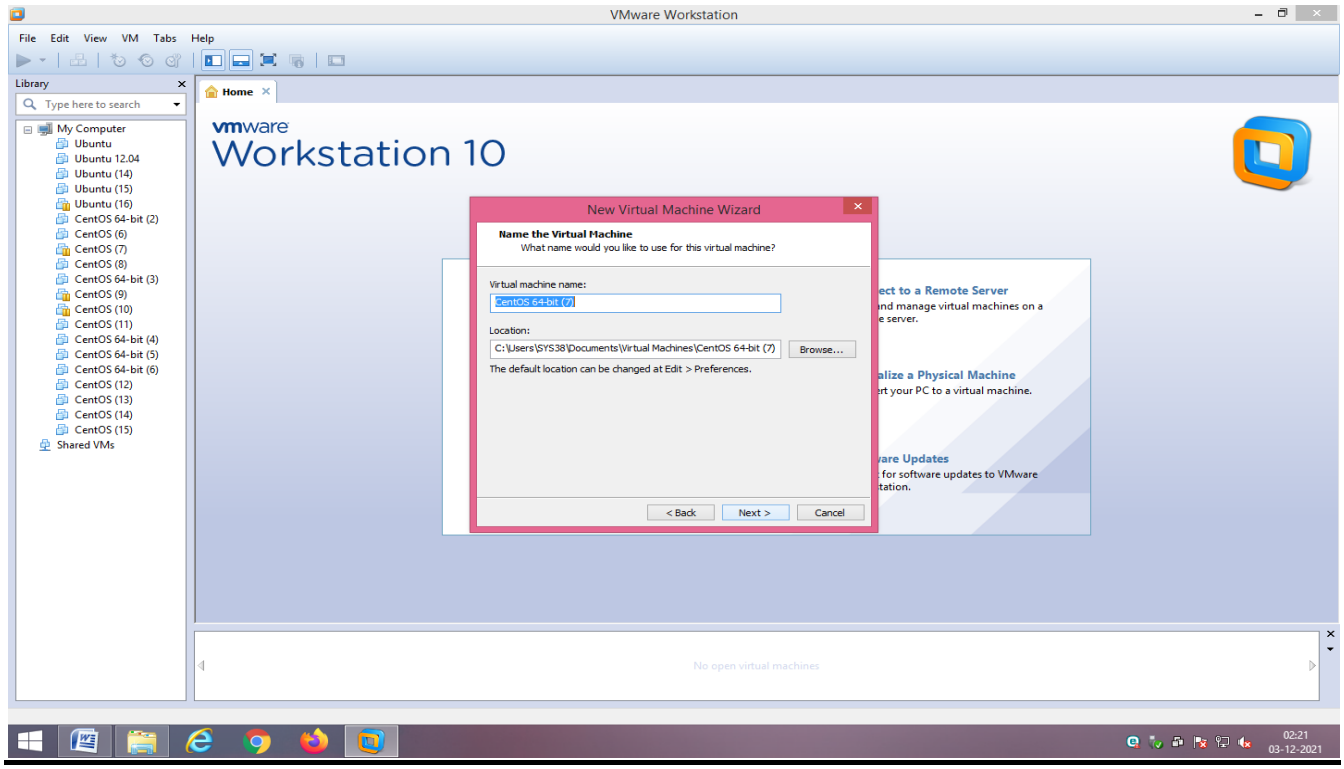
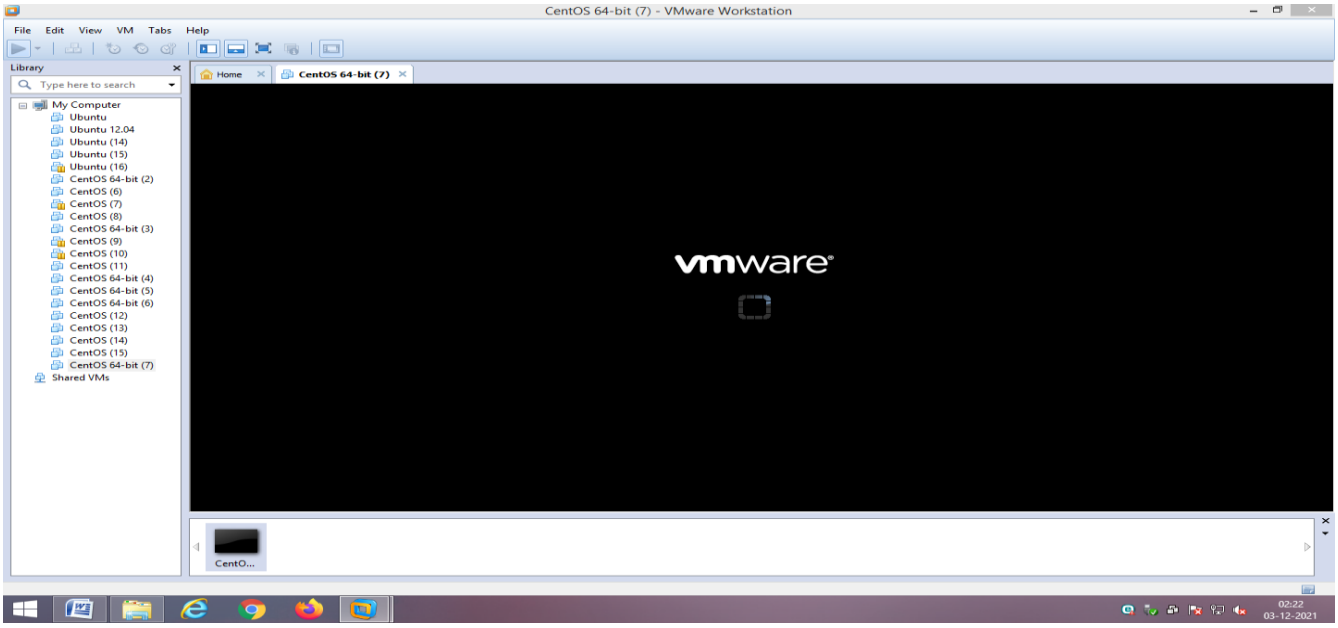
are Updates
for software updates to VMware
tation.
No open virtual machines
02:21
03-12-2021


VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
New Virtual Machine Wizard
Name the Virtual Machine
What name would you like to use for this virtual machine?
Virtual machine name:
CentOS 64-bit (7)
Location:
C:\Users\SYS38\Documents\Virtual Machines\CentOS 64-bit (7)
Browse...
The default location can be changed at Edit > Preferences.
< Back
Next >
Cancel
ect to a Remote Server
nd manage virtual machines on a
e server.
alize a Physical Machine
rt your PC to a virtual machine.
are Updates
for software updates to VMware
tation.
No open virtual machines
02:21
03-12-2021


CentOS 64-bit (7) - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
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CentOS 64-bit (4)
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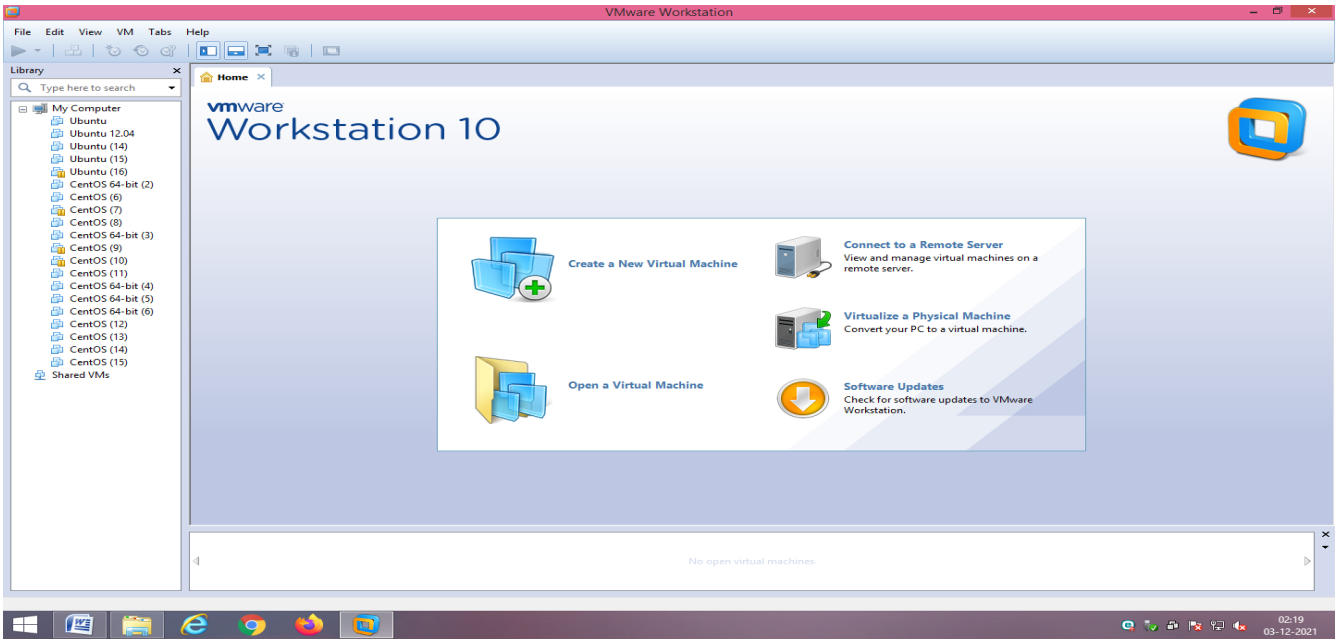
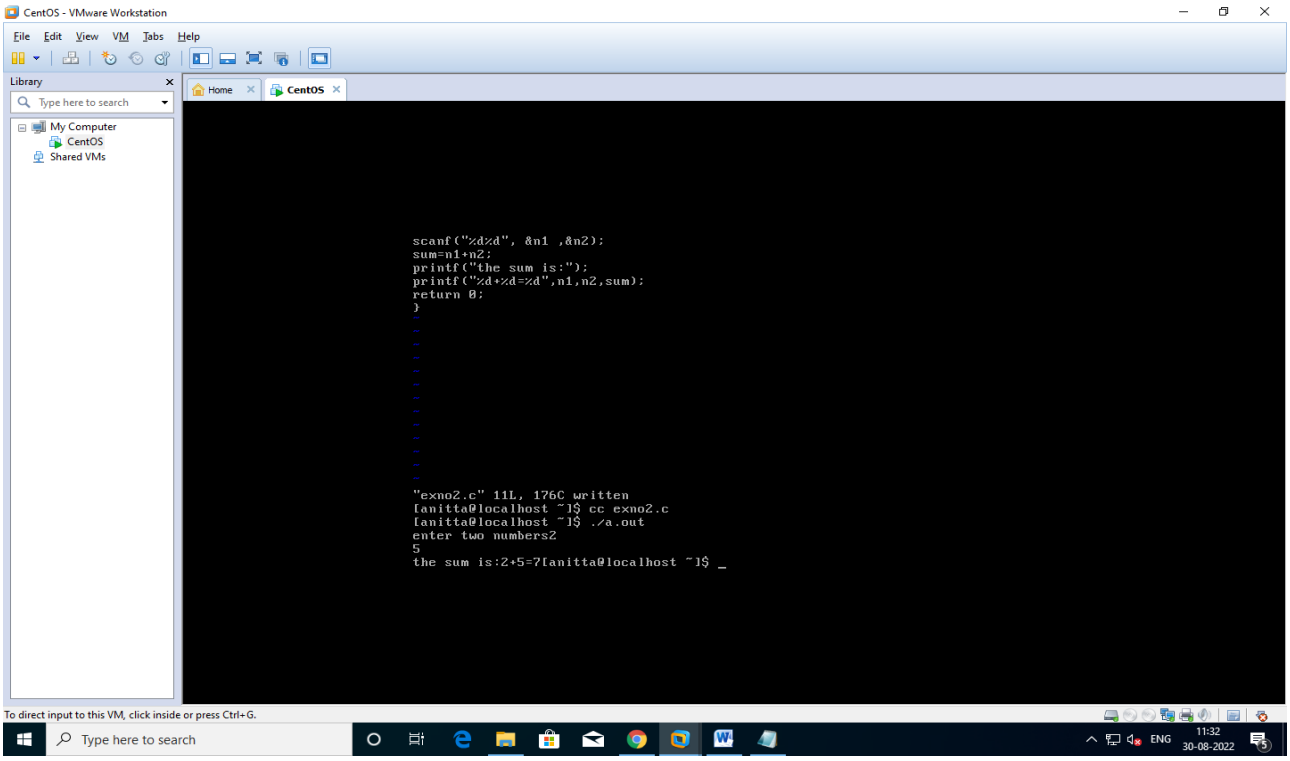
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
CentOS 64-bit (7)
Shared VMs
Home
CentOS 64-bit (7)
vmware
CentO...
02:22
03-12-2021


VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu
Ubuntu 12.04
Ubuntu (14)
Ubuntu (15)
Ubuntu (16)
CentOS 64-bit (2)
CentOS (6)
CentOS (7)
CentOS (8)
CentOS 64-bit (3)
CentOS (9)
CentOS (10)
CentOS (11)
CentOS 64-bit (4)
CentOS 64-bit (5)
CentOS 64-bit (6)
CentOS (12)
CentOS (13)
CentOS (14)
CentOS (15)
Shared VMs
Home
vmware
Workstation 10
Create a New Virtual Machine
Connect to a Remote Server
View and manage virtual machines on a remote server.
Virtualize a Physical Machine
Convert your PC to a virtual machine.
Open a Virtual Machine
Software Updates
Check for software updates to VMware Workstation.
No open virtual machines
02:19
03-12-2021

```
#include<stdio.h>
int main()
{
int n1,n2,sum;
printf("enter two numbers");
scanf("%d%d", &n1 ,&n2);
sum=n1+n2;
printf("the sum is:");
printf("%d+%d=%d",n1,n2,sum);
return 0;
}
~
~
~
~
~
~
~
~
~
~
~
~
~
"exno2.c" 11L, 176C
```



RESULT:

Thus the fedora VM is created in VM ware and c compiler is installed and the c program was written and executed successfully.

Ex.No:3 Installing and Running the Google App Engine On Windows

Aim:

Write a procedure for installation of the Google App Engine Software Development Kit (SDK) on a Microsoft Windows to allow you to run Google App Engine Applications onyour local computer and simulates the run--time environment of the Google App Engine infrastructure.

Procedure:

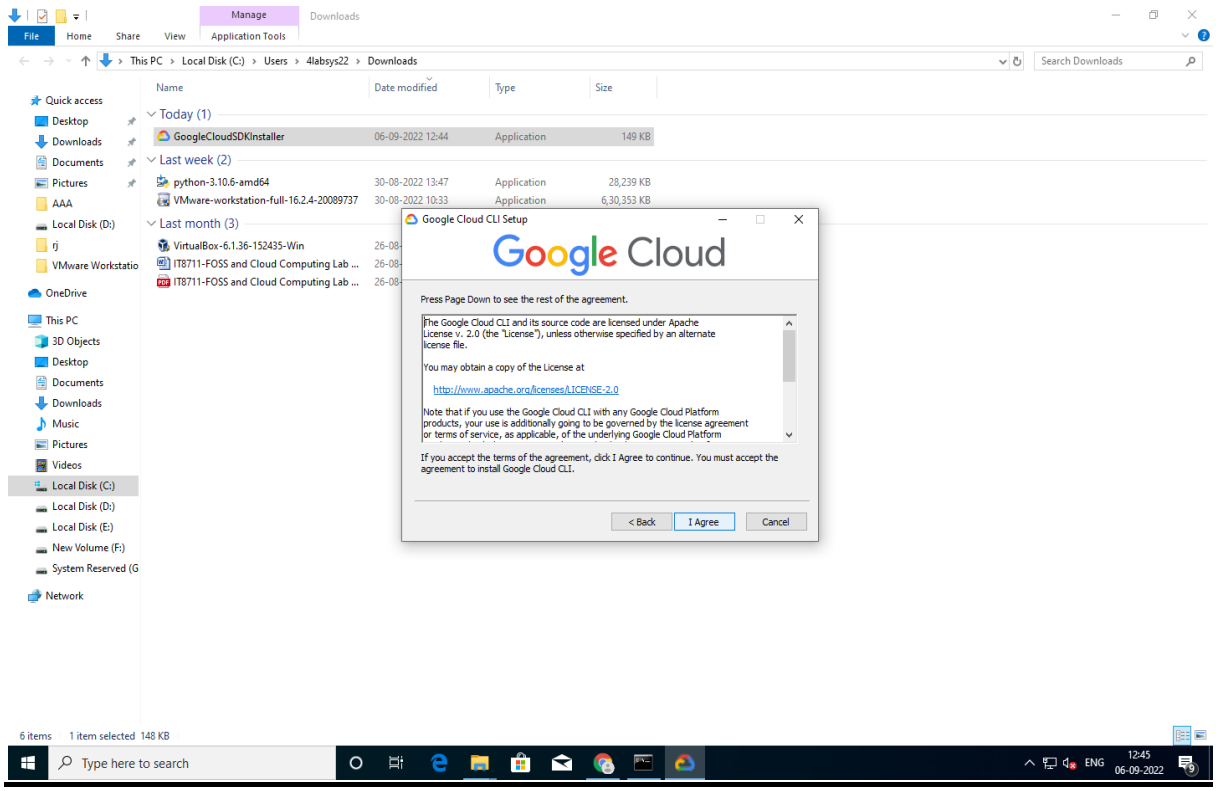
1. **Download Python 3.9.0**

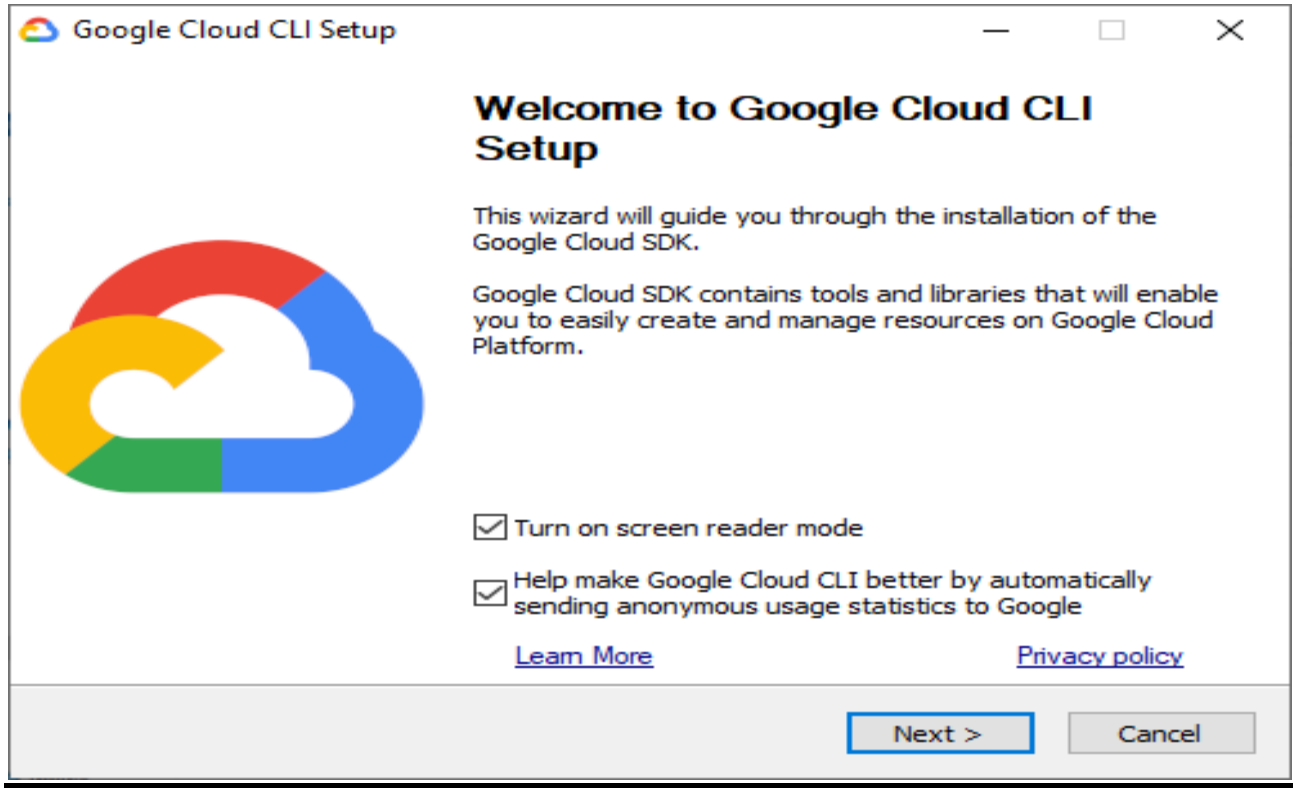
If you don't already have Python installed 3.9.0 in your computer, download and Install Python 3.9.0 from: http://www.python.org/download/releases/3.9.0/

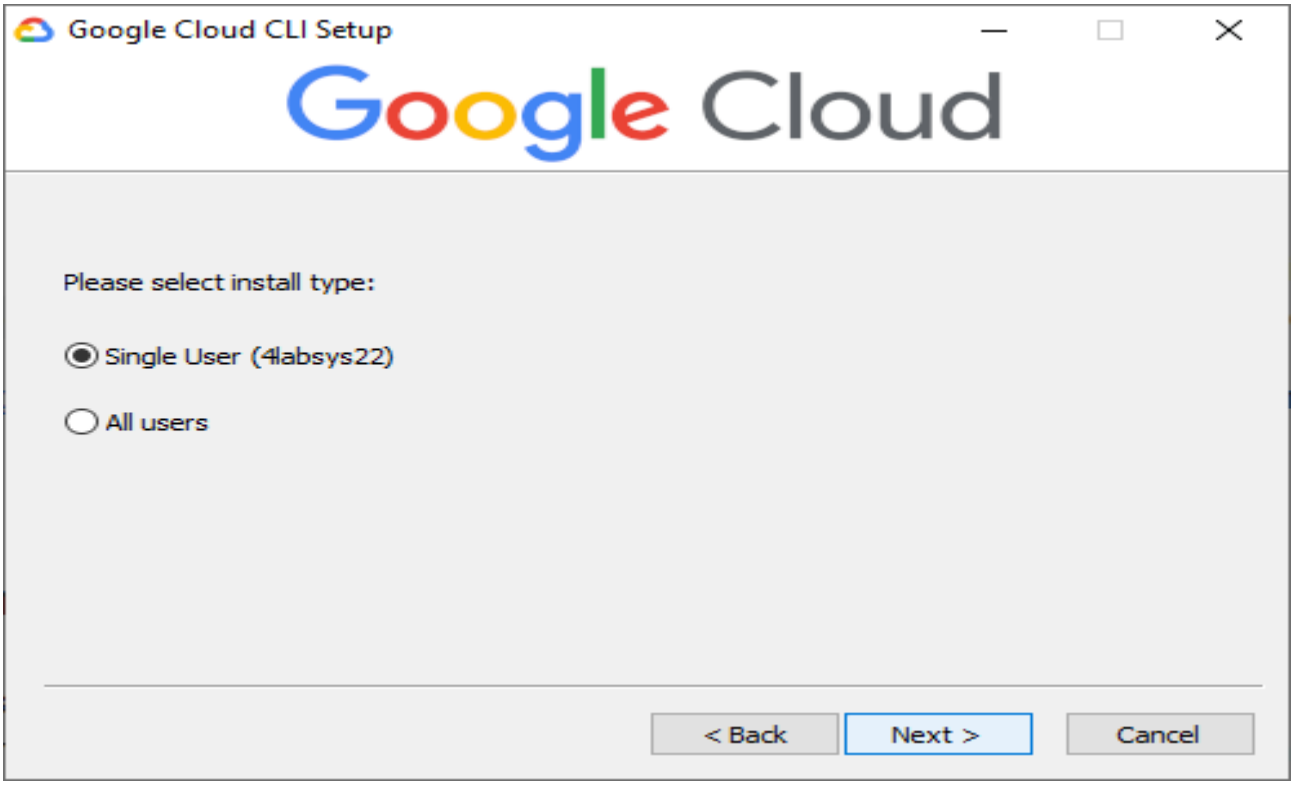
2. **Download and Install**

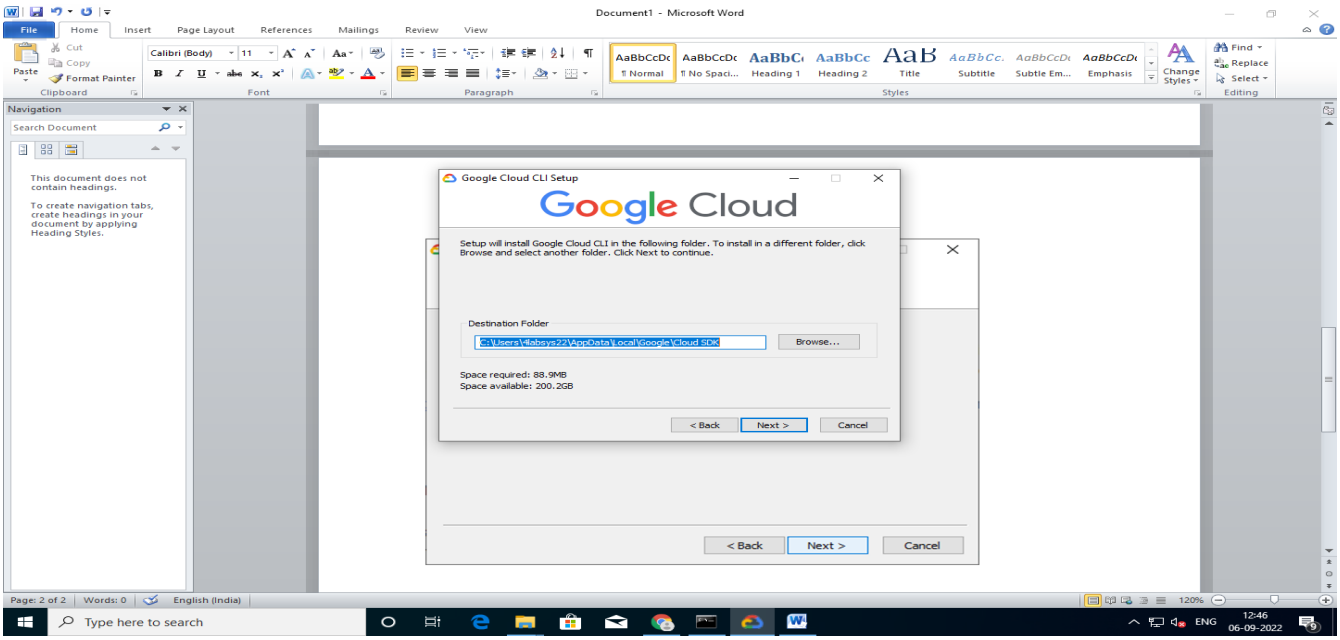
You can download the Google App Engine SDK by going to: http://code.google.com/appengine/downloads.html and download the appropriate install package.

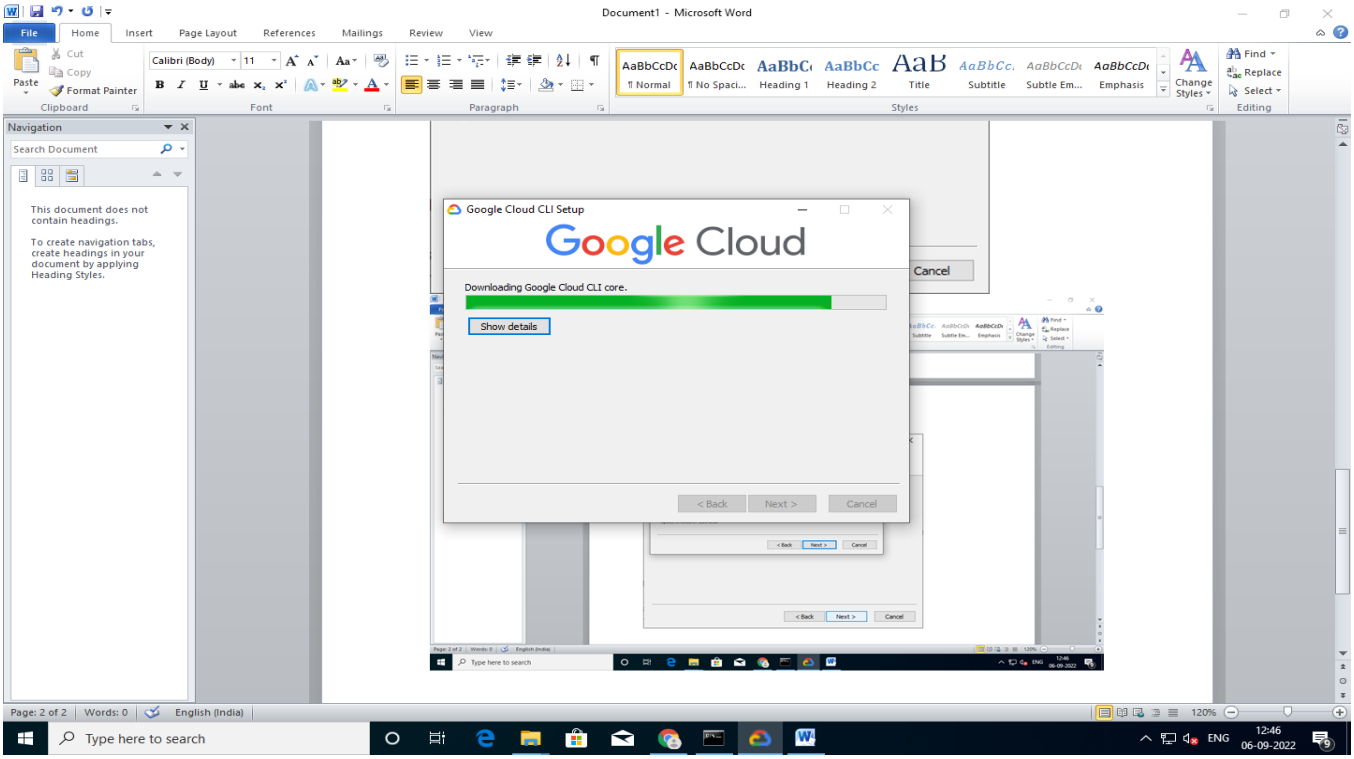
Screenshots:




Google Cloud CLI Setup
Welcome to Google Cloud CLI Setup
This wizard will guide you through the installation of the Google Cloud SDK.
Google Cloud SDK contains tools and libraries that will enable you to easily create and manage resources on Google Cloud Platform.
Turn on screen reader mode
Help make Google Cloud CLI better by automatically sending anonymous usage statistics to Google
Learn More
Privacy policy
Next >
Cancel


Google Cloud CLI Setup
Google Cloud
Please select install type:
Single User (4labsys22)
All users
< Back
Next >
Cancel





Result:

Thus the Google App Engine and python 3.9.0 was downloaded and installed.

Ex.No:4 Install Google App Engine. Create hello world app and other simple web applications

Aim:

Write a procedure to Install Google App Engine. Create hello world app and othersimple web applications using python/java.

Procedure:

1. Download and install Google cloud SDK using the link https://cloud.google.com/sdk/docs/install
2. Download Python 3.9.0

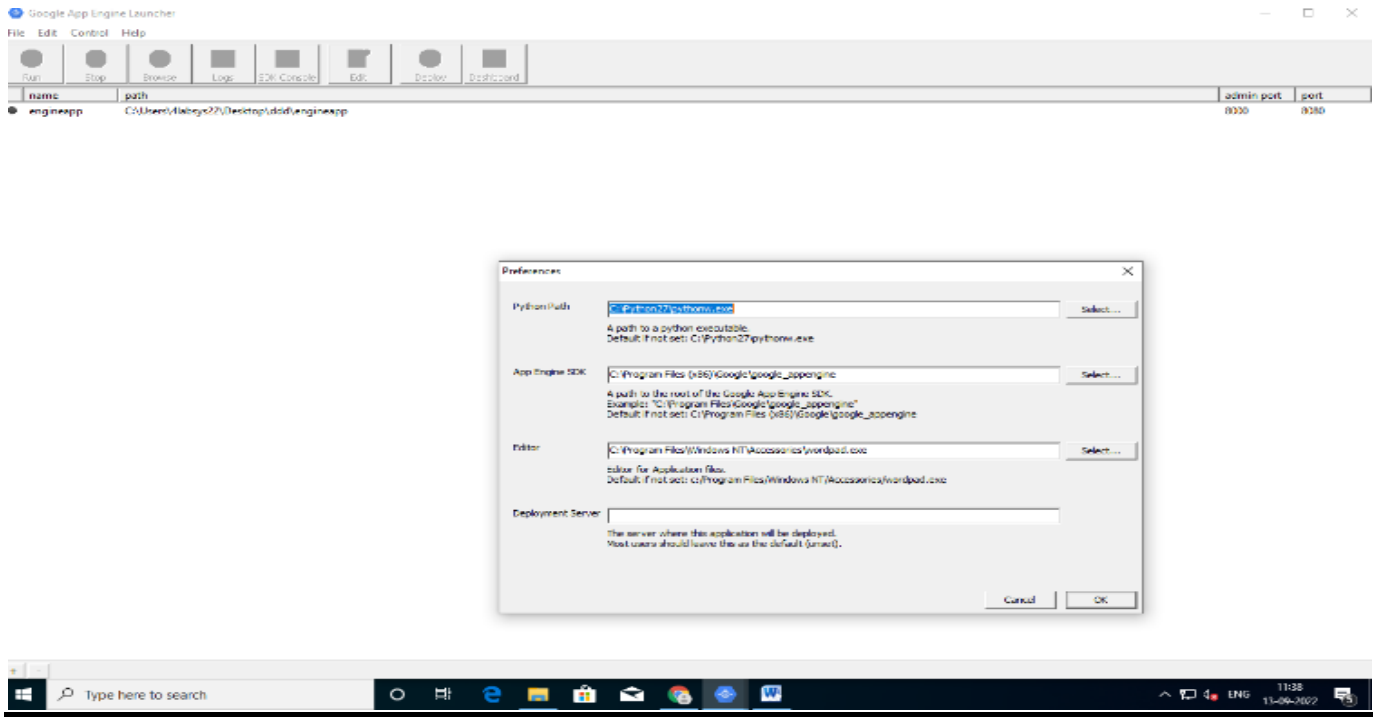
If you don't already have Python installed 3.9.0 in your computer, download and Install Python 3.9.0 from: http://www.python.org/download/releases/3.9.0/

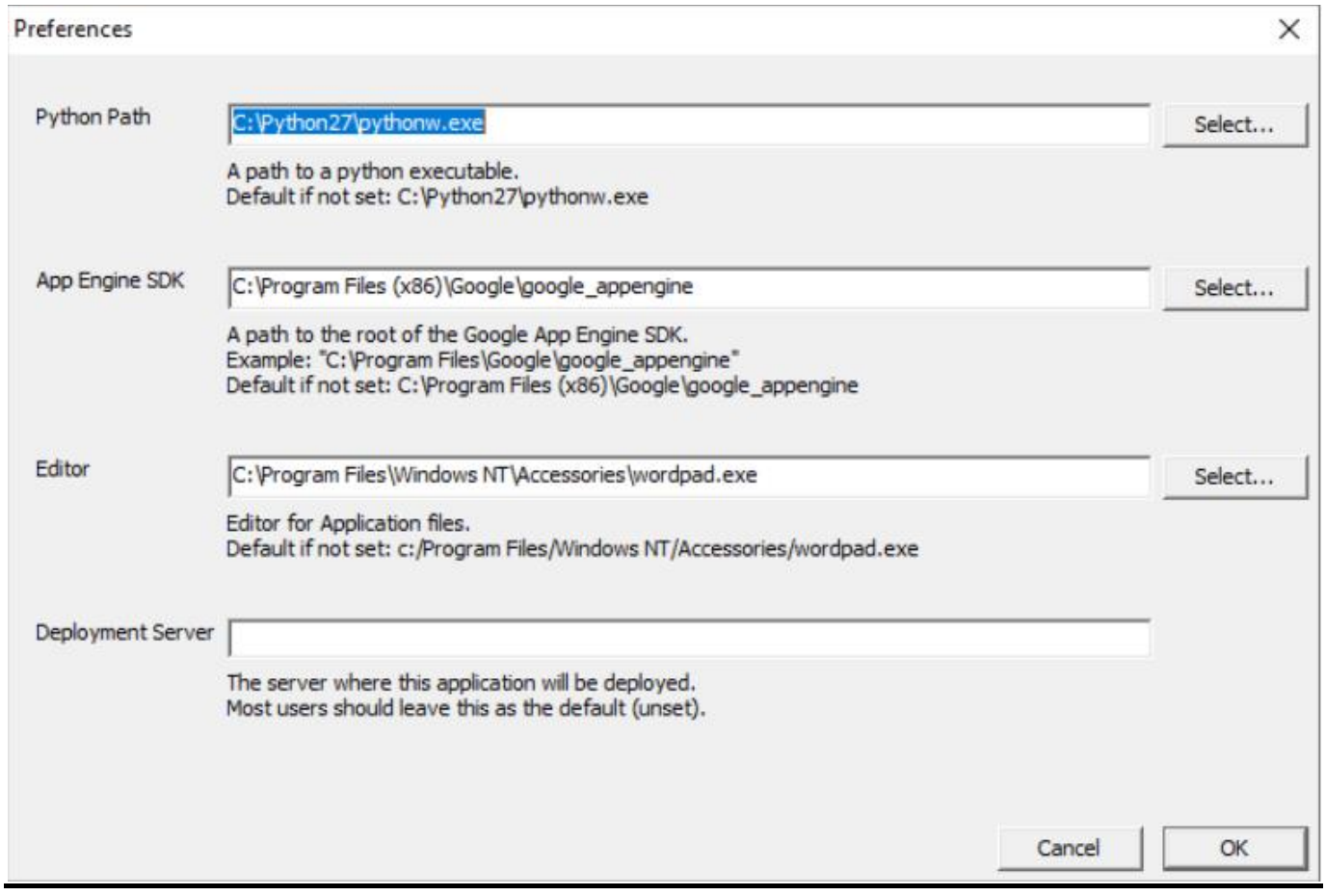
3. Install flask using the command pip install flask
4. Open IDLE python 3.9.0. Then write the coding.
5. Save the file sample.py and run the file the "Hello World " is displayed successfully
6. Write the hello world program in python.
7. Run the program in the Google cloud.

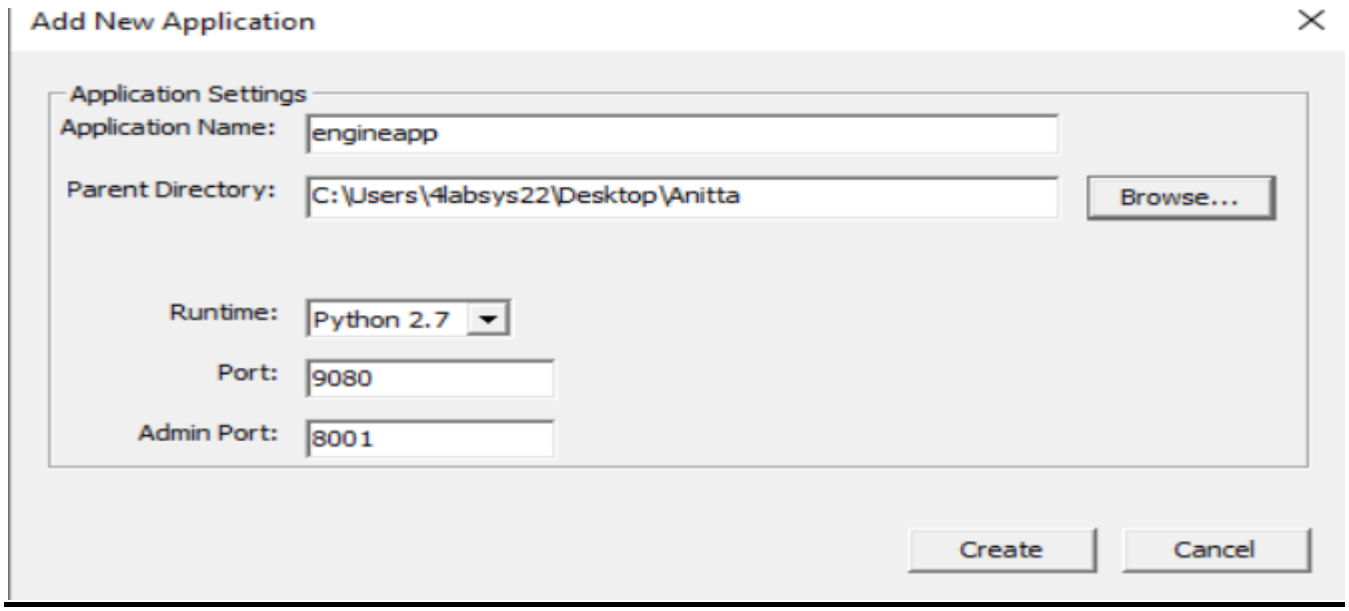
Screenshots:

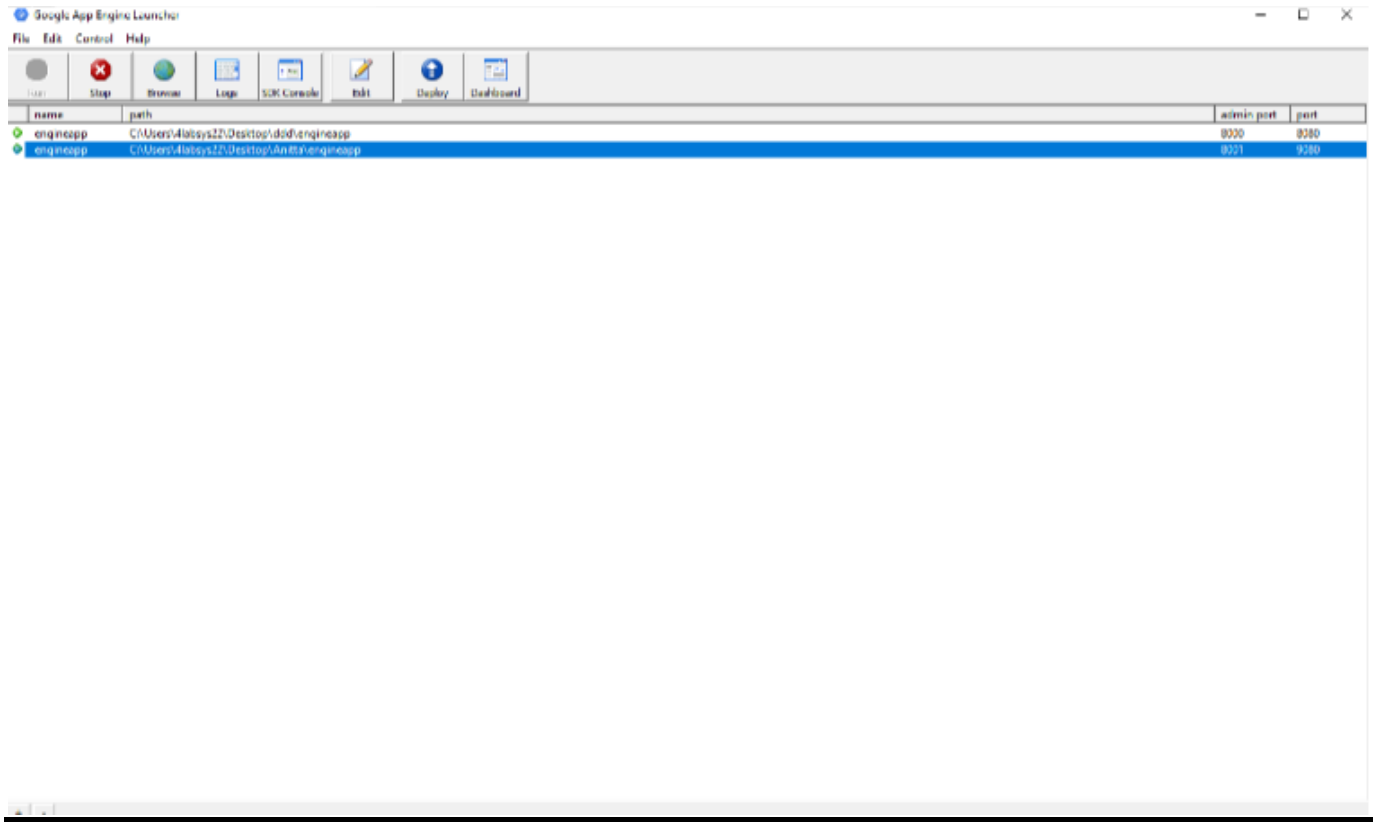

Python 3.9.0 (64-bit) Setup
Setup Progress
Installing:
Python 3.9.0 Standard Library (64-bit)
Cancel
python
for
windows

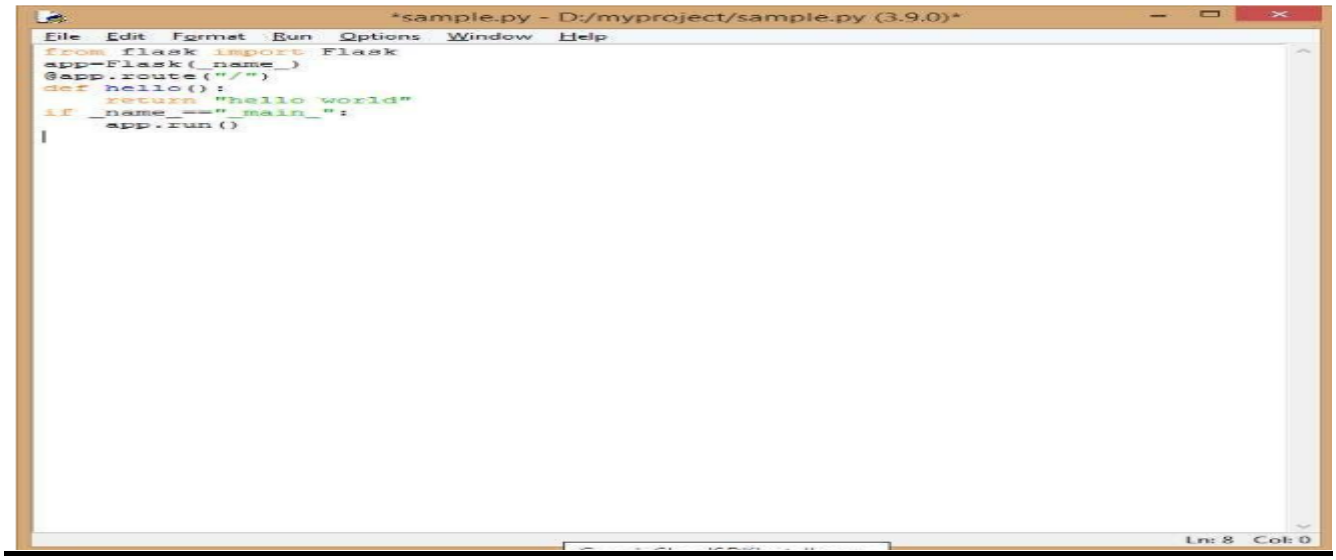

Python 3.9.0 (64-bit) Setup
Setup was successful
New to Python? Start with the online tutorial and documentation. At your terminal, type "py" to launch Python, or search for Python in your Start menu.
See what's new in this release, or find more info about using Python on Windows.
Close
python
for
windows

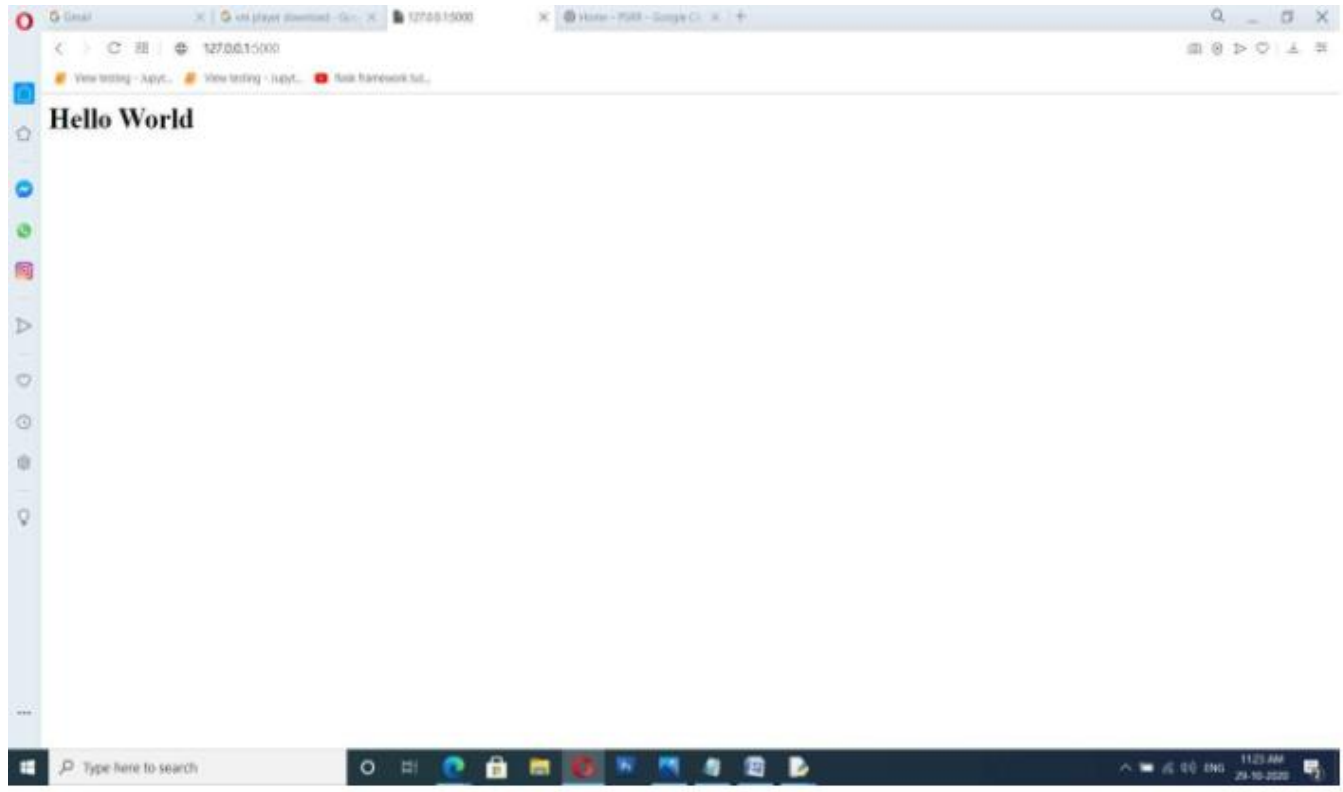

Google App Engine Launcher
File Edit Control Help
Run Stop Browse Logs SDK Console Edit Deploy Dashboard
name path admin port port
engineapp C:\Users\Akboy27\Desktop\dsid\engineapp 8000 8080
Preferences
Python Path
C:\Python27\pythonw.exe
Select...
A path to a python executable.
Default if not set: C:\Python27\pythonw.exe
App Engine SDK
C:\Program Files (x86)\Google\google_appengine
Select...
A path to the root of the Google App Engine SDK.
Example: "C:\Program Files\Google\google_appengine"
Default if not set: C:\Program Files (x86)\Google\google_appengine
Editor
C:\Program Files\Windows NT\Accessories\wordpad.exe
Select...
Editor for Application files.
Default if not set: c:/Program Files/Windows NT/Accessories/wordpad.exe
Deployment Server
The server where this application will be deployed.
Most users should leave this as the default (unset).
Cancel
OK
Type here to search
ENG
11:38
11-09-2022


Preferences
Python Path
C:\Python27\pythonw.exe
Select...
A path to a python executable.
Default if not set: C:\Python27\pythonw.exe
App Engine SDK
C:\Program Files (x86)\Google\google_appengine
Select...
A path to the root of the Google App Engine SDK.
Example: "C:\Program Files\Google\google_appengine"
Default if not set: C:\Program Files (x86)\Google\google_appengine
Editor
C:\Program Files\Windows NT\Accessories\wordpad.exe
Select...
Editor for Application files.
Default if not set: c:/Program Files/Windows NT/Accessories/wordpad.exe
Deployment Server
The server where this application will be deployed.
Most users should leave this as the default (unset).
Cancel
OK


Add New Application
Application Settings
Application Name:
engineapp
Parent Directory:
C:\Users\4labsys22\Desktop\Anitta
Browse...
Runtime:
Python 2.7
Port:
9080
Admin Port:
8001
Create
Cancel


Google App Engine Launcher
File Edit Control Help
Stop
Browse
Logs
SDK Console
Edit
Deploy
Dashboard
name
path
admin port
port
engineapp
engineapp





Result:

Thus the Google App Engine is installed and hello world application was created using python and executed successfully

Ex.No:5 GLOBUSSIM

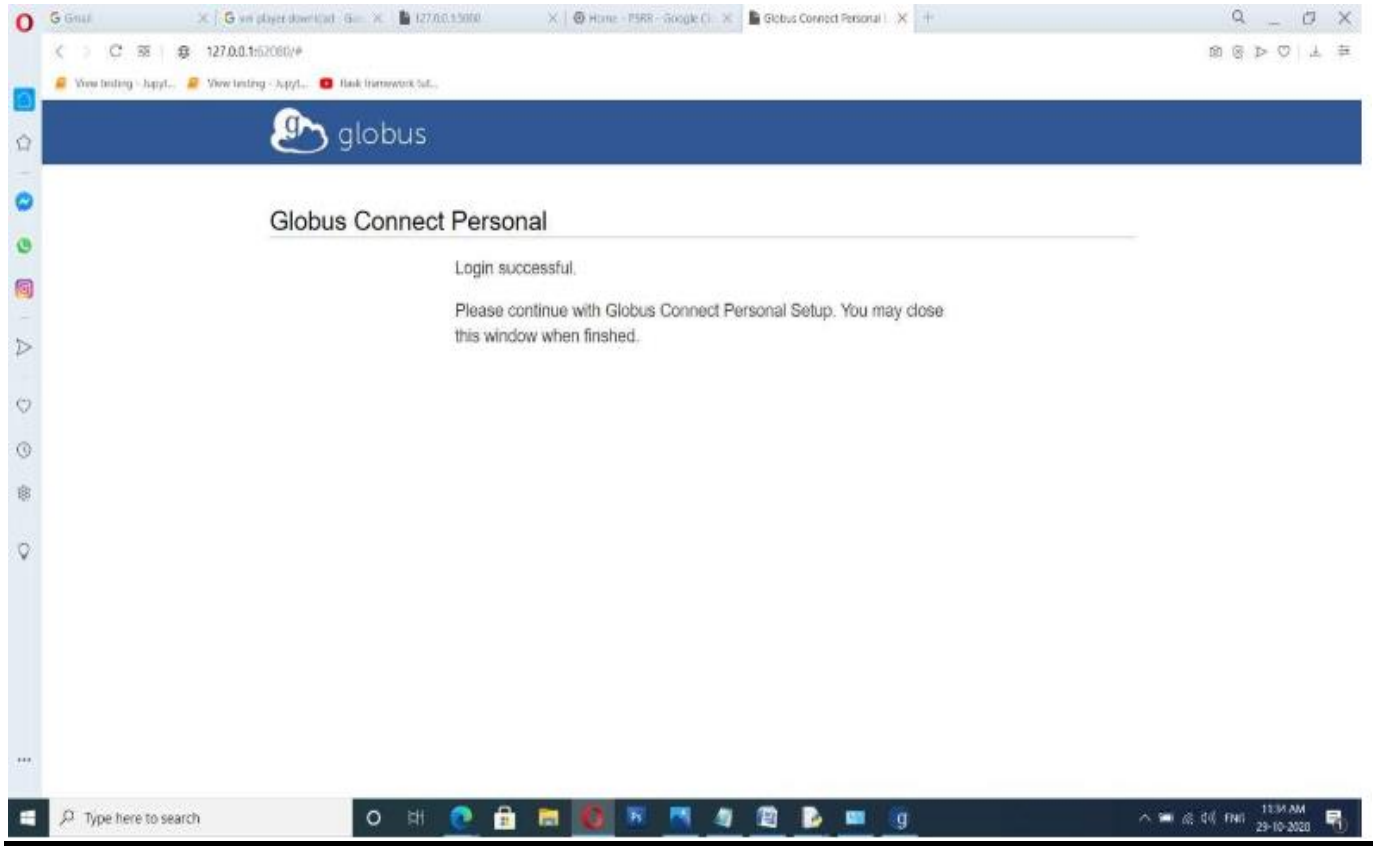
AIM:

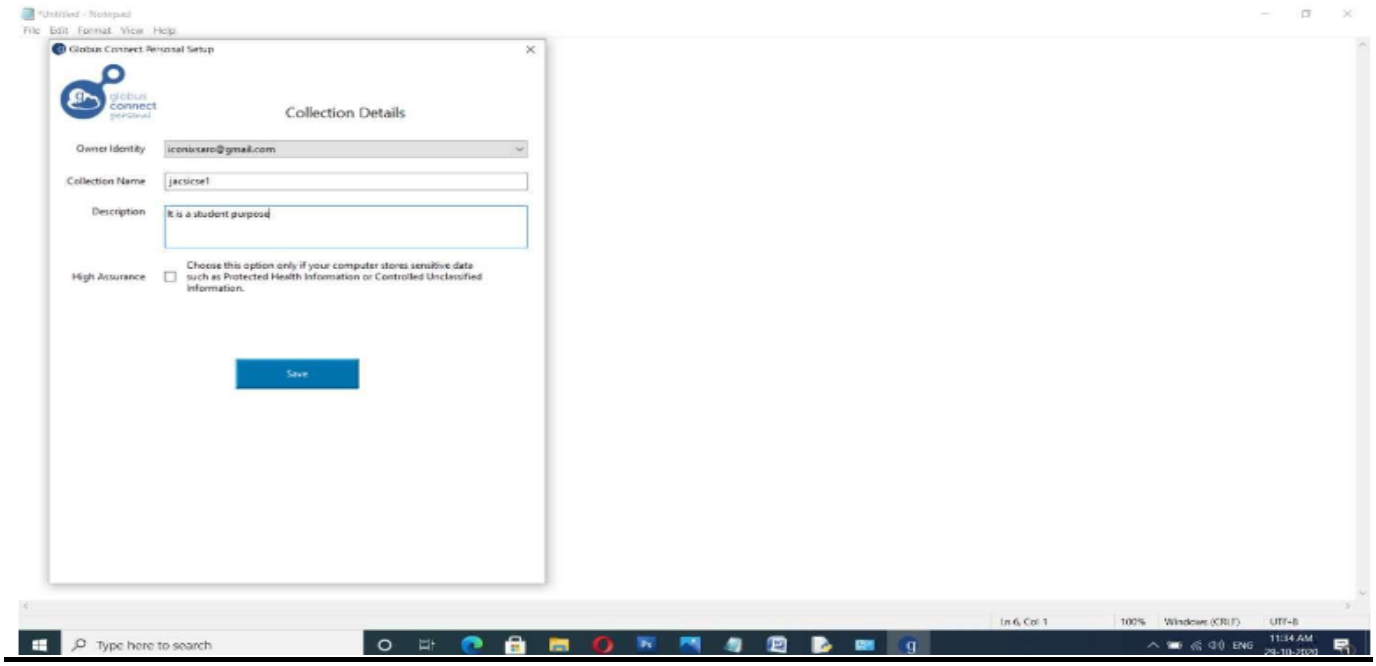
Install Globus connect to create cloud and allocate memory and store data privately with your permission.

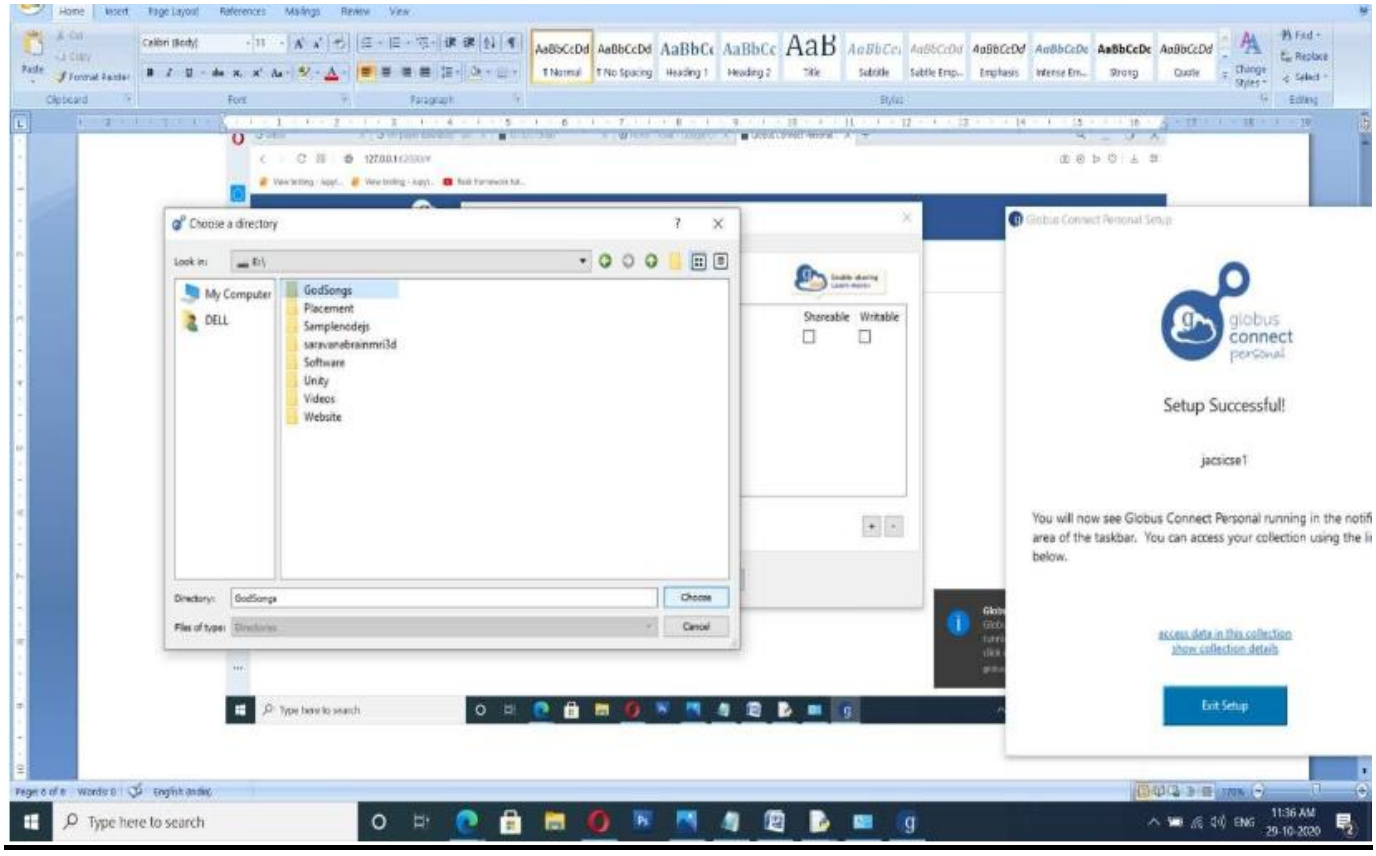
PROCEDURE:

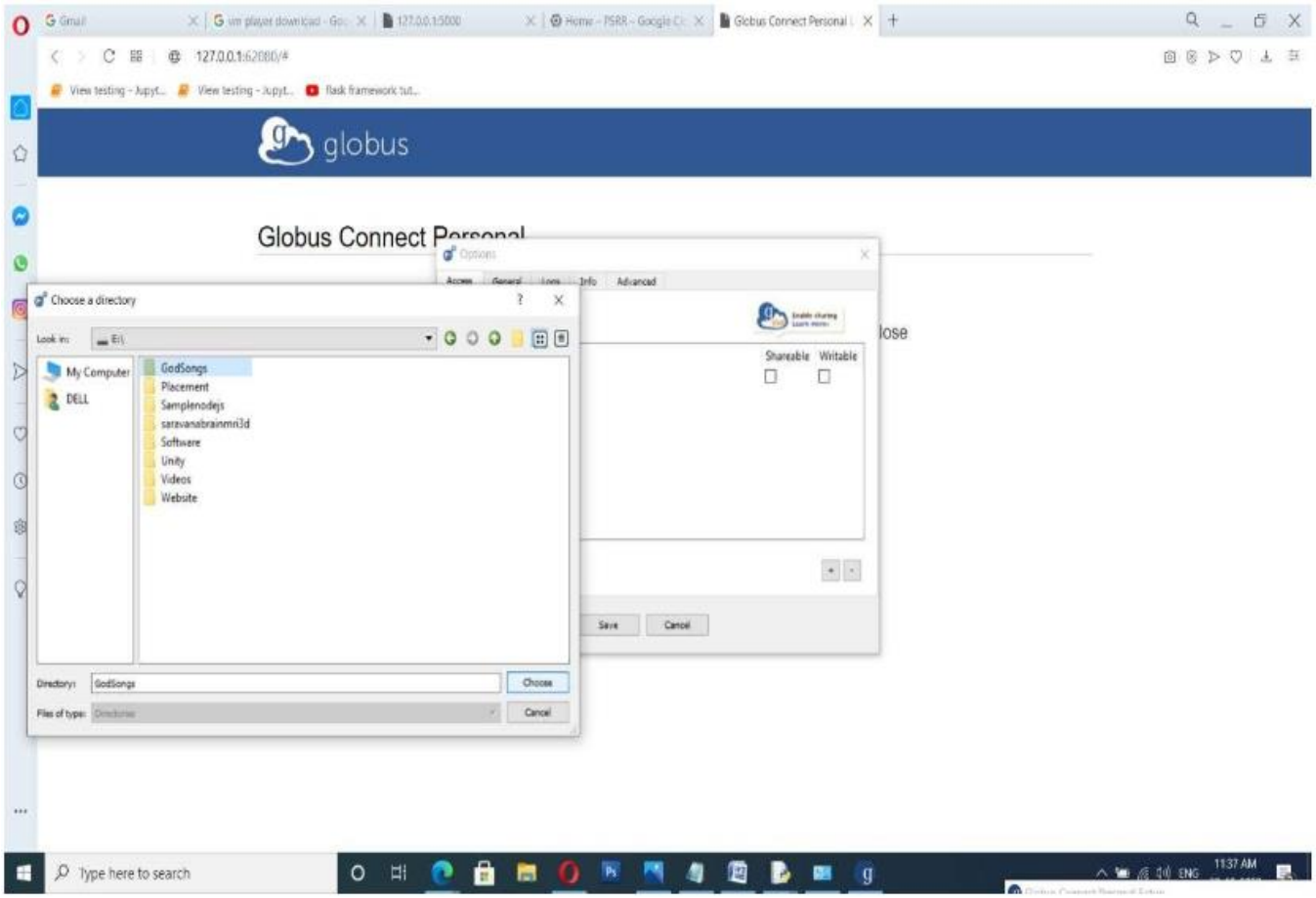
1. Sign in with Google and search **install Globus connect.**
2. Download it and install.
3. Create a cloud and exit setup
4. Add new file and attach files you need to share and save it
5. Open www.globus.org and login to see your file.

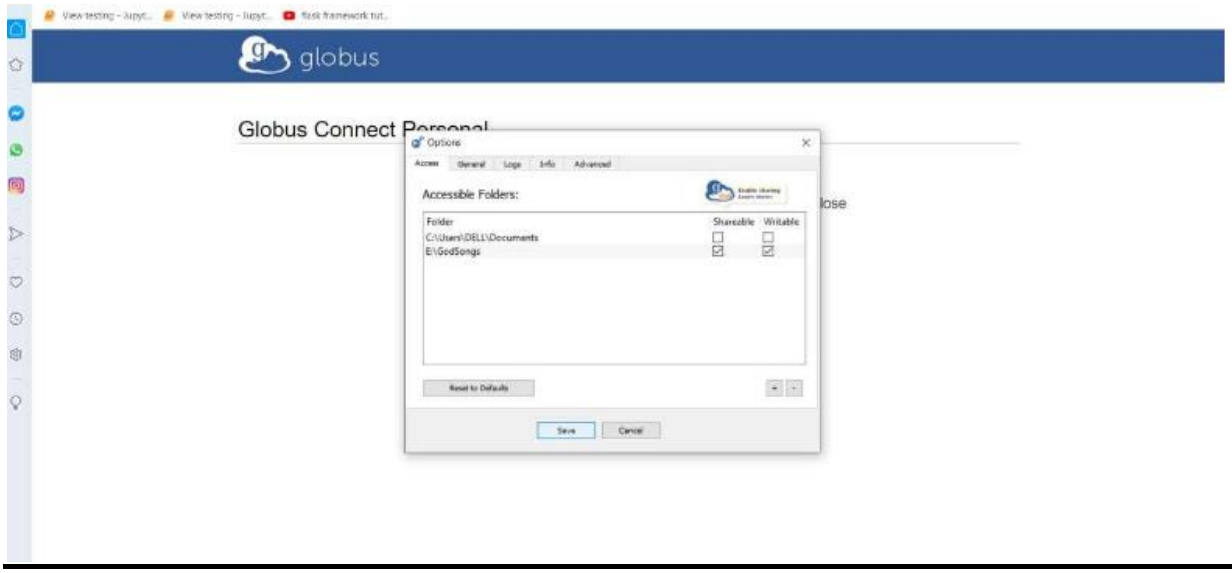
SCREENSHOTS:

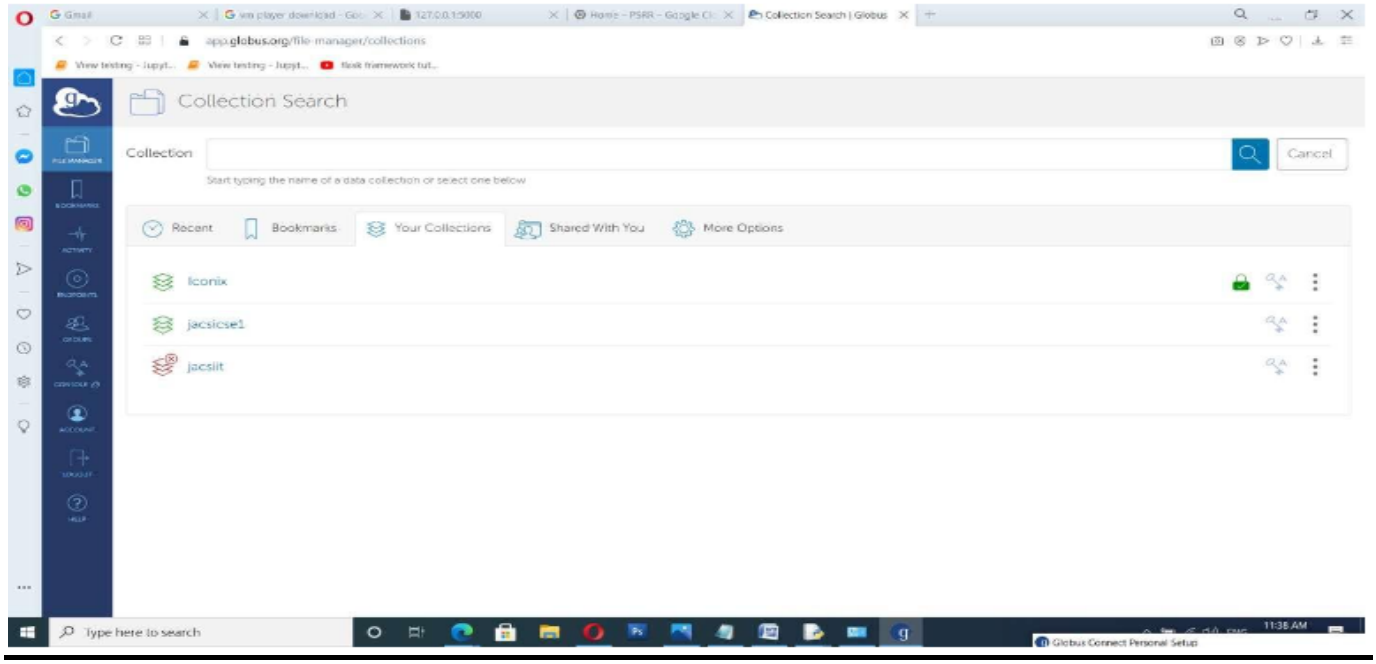


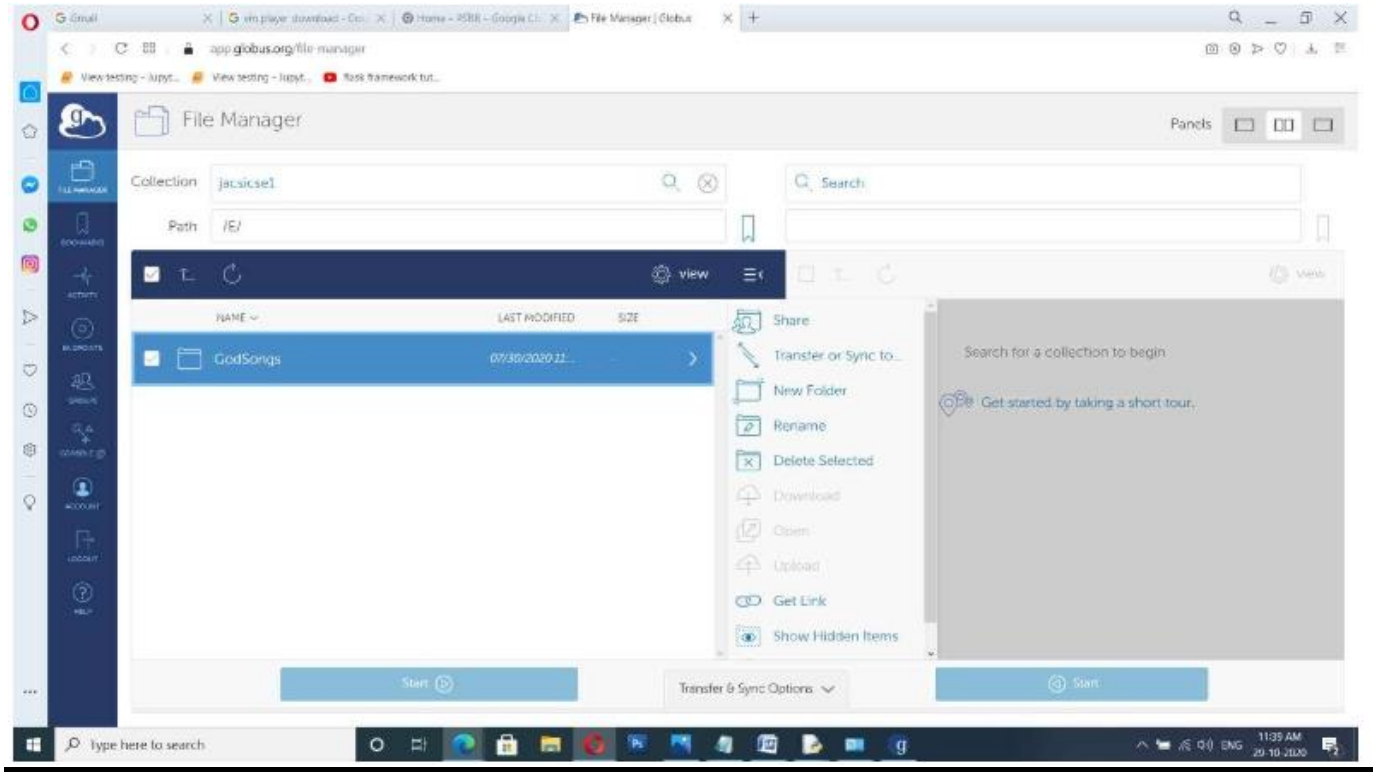

Globus Connect Personal Setup
Collection Details
Owner Identity
iconixcaro@gmail.com
Collection Name
jacsicse1
Description
It is a student purpose
High Assurance
Choose this option only if your computer stores sensitive data such as Protected Health Information or Controlled Unclassified Information.
Save
Type here to search

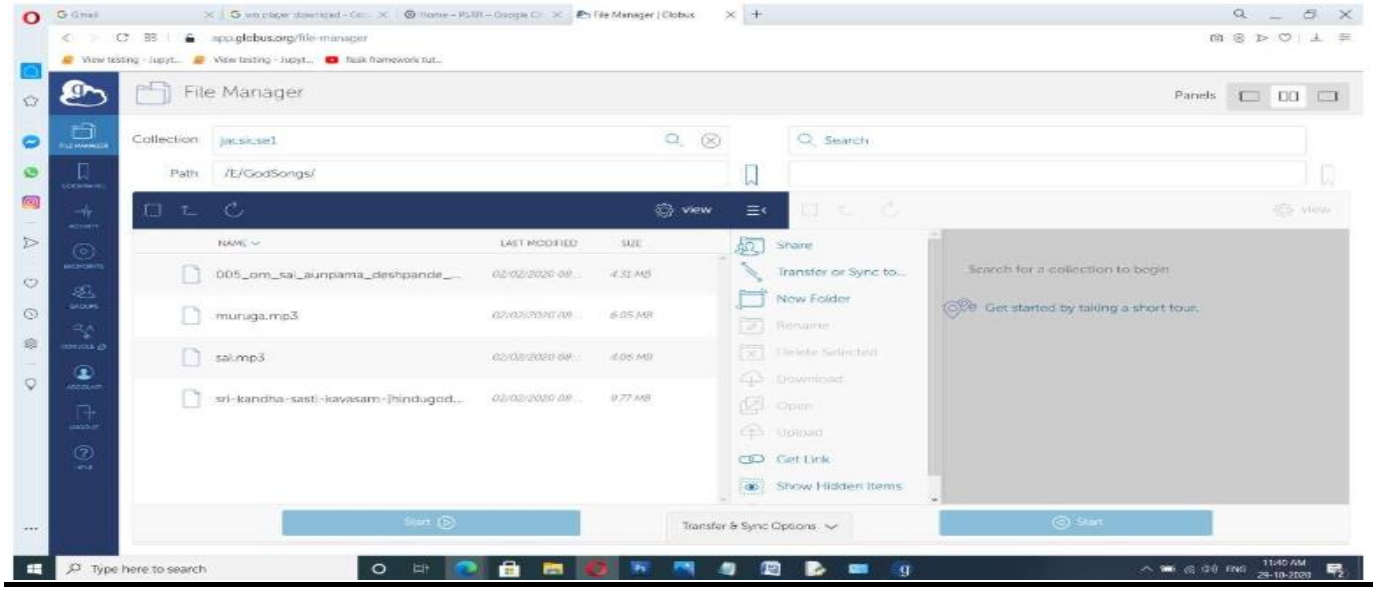

Choose a directory
Look in:
My Computer
DELL
GodSongs
Placement
Samplenodejs
saravanebrainmri3d
Software
Unity
Videos
Website
Directory:
GodSongs
Choose
Cancel
Shareable
Writable
Globus Connect Personal Setup
globus connect personal
Setup Successful!
jacsicse1
You will now see Globus Connect Personal running in the notif
area of the taskbar. You can access your collection using the li
below.
access data in this collection
show collection details
Exit Setup
Type here to search
ENG
11:36 AM
29-10-2020

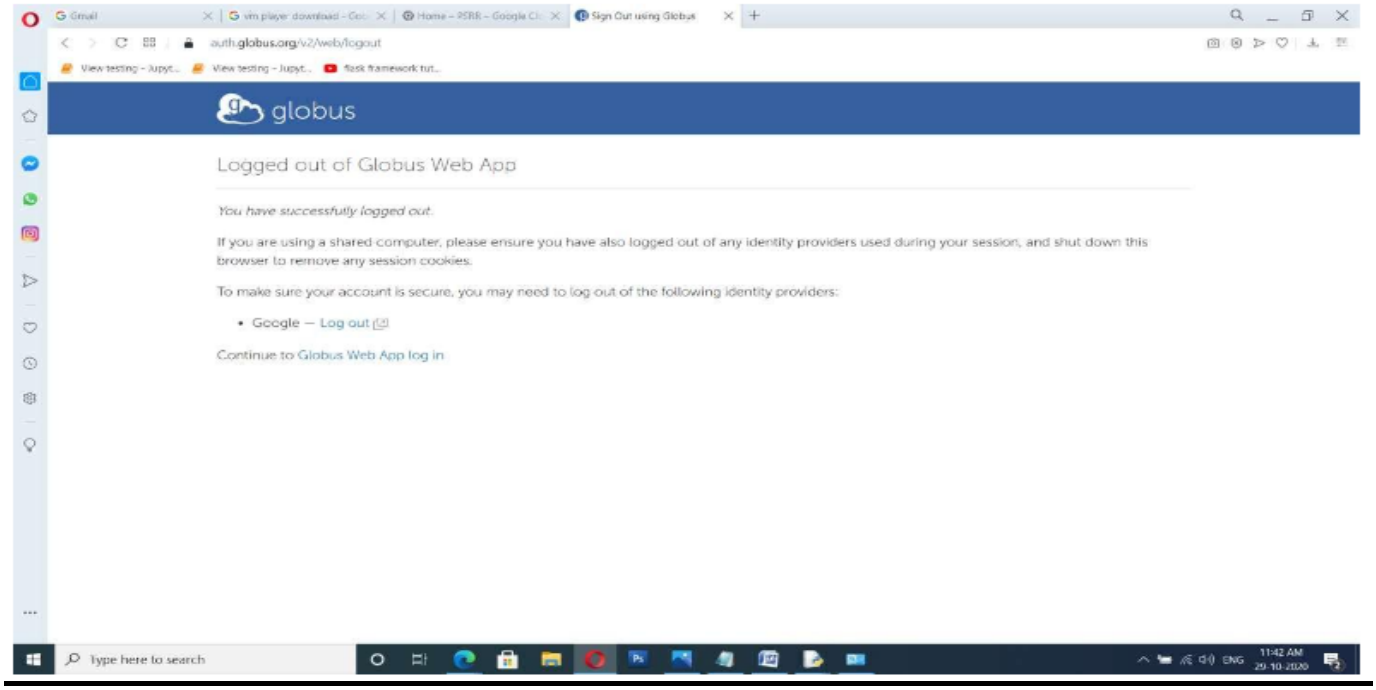

globus
Globus Connect Personal
Choose a directory
Look in:
My Computer
DELL
GodSongs
Placement
Samplenodejs
saravanabrainmri3d
Software
Unity
Videos
Website
Directory:
Files of type:
Choose
Cancel
Options
Shareable
Writable
Save
Cancel
Type here to search


globus
Globus Connect Personal
Options
Accessible Folders:
Folder
Shareable
Writable
C:\Users\DELL\Documents
E:\GodSongs
Reset to Defaults
Save
Cancel


Collection Search
Collection
Cancel
Start typing the name of a data collection or select one below
Recent
Bookmarks
Your Collections
Shared With You
More Options
Iconix
jacsicse1
jacsiit
Type here to search


File Manager
Panels
Collection
jacsicse1
Path
/E/
Search
view
NAME
LAST MODIFIED
SIZE
GodSongs
Share
Transfer or Sync to...
New Folder
Rename
Delete Selected
Download
Open
Upload
Get Link
Show Hidden Items
Search for a collection to begin
Get started by taking a short tour.
Start
Transfer & Sync Options
Start
Type here to search





RESULT:

Thus private cloud is created in Globus connect and the file are shared.

EX.No:6 Transferring Files to and from Virtual Machines

AIM:

Find a procedure for transferring files between different types of virtual machines and to transfer files between the **guest** machine and the **host** machine.

PROCEDURE:

1. Creating a Shared Folder in Virtual Box.
2. Dragging and Dropping Files in Virtual Box.
3. Managing Files with Next Cloud.

Creating a Shared Folder in Virtual Box

A shared folder is a folder which makes its files available on both the guest machine and the host machine **at the same time**. Creating a shared folder between the guest and the host allows you to easily manage files which should be present on both machines. The course virtual machines are ready to use shared folders right away, but if you are using the virtual machine on your personal computer you will need to specify which folder to use as shared storage.

Shared Folders on SCS Lab Computers using Course VMs

If you are using a course VM on a lab computer, it is likely that a shared folder has already been setup for you. On the desk top of your course VM you should notice a folder titled *Shared Folders*. Inside of this you will find any folders that have been shared between the course VM and lab computers.

You should see two folders that have already been configured for you: **Z_DRIVE** and **Temp**.

Z_DRIVE gives you access to your Windows Account `Z:\`drive. This is storage that ispersistenttoyourSCSaccountandavailableasanetworkdriveonthelabcomputers.

Temp gives you access to the folder found at `D:\temp`on the lab computer. Files stored in this folder are local to the machine, meaning that they can be accessed **faster**, but will **delete** from the system when you logout.

If you are working with data that you will need to use again, use the *Z_DRIVE* for your shared folder. If you need faster read/write speed, use the *Temp* folder, but remember to back up your files or they will be deleted when you log off the computer.

Shared Folders on Personal Computers

If you are using your own personal machine, you will need to configure Virtual Box to look in the right place for your shared files.

First, click on the guest machine you intend to share files with. From there, you can select the guest *Settings* and navigate to *Shared Folders* on the left side menu. To create a new shared folder, either Click the *New Folder* icon on the right menu **or** right click the empty list of shared folders and click *Add Shared Folder*. From here, there are **six options:**

- **Folder Path:** The folder name on the **host** machine. Click the drop down menu and navigate to the folder you would like to share.
- **Folder Name:** This is the name of the folder as it will appear on the **guest** machine.
- **Read-Only:** If you check read-only, the **guest** machine will be unable to write changes to the folder. This is valuable when you only want to send files *to* the virtual machine, but do not want to risk having the files modified by the guest.
- **Auto-Mount:** When any external storage is connected to a computer it must be *mounted* in order to be used. It is recommended that you turn on auto-mounting, unless you are familiar with the process of mounting a drive yourself.
- **Mount Point:** Unless you already know about mount points, leave this blank.
- **Make Permanent:** If you check this, the shared folder will be a permanent **machine folder**. If it is not checked, the folder will not be shared after a shutdown.

On the course virtual machines, when you load into the desktop, you should see a folder labeled *Shared Folders*. In there you will see any folders that are currently mounted and being shared.

Dragging and Dropping Files in Virtual Box

If you only need to transfer a few files quickly, you can simply drag and drop the files in. On the top bar of the running guest machine, click on *Devices* > *Drag and Drop* and make sure that *Bidirectional* is selected. This means that you will be able to drag files from the host to the guest and from the guest to the host. Once bidirectional drag and drop is checked, you should be able to be dragging and dropping files.

NOTE: Sometimes when dragging files ***into* the course VM**, you may not be able to drag into the file browser directly. If you encounter this issue, you should drag your files onto the *Desktop* and move the files around from there. You should see the cursor change when it is ready to drop files. You can also drag files from the guest machine into the host. To do this, simply open the file browser on the host to where you would like to drop the files and drag the files from the virtual machine into the file browser of the host. File transfers should be pretty quick; if the virtual machine seems stuck when transferring, simply cancel the transfer and try again.

Managing Files with Next Cloud

On any virtual machine, including Virtual Box, VM Ware, or the virtual machines hosted on the SCS Open Stack, you can access the SCS Next Cloud services to move files between multiple machines and your SCS Windows Account storage. Next Cloud offers you all of your SCS storage in one remote location, similar to how you might use other file hosting services like Drop box or Google Drive. Before trying to use Next Cloud, you should check that you can access the service by logging in here.

If you can access the Next Cloud services, you can browse the various file storage services available to you:

- **Linux Home:** These are the files from your SCS Linux Account
- **Windows Home:** These are the files from your SCS Windows Account and your lab `Z:\`drive.
- **Next Cloud:** In addition to the other storage accounts provided to you by the SCS, you can also upload up to 20GB of files directly to Next Cloud.

With Next Cloud, you can upload your files from any machine with an internet connection and download them onto any other machine with an internet connection. For example, you can move project files off of your virtual machine, onto the Next Cloud storage, and then download them on your personal laptop. Alternatively, you can upload files from your personal PC onto the Next Cloud storage, place it into the *Windows Home* folder, and access those files from either the lab `Z:\`drive or download the mona virtual machine like Virtual Box or Open Stack.

Uploading Files to Next Cloud from a Lab Computer

If you would like to upload files from a lab computer, the easiest way to do this is to place the files you would like to transfer into your `Z:\`drive. These files will be automatically backup into your Next Cloud storage under the *Windows Home* folder. After that, you can move them into the main Next Cloud storage or choose to keep them in your `Z:\`drive.

Uploading Files to Next Cloud from a VM or Other PC

If you would like to upload files from either a VM or any other computer, you can log into the Next Cloud service using any of the available interfaces, such as the web interface. Press the"+" icon in the top left of the file browser and select *Upload File*. From here, you can choose to keep it in the main Next Cloud storage, move it into your Windows Account storage (the *Windows Home* folder),or into your Linux Account storage (the *Linux Home* folder).

Downloading Next Cloud Files to a VM or Other PC

Once your files are uploaded you will be able to download those files onto any machine which can connect to Next Cloud. First, log in to your preferred Next Cloud interface (eg. the web interface). N to the folder which contains the files you would like to download. Once you are in the target folder, click the checkbox next to each file you would like to download. Above the file listing you should notice the context bar changing to tell you how many files you have selected and a button labeled Actions. Click Actions>Download.

If you have selected a single file, it will prompt you to confirm the download. If you have chosen more than one file, Next Cloud will place all of the selected files into a zip archive. Before you can use the files, you will need to extract them from the archive. Once you have downloaded your file, or extracted your archive, you are ready to use your files on your machine.

RESULT:

Thus the procedure for transferring files between different types of virtual machines and to transfer files between the **guest** machine and the **host** machine are studied.

Ex.No:7 How to install Open Stack and Create your First Virtual Machine / Instance

AIM:

Study about Open stack and How to install Open Stack and create your First Virtual Machine/Instance.

INTRODUCTION:

Open Stack is basically a cloud operating system. That let you deploy public and private clouds and take care of all the things for you. In this article, we will see that how to install Open Stack and create your first virtual machine or in other words launch your first instance.

We will perform our installation on Ubuntu 16.04 Server flavor because as mentioned on Open Stack site, they have done extensive testing with this flavor and this operating system is best suited for Open Stack. You can download the exact version that I've used from here. You can download Oracle virtual box and do everything inside your computer, or look at the VPS offers section to find a best VPS provider to test Open Stack, I would recommend buying a VPS.Minimum requirements for Open Stack is listed below:

- 4 GB of Ram.
- 4 CPU Units.
- 30 GB Disk Space.

Once you have a virtual machine installed with mentioned version of Ubuntu, you are ready to install Open Stack and take it for a spin.

PROCEDURE:

Step1:Preparethe

environmentforinstallingOpenStack!Step2:DownloadandI

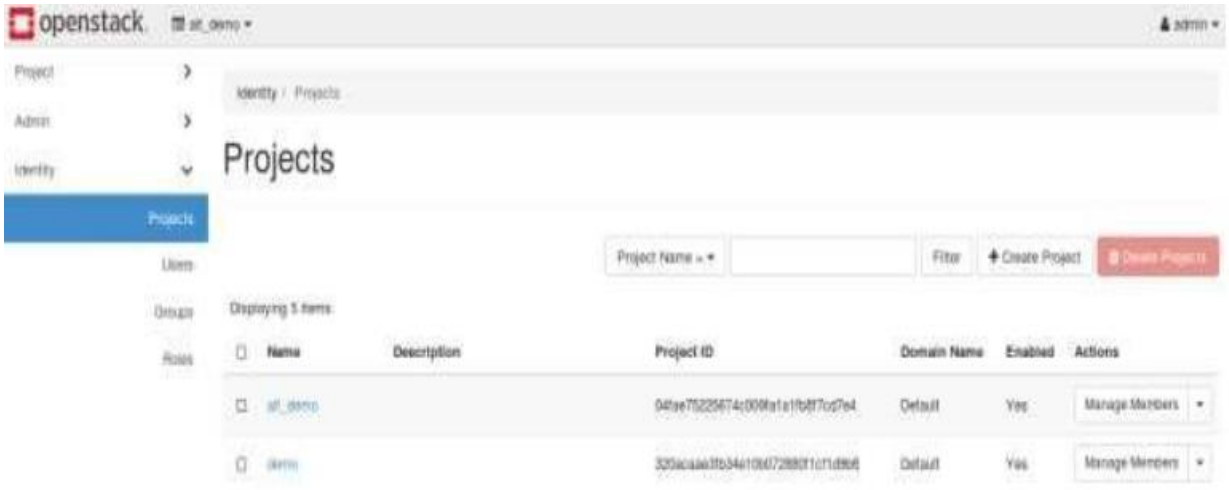
nstallOpenStack!

Step3:CreateNetwork!

Step4:CreateVirtualMachine/Instanceand Launch

InstanceStep5:AccessVirtualMachineConsole!

Screenshots:



Step1: Prepare the environment for installing Open Stack!

There are few things that need to be done before we start installing Open Stack. Just please run the following commands and you will be done with it:

1. ***sudoapt-getupdate***
2. **sudoapt-getupgrade**
3. sudoapt-getdist-upgrade
4. sudoapt-getinstallgit-y
5. **sudoreboot**

These commands will just bring all your packages to the latest version and installing it so that we can clone Open Stack to our Linux machine.

Step2: Download and Install Open Stack!

Note: If you already have a "stack" user on your virtual machine or laptop (with sudoprivileges), then you do not need to create an additional user.

After your virtual machine is done with a reboot, you are now ready to install Open Stack. Normally Open Stack runs under non-rootuser with sudoprivileges. We can easily create one to start with using:

1sudouseradd-s/bin/bash-d/opt/stack-mstack

We've just created a user "stack" on our Linux machine, now let us give this user sudoprivileges using: 1echo"stackALL=(ALL)NOPASSWD:ALL"|sudotee/etc/sudoers.d/stack

This will give the stack user sudoprivileges. We now have to login as user "stack" to proceed with our installation that can be done using the command: 1 sudosu-stack

Now you are logged in as user "stack", let's start with the installation of Open Stack by downloading the required material.

1gitclonehttps://git.openstack.org/openstackdev/devsta2
3#cd to the cloned
directory
4cddevstack

Normally during installing it will ask you to set various passwords, you can automate this process by creating a file in your current directory named "local.conf".

1#createthefile
2
3nanolocal.conf
4
5#Now pastefollowingcontentsinthefile

```
6  [[local|localrc]]
7  ADMIN_PASSWORD=secret
8  DATABASE_PASSWORD=$ADMIN_PAS
   SWORD
9  RABBIT_PASSWORD=$ADMIN_PASSWORD
10 SERVICE_PASSWORD=$ADMIN_PASSWORD
```

Save and exit the file, this will automate the installation process. We are now ready to run the installation script. Installation script can be launched using the command:

1./stack.sh

Depending on your hardware and internet connection installation can take from 10-20 minutes once installation is complete you will have something like this on your console (at the end of the installation):

```
This is your host IP address:
This is your host IPv6 address:
Horizon is now available at http://.../dashboard
Keystone is serving at http://.../identity/
The default users are: admin and demo
The password: secret
Services are running under systemd unit files.
For more information see:
https://docs.openstack.org/developer/devstack/systemd.html
2017-06-19 16:13:18.557 | WARNING:
2017-06-19 16:13:18.557 | Using lib/neutron-legacy is deprecated, and it will be removed in the future
2017-06-19 16:13:18.557 | stack.sh completed in 1933 seconds.
stack@devstack:~/devstack$
```

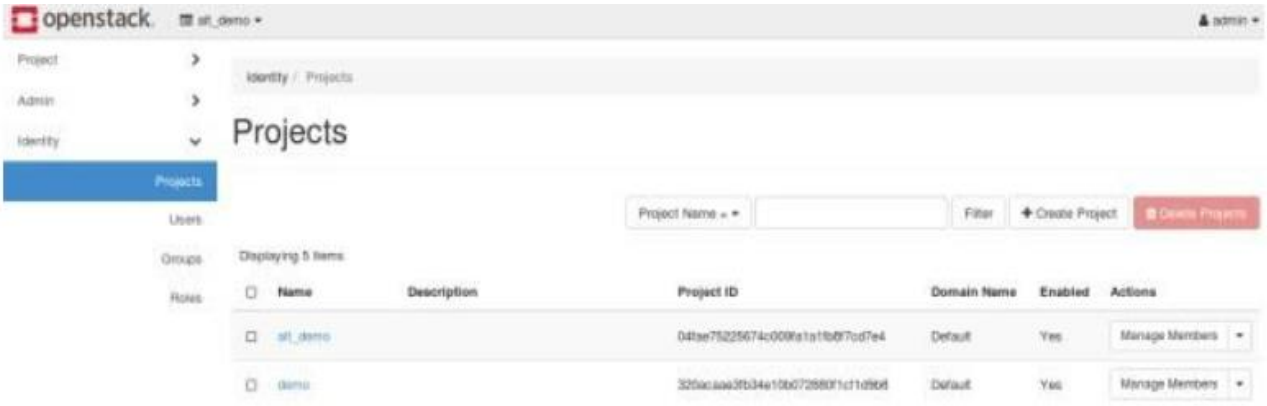
Open Stack dashboard can now be accessed at: http://<IPAddress>/dashboard/

We will now see that how we can launch our very first and basic instance inside the cloud we just created.

Step3: Create Network!

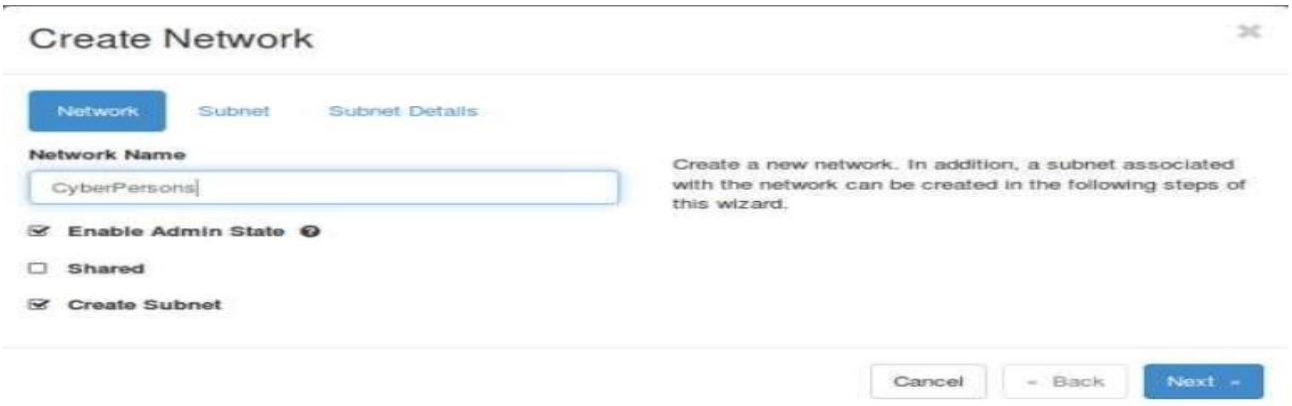
Note: Please remember that without having a network, you cannot launch an instance/virtual machine.

After you are logged into the Open Stack Dashboard it will look something like this:

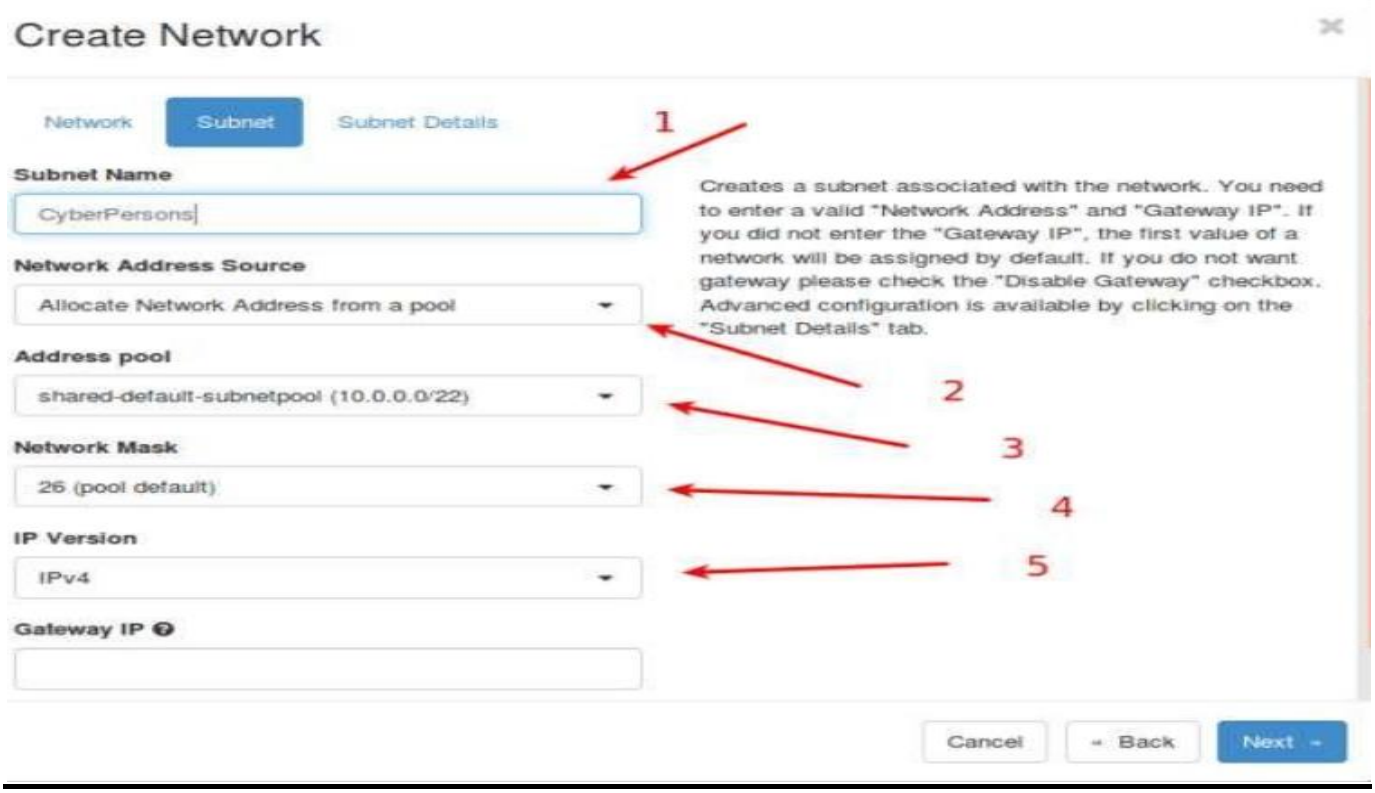


Before we launch our first virtual machine, we need to create a network that virtual machine can use. For now, it will just be a dummy network, because our main purpose in this article is to launch our first virtual machine or instance. Let see how we can create a network inside Open Stack.

1. Click the Project Drop Down.
2. Click the Network Drop Down.
3. From network Drop Down select Networks, and this window will open that you see on the right side.
4. Finally, click Create Network. Something like this will pop-up:



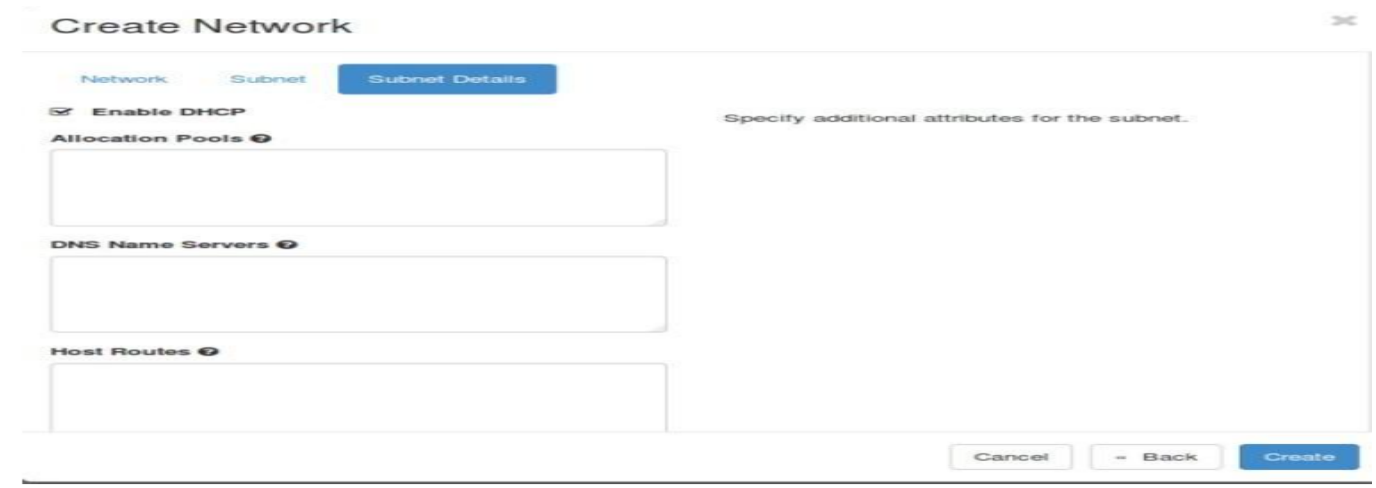
Give your network a name and click Next I've given it a name "Cyber Persons".



Now on this window, you have to create a subnet, your settings should look like as they are in the image above. Except for the "Subnet Name" box all of these are drop downs and you can choose from the given options.

1. First, give your subnet a suitable name.
2. "**Network Address Source**" is a dropdown, it has two available options. You can select the second as chosen in the image above.
3. "**Address pool**" also have two possible option, select the first option.
4. "**Network Mask**" have many options in the dropdown, you can keep the default which is 26.
5. IP version should be IPv4.

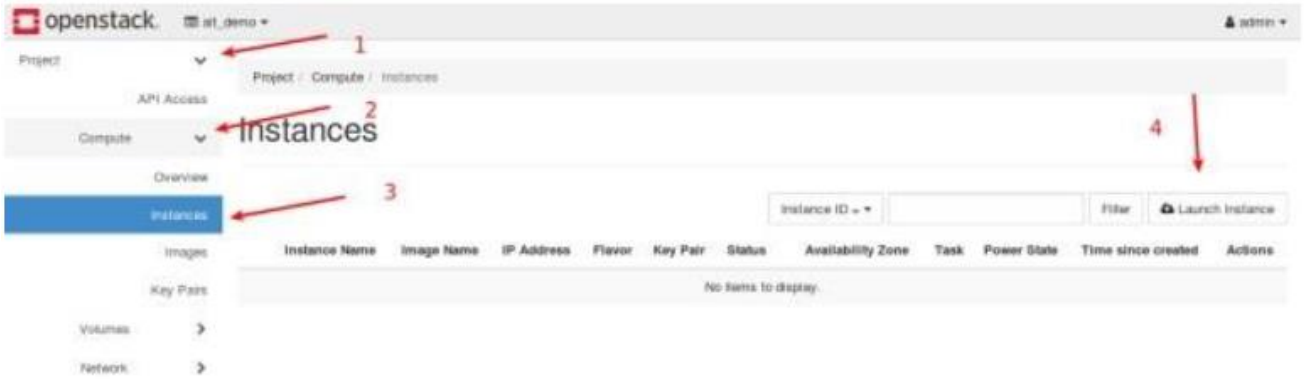
Once all these things are done, click "Next".



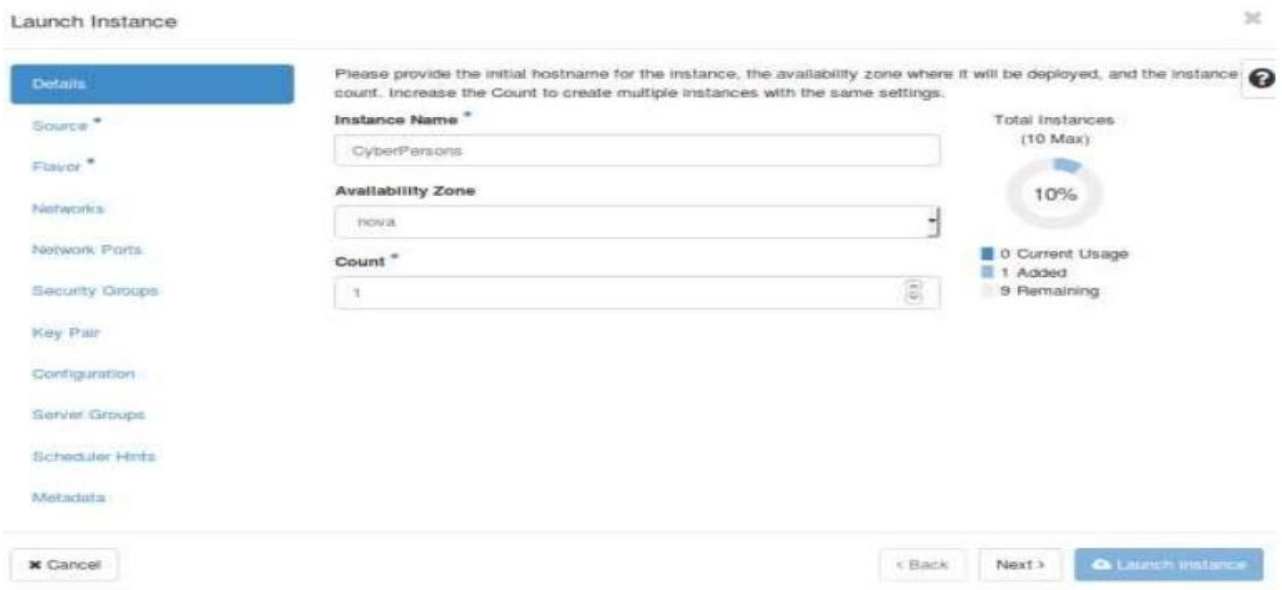
Now everything is optional in this window if you are interested in filling something up, you can. Otherwise, leave everything as it is and click "Create" .You now have a network that you can use to launch a virtual machine.

Step4: Create Virtual Machine/Instance

After the network is created, we are now ready to create our very first virtual machine.



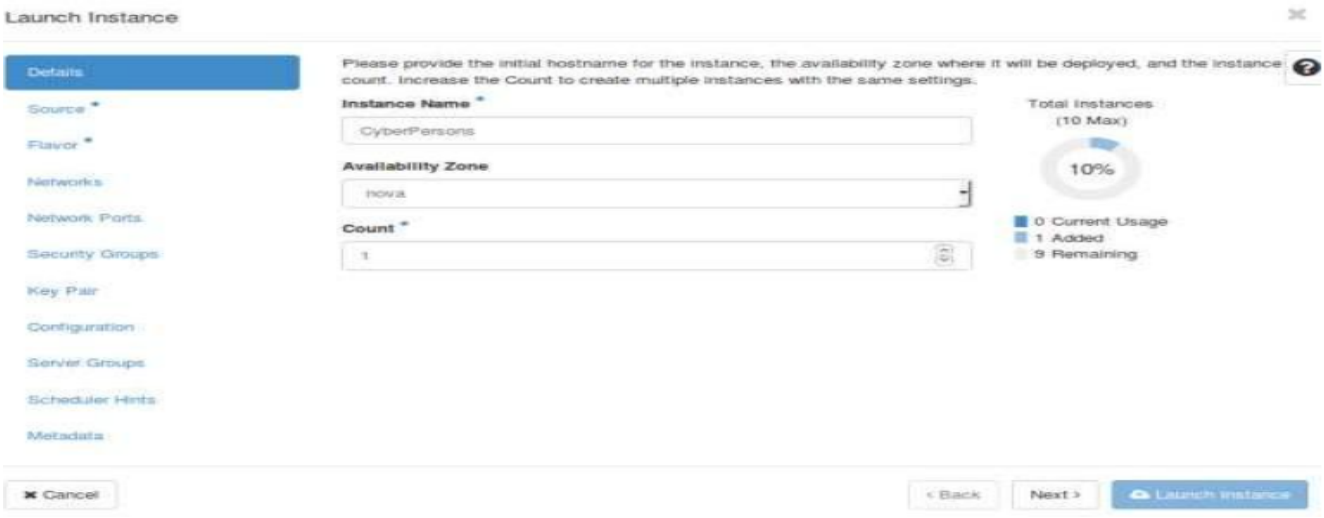
1. Click on "Project" dropdown.
2. Inside project click "Compute" dropdown.
3. Under compute you have four options, since we are interested in creating an instance you have to click on "Instance".
4. Finally, click "Lunch Instance". Something like this will pop-up.



Now, there are 11 tabs to create an instance, we will go through each tab one by one.

Details Tab

This is a general information tab for creating an instance you will have to assign a name to your virtual machine on this tab. Select zone to launch a virtual machine, and tell how many copies of virtual machine you want. Just make sure your settings look like this:



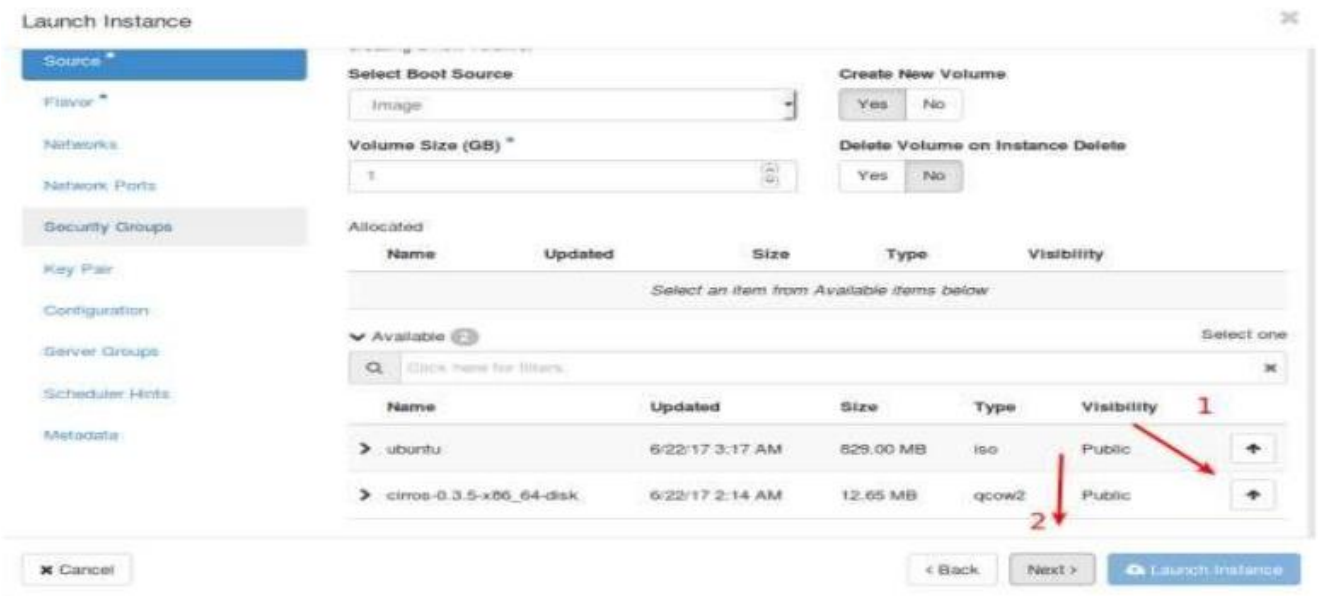
Source Tab

Normally when we create a virtual machine on Proxmox or VM Ware we need to insert CD-ROM (virtual CD room), that VPS uses to install the operating system.

In Open Stack this is done by Source Tab, you can use various ways to launch a new virtual machine, Open Stack allows you to choose following as a source to create your instance.

- Image
- Snapshot of already created instance
- Volume or a volume Snapshot

We are going to use “Cirros” image to create our instance.



1. Click on the icon where the first arrow is pointing, so that we can use “Cirros” to launch our virtual machine.
2. After the image is selected, just click “Next” so that we can move to “Flavor” tab.

Flavor Tab

Flavor tab will allow you to allocate resource to your instance. Like:

- Ram.
- CPU.
- Disk Space.

It is similar to giving virtual resources to the virtual machine, but Open Stack gives

fancy names to everything.

You can see that there are 11 available pre-configured templates to choose from. The one I choose gave following resources to the instance:

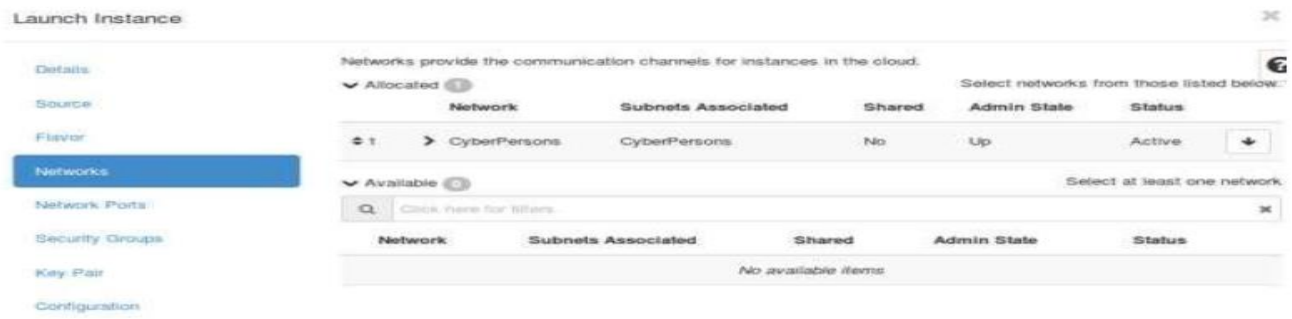
- 1 virtual CPU.
- 512 MB Ram.
- 1 GB Disk.

You can choose any template from the available 11, depending upon the resources available on your host machine (On which Open Stack is installed).

After flavor is selected, just press “Next”.

Network Tab

Network tab allows us to define a network for our virtual machine, you might have remembered that we’ve created a network above for this purpose. Now by default, the network you have created above will be selected for this machine, as seen in the image below:



Don’t change anything just click “Next”.

Network Ports Tab

For now, just leave the default settings on “Network Ports” tab and click next.

Security Groups Tab

Security groups define how a specific virtual machine is allowed to talk with the outer world. As for now, we are just trying to create our first virtual machine you can leave all the

defaults. In a later article, we will see that how we can define "Security Groups" depending upon our requirements.

Key-Pair Tab
Leave defaults and click Next.

Configuration Tab
Leave defaults and click Next.

Server Groups Tab
Leave defaults and click Next.

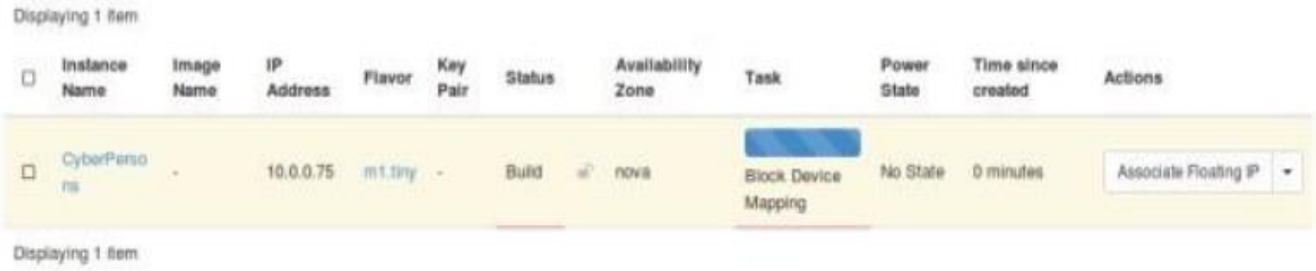
Scheduler Hints Tab
Leave defaults and click Next.

Metadata Tab
Leave defaults and click Next.

Launch Instance

After going through all the tabs, you are now ready to press that magic "Launch Instance" button you must be wondering that for some tabs we've left them with default settings. It's fine for now, because we are just launching our test machine at this time. Later we will go into depth of each tab and see why it is important and why it is not.

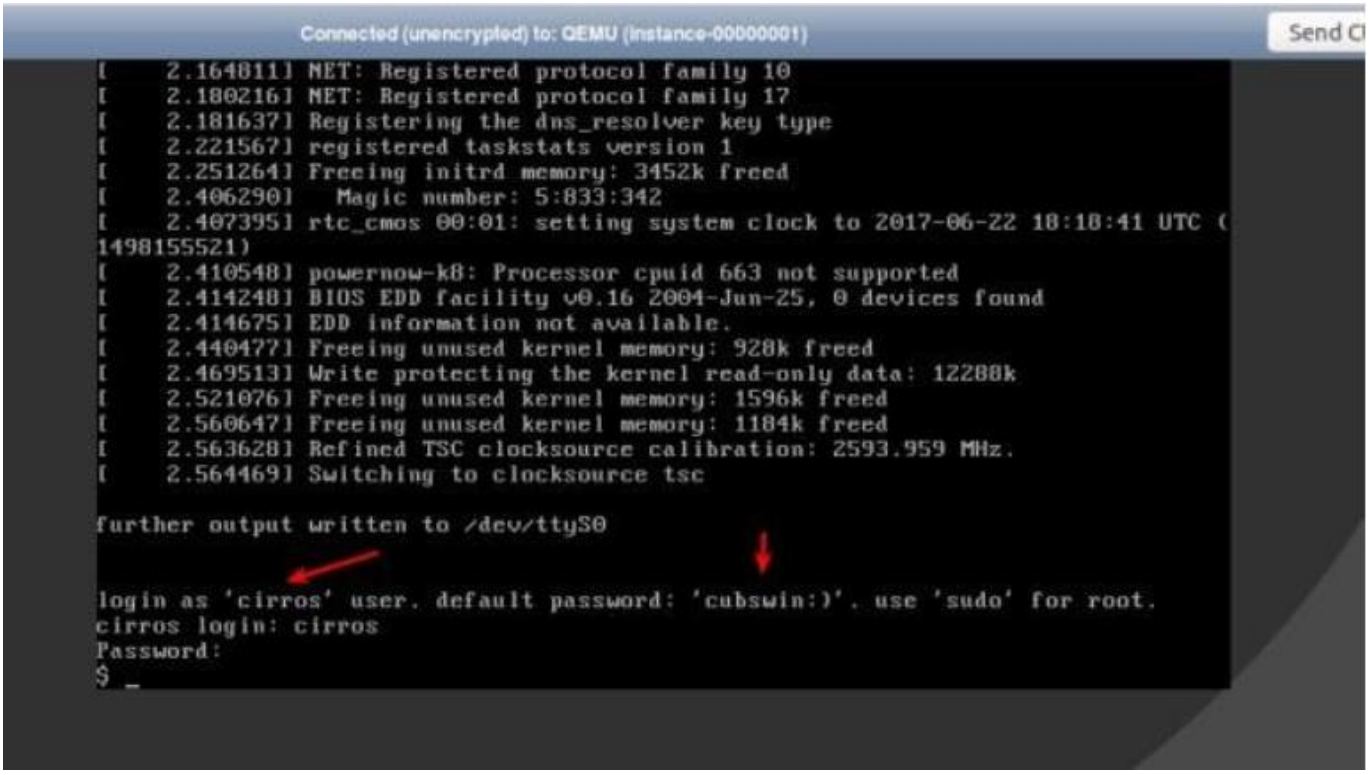
Once you click "Launch Instance" button, Open Stack will start creating our virtual machine, and it is going to look something like this:



Step5: Access Virtual Machine Console!

Once you click "Launch Instance" it will take Open Stack few seconds to create your virtual machine. Once ready you can access the console to see how the command line of your first virtual machine looks like.

Click on "Console" and Open Stack will take you to the console of the virtual machine. The console will look something like this:



This is simple command line, you can use following details to

login: Username: cirros

Password: cubswin:)

Congratulations, you have successfully created your first virtual machine /instance on Open Stack.

RESULT:

Thus, I have gone through the process of installing Open Stack and creating a very basic virtual machine just to learn that how things work with Open Stack.

Ex.No:8 Install Hadoop

AIM:

Write a procedure to install Hadoop single node cluster and run simple applications.

PROCEDURE:

Step1: download the Java 8 Package. Save this file in your home directory.
Step2: Extract the Java Tar File.

Step3: Download the Hadoop 2.7.3 Package.

Step4: Extract the Hadoop tar File.

step5: Add the Hadoop and Java paths in the bash file (.bashrc). Open **.bashrc** file.

Now, add Hadoop and Java Path

Step6: Edit the Hadoop Configuration file.

Step7: Open *core-site.xml* and edit the property inside configuration tag:

Step8: Edit *hdfs-site.xml* and edit the property inside configuration tag:

Step9: Edit the *mapred-site.xml* file and edit the
property inside configuration tag:

Step10: Edit *yarn-site.xml* and edit the property inside configuration tag:

Step11: Edit *hadoop-env.sh* and add the Java Path.

Step12: Go to Hadoop home directory and format the Name Node.

Step13: Once the Name Node is formatted, go to hadoop-2.7.3/sbin directory and start all the daemons.
Step14: check that all the Hadoop services are up and running

Step15: Now open the Mozilla browser and go

To **localhost**: **50070/dfshealth.html** to check the Name Node interface

SCREENSHOTS:

Step2: Extract the Java Tar File.

***Command*:** tar-xvfjdk-8u101-linux-i586.tar.gz

Fig:HadoopInstallation–ExtractingJavaFiles

Step3: DownloadtheHadoop2.7.3Package.
***Command*:** we get https://archive.apache.org/dist/hadoop/core/hadoop-2.7.3/hadoop-2.7.3.tar.gz

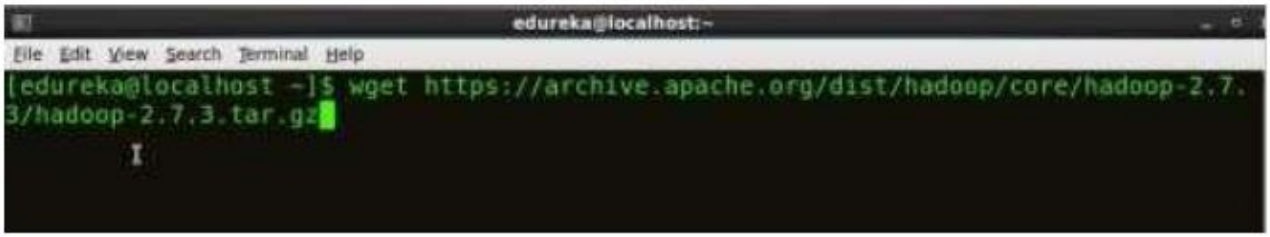


Fig:HadoopInstallation–DownloadingHadoop

Step4: Extract the Hadoop tar File.

Command: tar-xvfhadoop-2.7.3.tar.gz

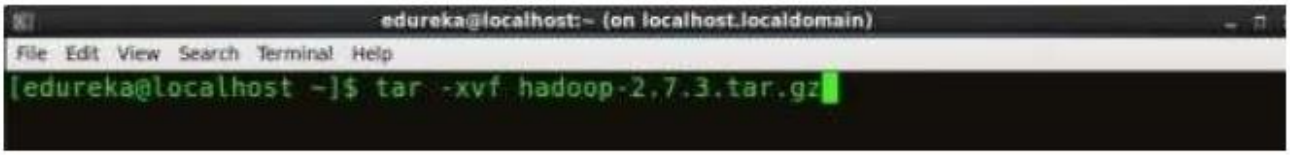


Fig: Hadoop Installation – Extracting Hadoop Files **Step**

Step5: Add the Hadoop and Java paths in the bash file (.bashrc). Open**.**

bashrc file. Now, add Hadoop and Java Path as shown below.

***Command*:** vi.bashrc

Fig:HadoopInstallation–SettingEnvironmentVariable

Then, save the bash file and close it.

For applying all these changes to the current Terminal, execute the source command.
***Command*:** source.bashrc

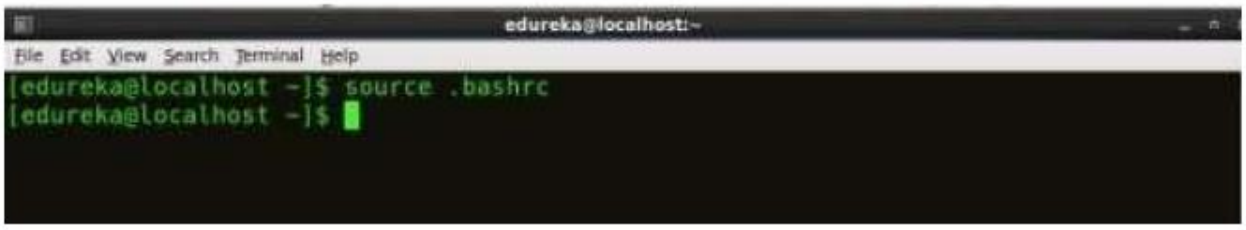
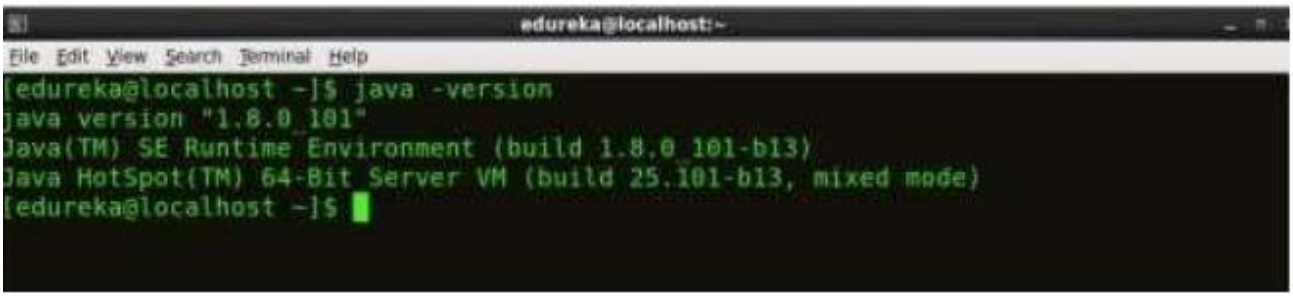


Fig:HadoopInstallation–Refreshingenvironmentvariables

To make sure that Java and Hadoop have been properly installed on your system and can be accessed through the Terminal, execute the java-version and hadoop version commands.

***Command*:** java-version



***Command*:** hadoop version

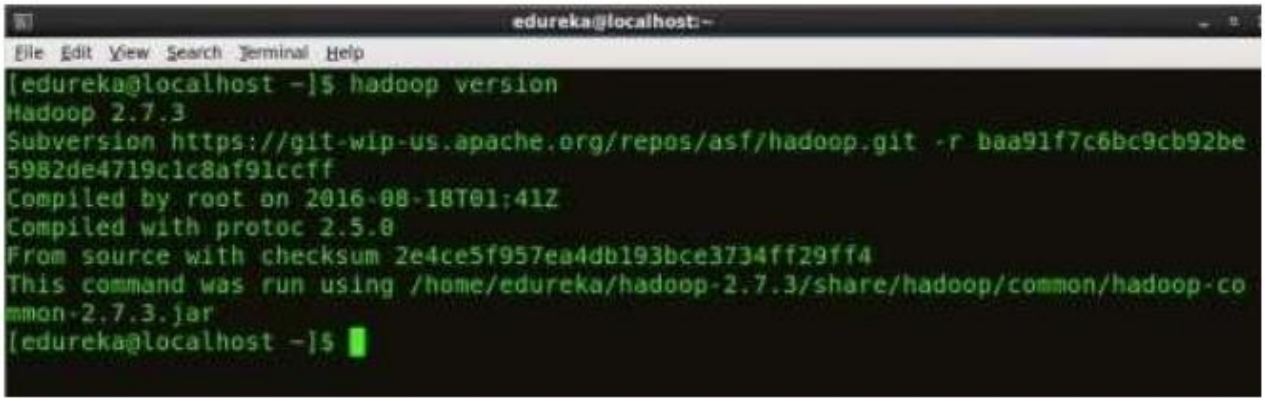


Fig:HadoopInstallation–CheckingHadoopVersion

Step6: Edit the **Hadoop Configuration files**.

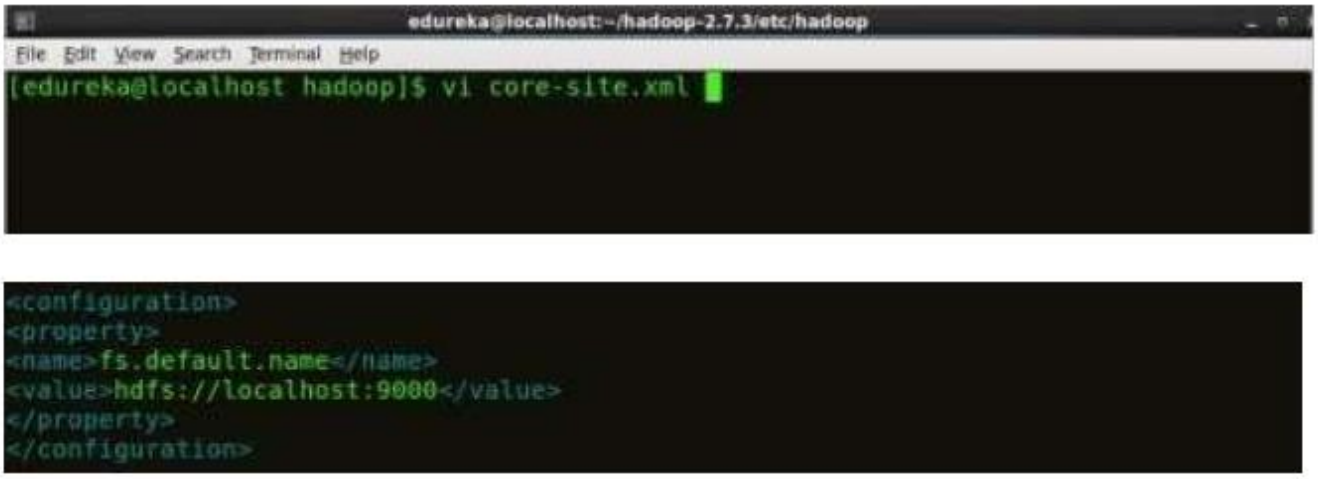
Command: cdhadoop-2.7.3/etc/hadoop/

Command: ls
All the Hadoop configuration files are located in **hadoop-2.7.3/etc/hadoop** directory as you can see in the snapshot below:

Fig:HadoopInstallation–HadoopConfigurationFiles

Step7: Open *core-site.xml* and edit the property mentioned below inside configuration tag:
core-site.xml informs Hadoop daemon where Name Node runs in the cluster. It contains configuration settings of Hadoop core such as I/O settings that are common to HDFS &Map Reduce.

***Command*:** vicore-site.xml



Step8: Edit *hdfs-site.xml* and edit the property mentioned below inside configuration tag: *hdfs-site.xml* contains configuration settings of HDFS daemons (i.e.NameNode, Data Node, Secondary Name Node). It also includes the replication factor and block size of HDFS.

***Command*:** vihdfs-site.xml

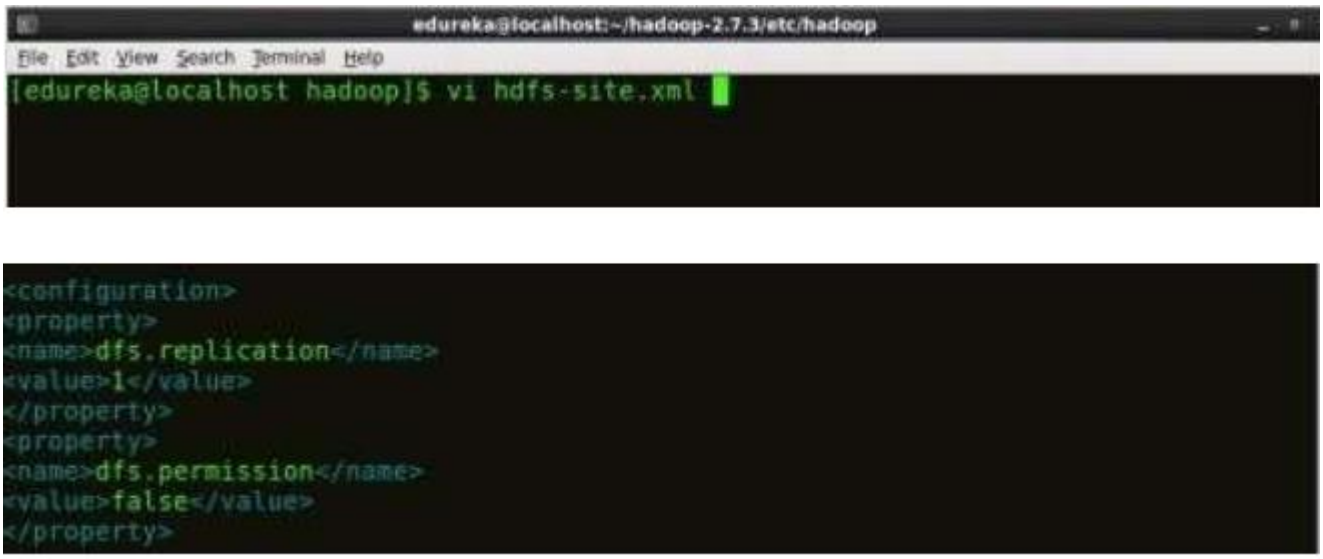


Fig:HadoopInstallation–Configuringhdfs-site.xml

Step9: Edit the *mapred-site.xml*fileand edit the property mentioned below inside configuration tag: *mapred-site.xml* contains configuration settings of Map Reduce application like number of JVM that can run in

parallel, the size of the mapper and the reducer process, CPU cores available for aprocess, etc.

In some cases, mapred-site.xml file is not available. So, we have to create the mapred-site.xml File using mapred-site.xml template.

***Command*:** cpmapred-site.xml.templatemapred-site.xml

***Command*:** vimapred-site.xml.

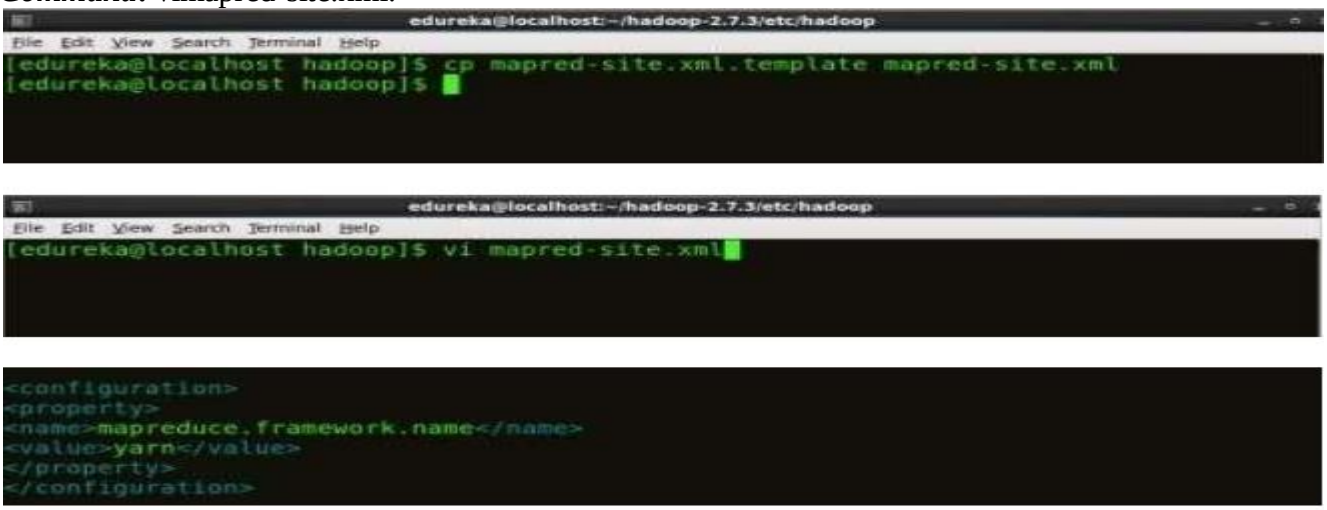


Fig:HadoopInstallation–Configuringmapred-site.xml

Step10: Edit *yarn-site.xml* and edit the property mentioned below inside configuration tag: *yarn-site.xml* contains configuration settings of Resource Manager and Node Manager like application memory management size, the operation needed on program & algorithm, etc.

***Command*:** viyarn-site.xml

```
<configuration>
<property>
<name>yarn.nodemanager.aux-services</name>
<value>mapreduce_shuffle</value>
</property>
<property>
<name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</name>
<value>org.apache.hadoop.mapred.ShuffleHandler</value>
</property>
</configuration>
```

Fig:HadoopInstallation–Configuringyarn-site.xml

```
0                                    </property>
1                                </configuration>
```

Step11: Edit *hadoop-env.sh* and add the Java Path as mentioned below:
hadoop-env.sh contains the environment variables that are used in the script to run Hadoop like Java home path, etc.

***Command*:** vihadoop–env.sh

```
edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File  Edit  View  Search  Terminal  Help
[edureka@localhost hadoop]$ vi hadoop-env.sh
```

```
# The java implementation to use.
export JAVA_HOME=/home/edureka/jdk1.8.0_101
```

Fig:HadoopInstallation–Configuringhadoop-env.sh

Step12: Go to Hadoop home directory and format the Name Node.

***Command*:** cd

***Command*:** cd hadoop-2.7.3

***Command*:** bin/hadoop name node-format

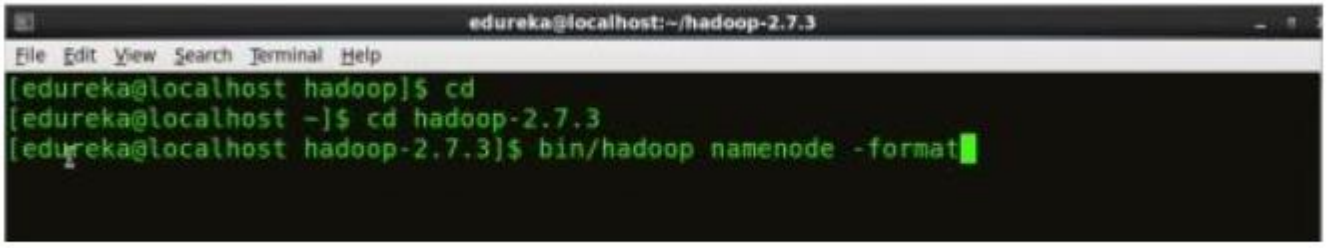


Fig:HadoopInstallation–FormattingNameNode

This formats the HDFS via Name Node. This command is only executed for the first time. Formatting the file system means initializing the directory specified by the dfs. name.dirvariable.

Never format, up and running Hadoop file system. You will lose all your data stored in the HDFS.

Step13: Once the Name Node is formatted, go to hadoop-2.7.3/sbin directory and start all the daemons.

Command: cdhadoop-2.7.3/sbin

Either you can start all daemons with a single command or do it individually.

Command: ./start-all.sh

The above command is a combination of ***start-dfs.sh, start-yarn.sh*&*mr-jobhistory-daemon.sh***

Or you can run all the services individually as below:

Start Name Node:

The Name Node is the centerpiece of an HDFS file system. It keeps the directory tree of all files stored in the HDFS and tracks all the file stored across the cluster.

Command:./hadoop-daemon.sh start name node

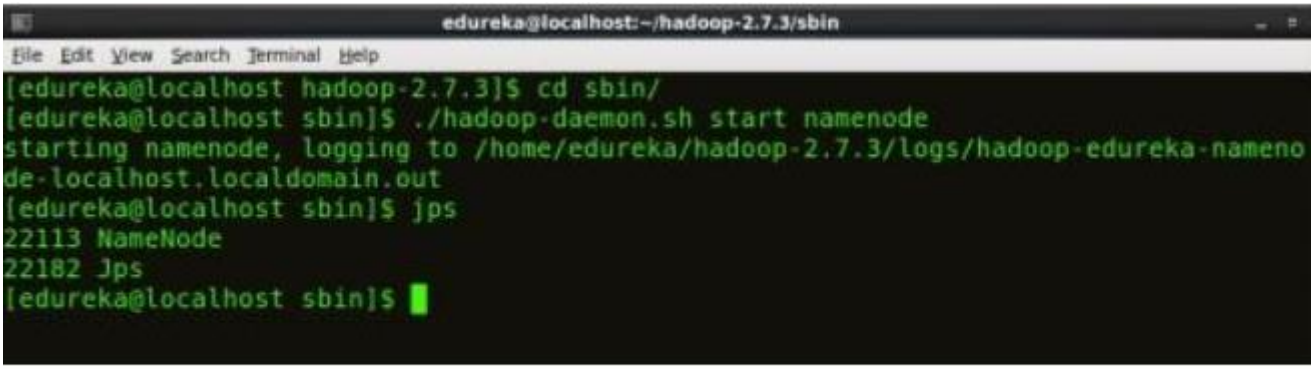


Fig:HadoopInstallation–StartingNameNode

Start Data Node:

On startup, a Data Node connects to the Name node and it responds to the requests from the Name node for different operations.

Command:./hadoop-daemon.sh start data node

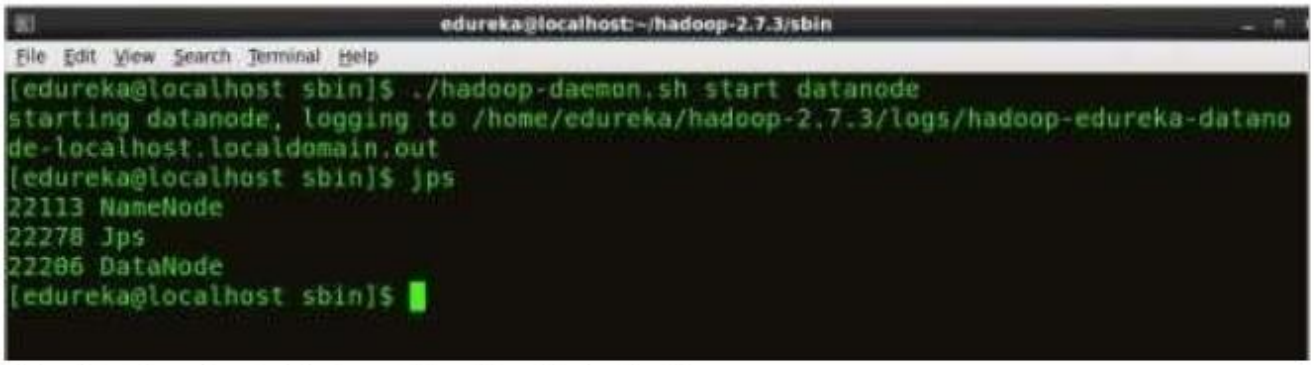


Fig:HadoopInstallation–StartingDataNode

Start Resource Manager:

Resource Manager is the master that arbitrates all the available cluster resources and thus helps in managing the distributed applications running on the YARN system. Its work is to manage each Node Managers and the each application's Application Master.

Command:./yarn-daemon.sh start resource manager

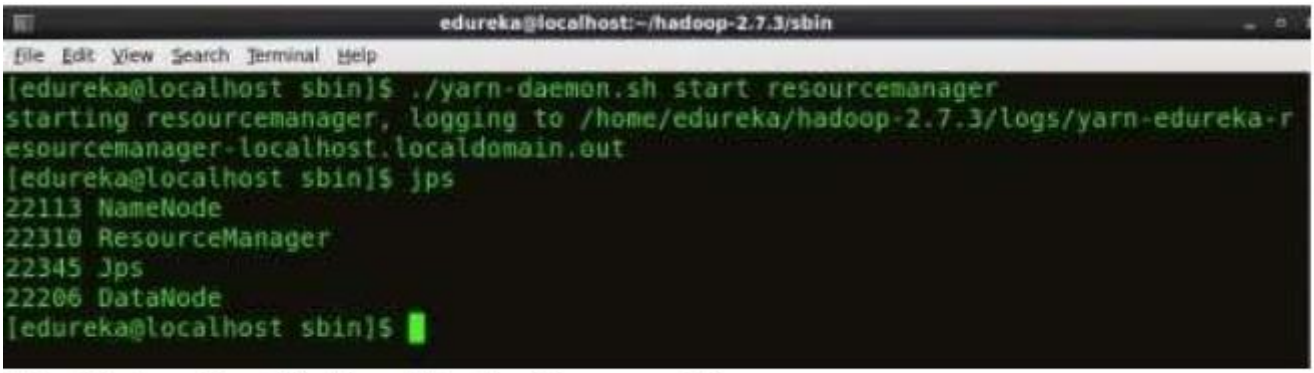


Fig:HadoopInstallation–StartingResourceManager

Start Node Manager:

The Node Manager in each machine framework is the agent which is responsible for managing containers, monitoring their resource usage and reporting the same to the Resource Manager.

Command:./yarn-daemon.sh start node manager

Fig: Hadoop Installation–Starting Node Manager

Start Job History Server:

Job History Server is responsible for servicing all job history related requests from client.

***Command*:**./mr-jobhistory-daemon.sh start history server

Step14: To check that all the Hadoop services are up and running, run the below command

Command: jps

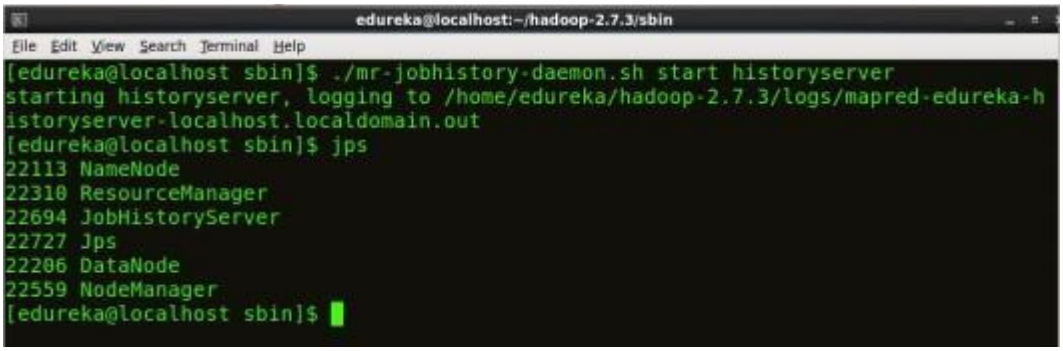


Fig: Hadoop Installation–Checking Daemons

Step15: Now open the Mozilla browser and go
To **localhost**:**50070/dfshealth.html** to check the Name Node interface.

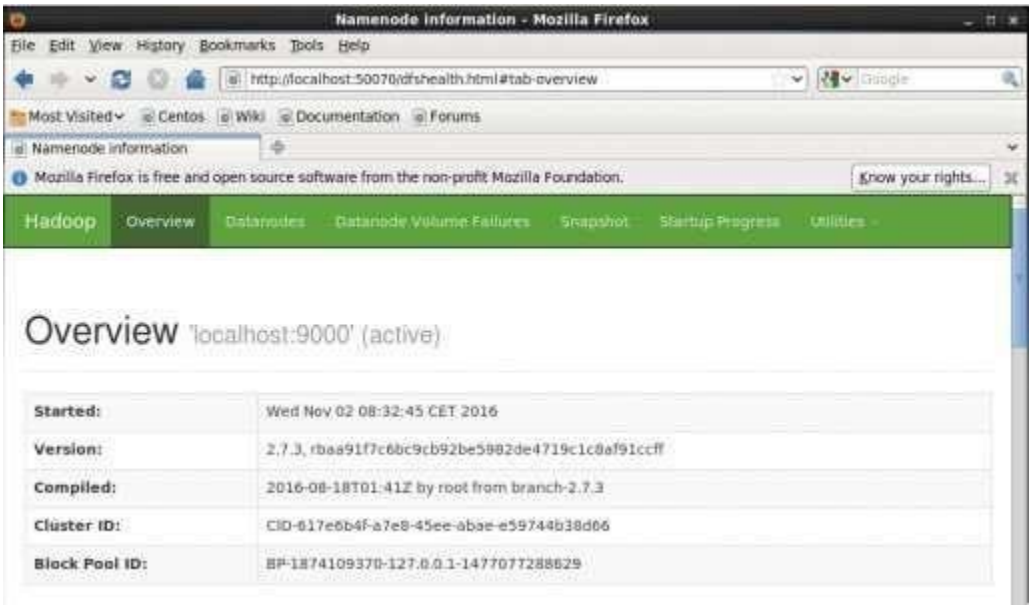


Fig: Hadoop Installation–Starting Web UI

Congratulations, you have successfully installed a single node Hadoop cluster.

RESULT:

Thus the Hadoop for single node cluster is installed successfully.