



**RAMNIRANJAN JHUNJHUNWALA COLLEGE
GHATKOPAR (W), MUMBAI - 400 086**

**DEPARTMENT OF INFORMATION TECHNOLOGY
2020 - 2021**

**M.Sc.(I.T.) SEM I
Cloud Computing**

**Name:Uzma Siddiqui
Roll No.: 15**



Hindi Vidya Prachar Samiti's

**RAMNIRANJAN
JHUNJHUNWALA COLLEGE
(AUTONOMOUS)**

Opposite Ghatkopar Railway Station, Ghatkopar West, Mumbai-400086



CERTIFICATE

This is to certify that Mr/Miss/Mrs **Uzma Shehzad Anwar Siddiqui** with **Seat No: 15** has successfully completed the necessary course of experiments in the subject of **Cloud Computing** during the academic year 2020 – 2021 complying with the requirements of RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS, SCIENCE AND COMMERCE, for the course of M.Sc. (IT) semester -I.

25 th Feb 2021

Internal Examiner

Date

Head Of Department

College Seal

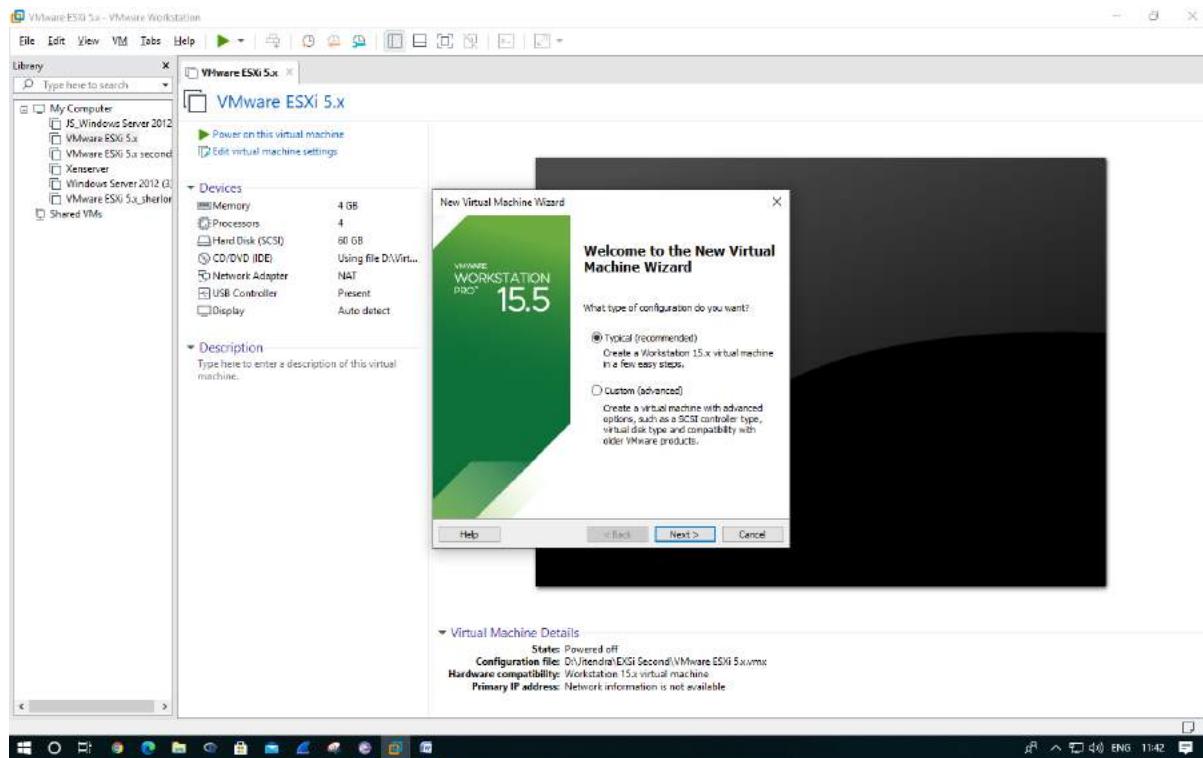
External Examiner

Index

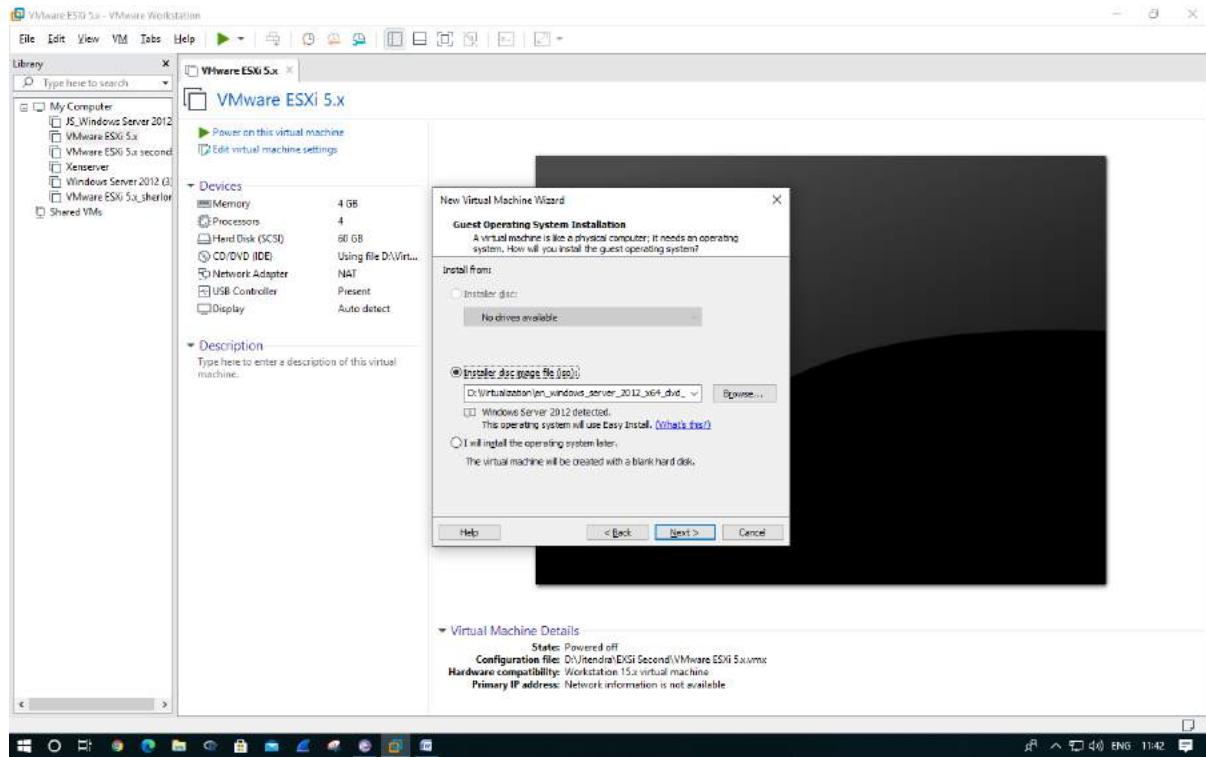
Sr No	Practical	Date
1	Implement cluster on Windows	23/1/2021
2	Implementing private cloud with Xen-Server	13/2/2021
3	Implement Search Engine Google App Engine(GAE)	2/1/2021
4	Developing application for Windows Azure	6/2/2021
5	Implement ESXi Server	19/12/2020
6	Implement Open Nebula	20/2/2021
7	Native Virtualization using Hyper-V	16/1/2021
8	Implementing “Big” Web Service	13/2/2021

Practical 1

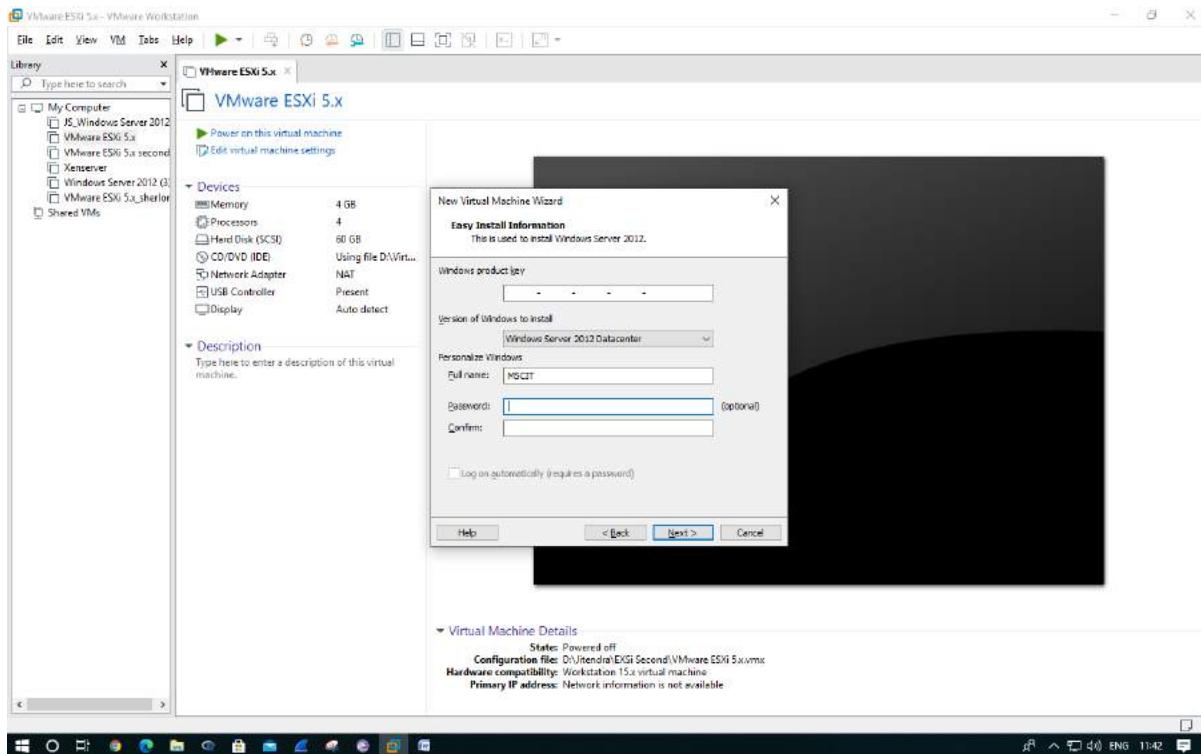
Implement cluster on Windows



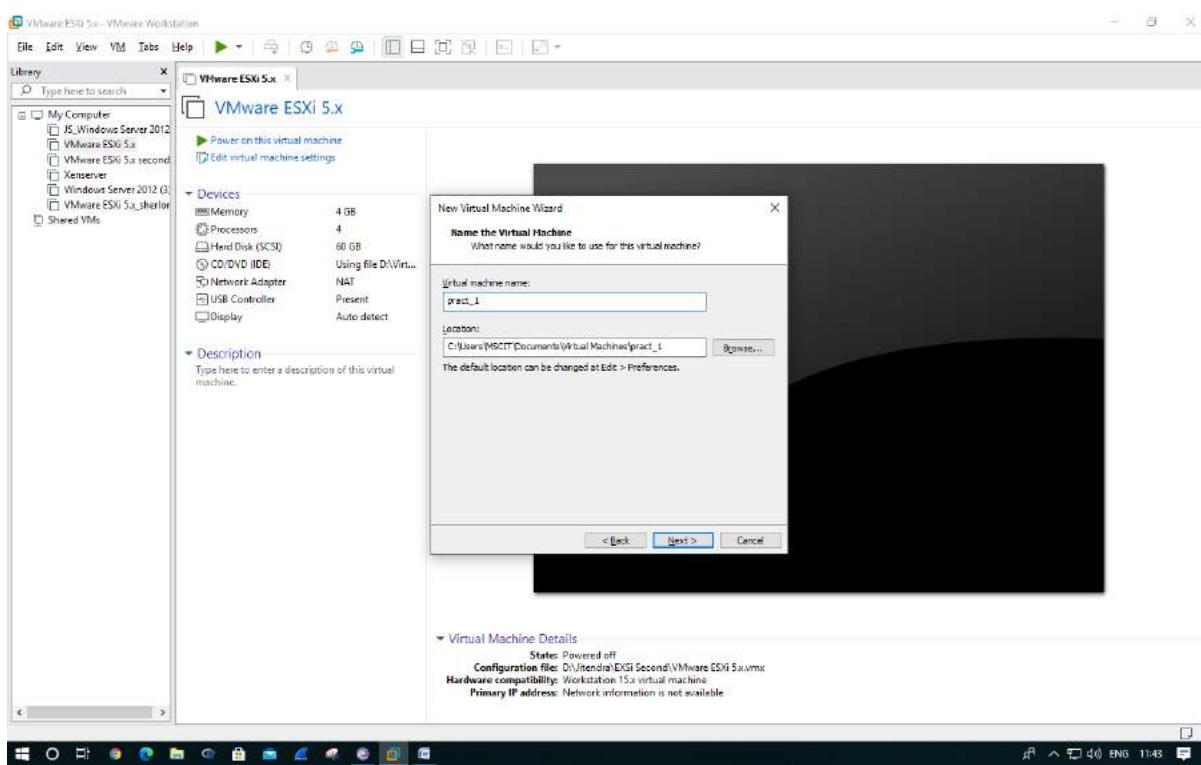
Open workstation application. Start with a new virtual machine wizard option chooses typical and next.

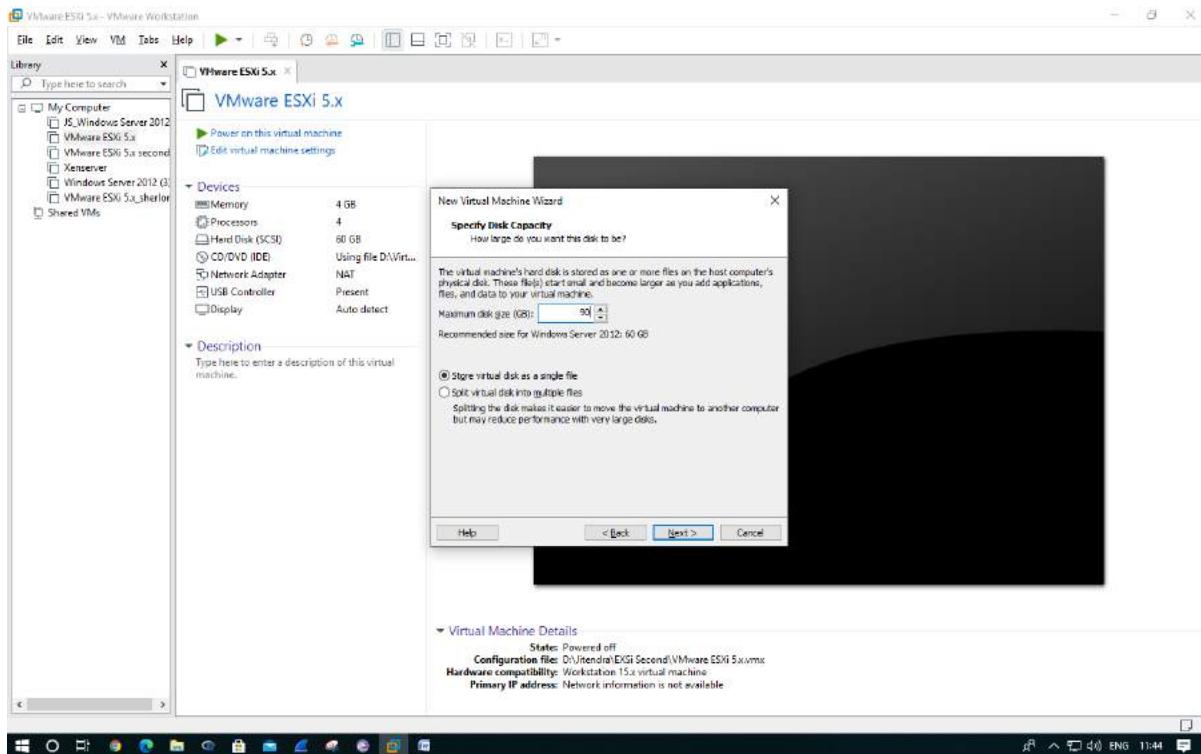


Select iso file.

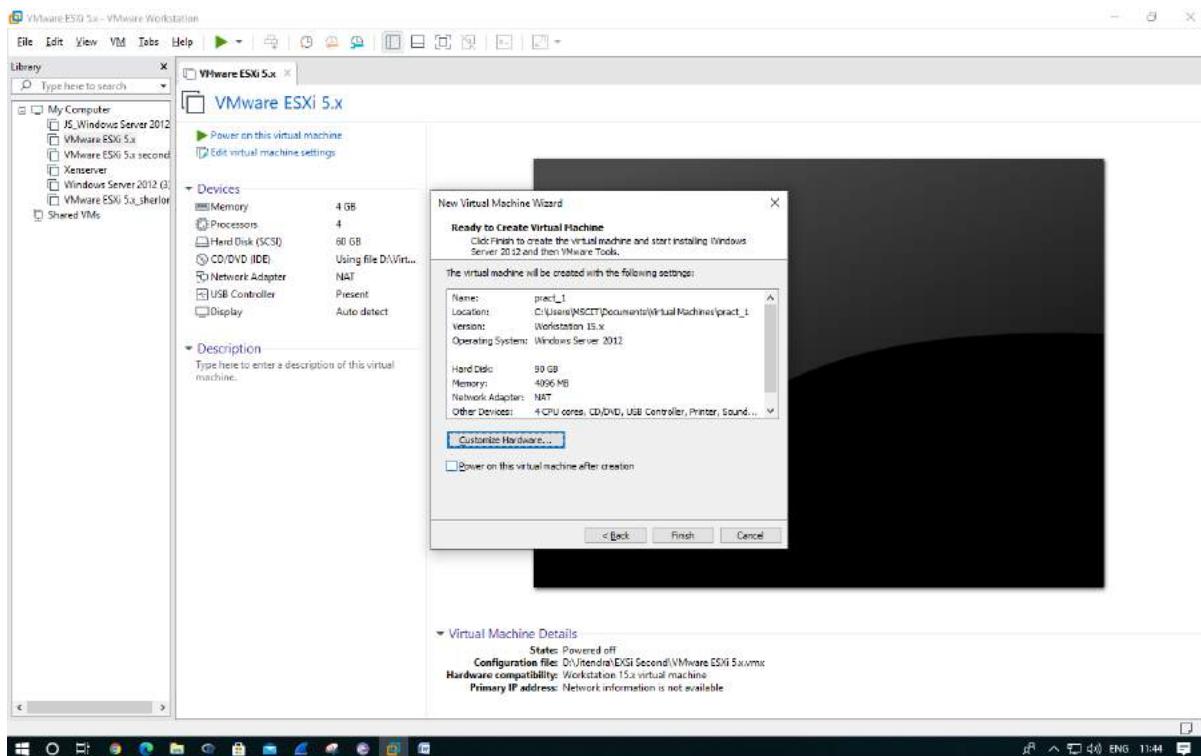


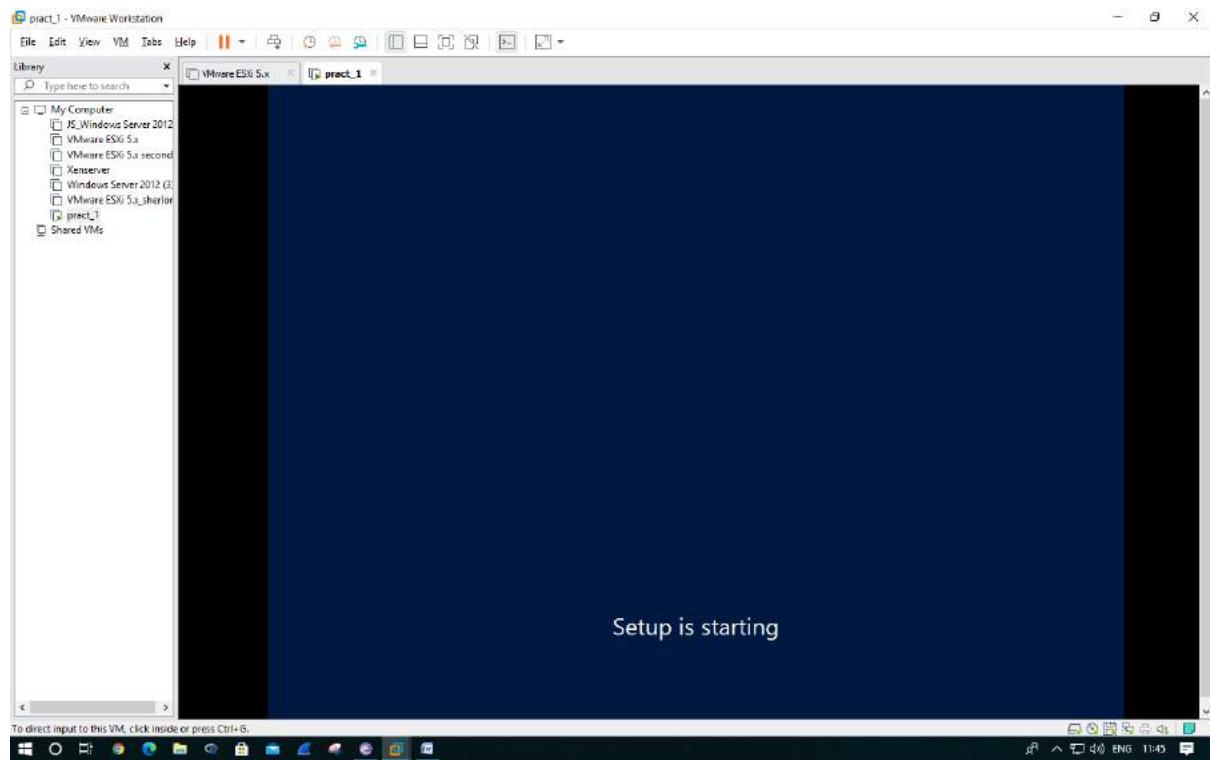
No need to put password just device name and next.



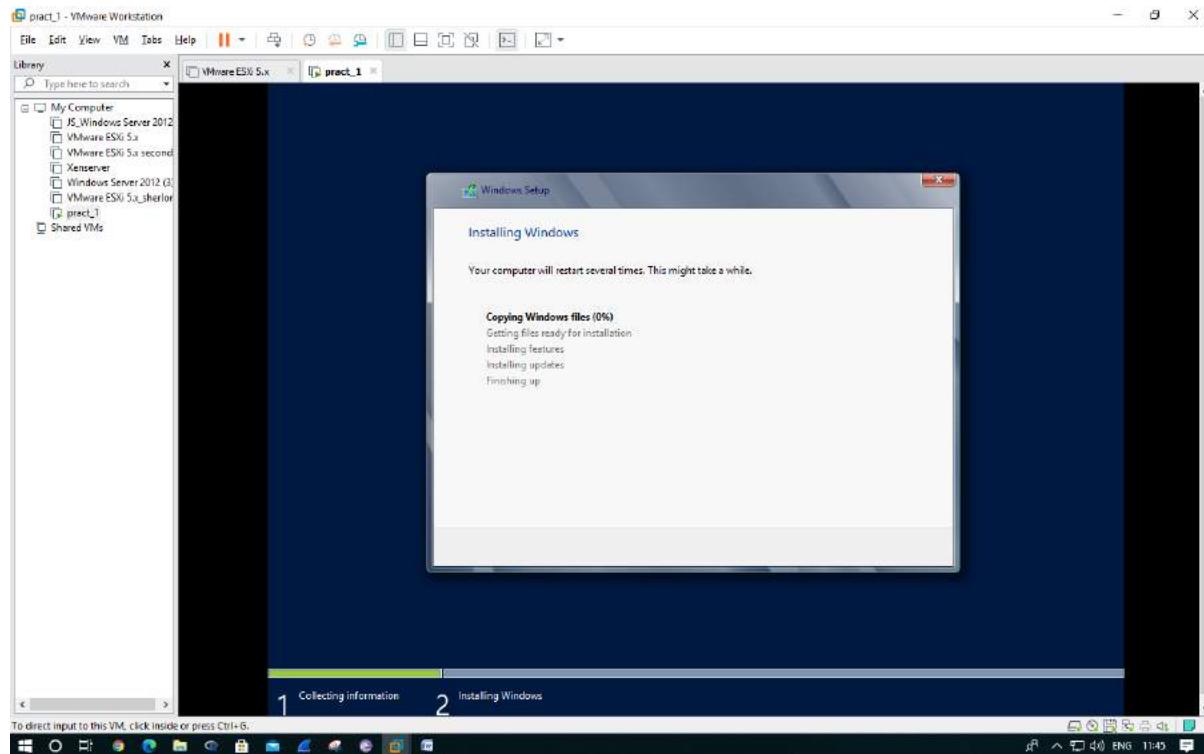


Set it to 90 GB and select store disk as a single file

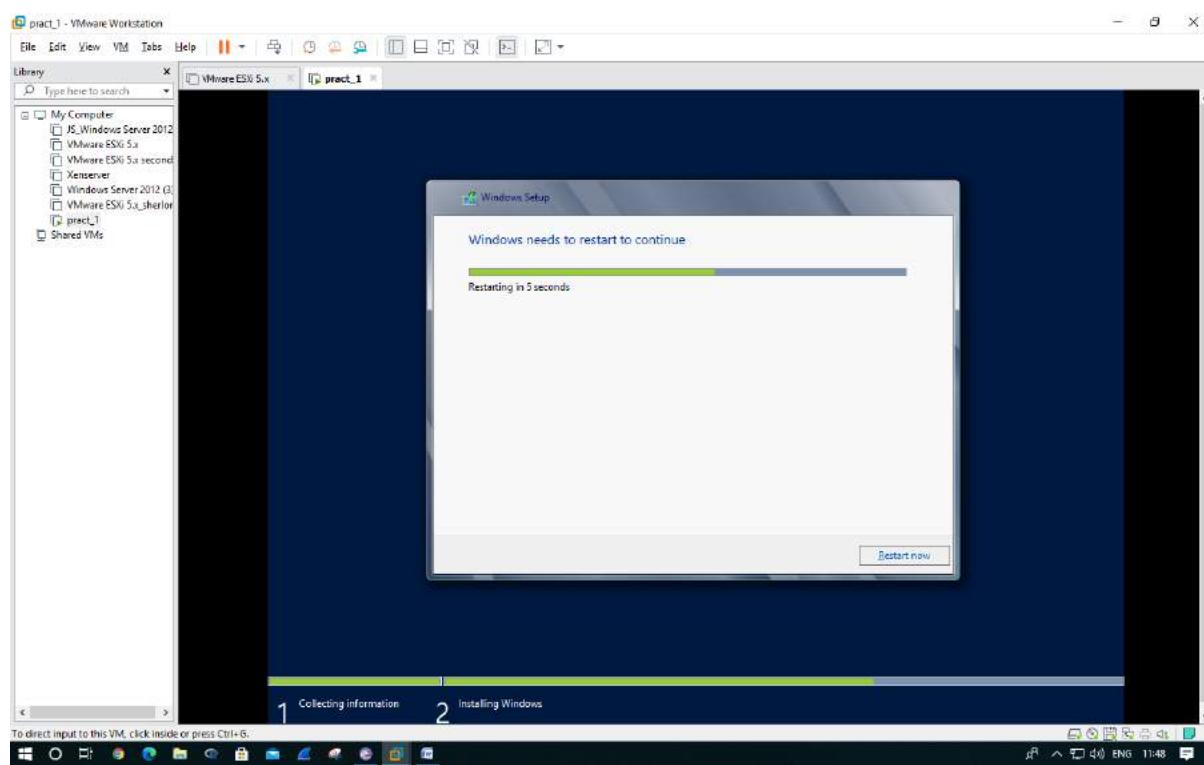


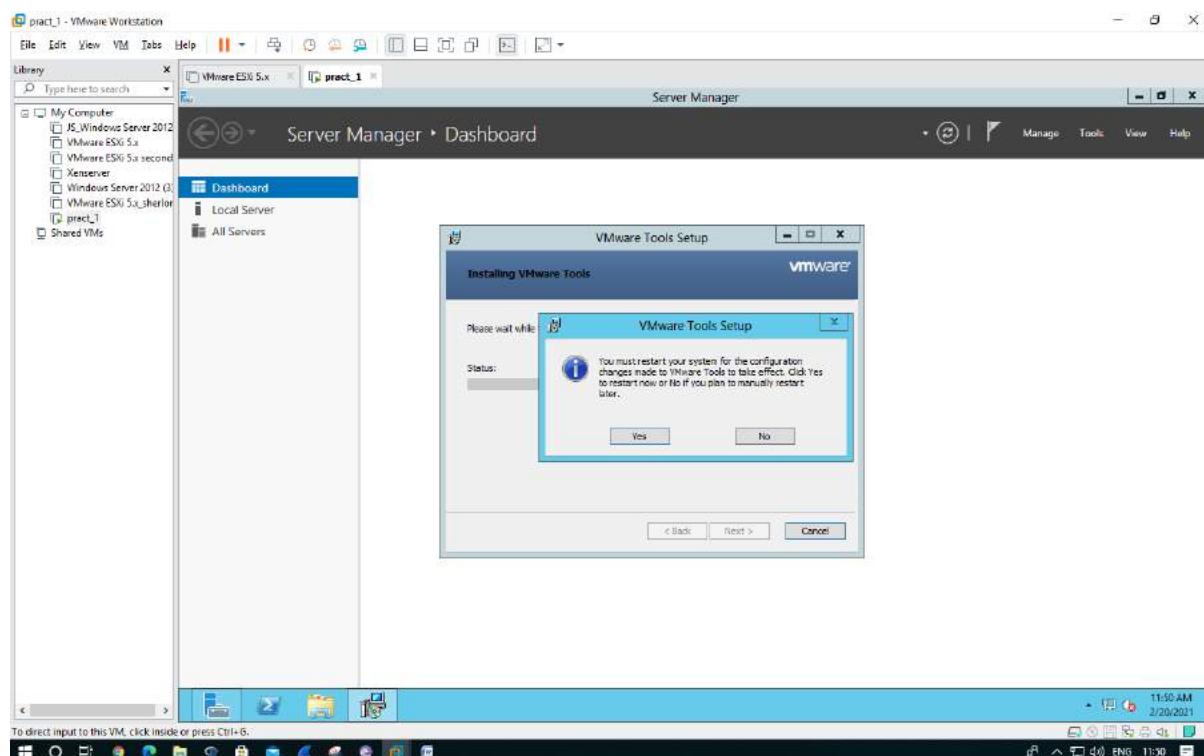
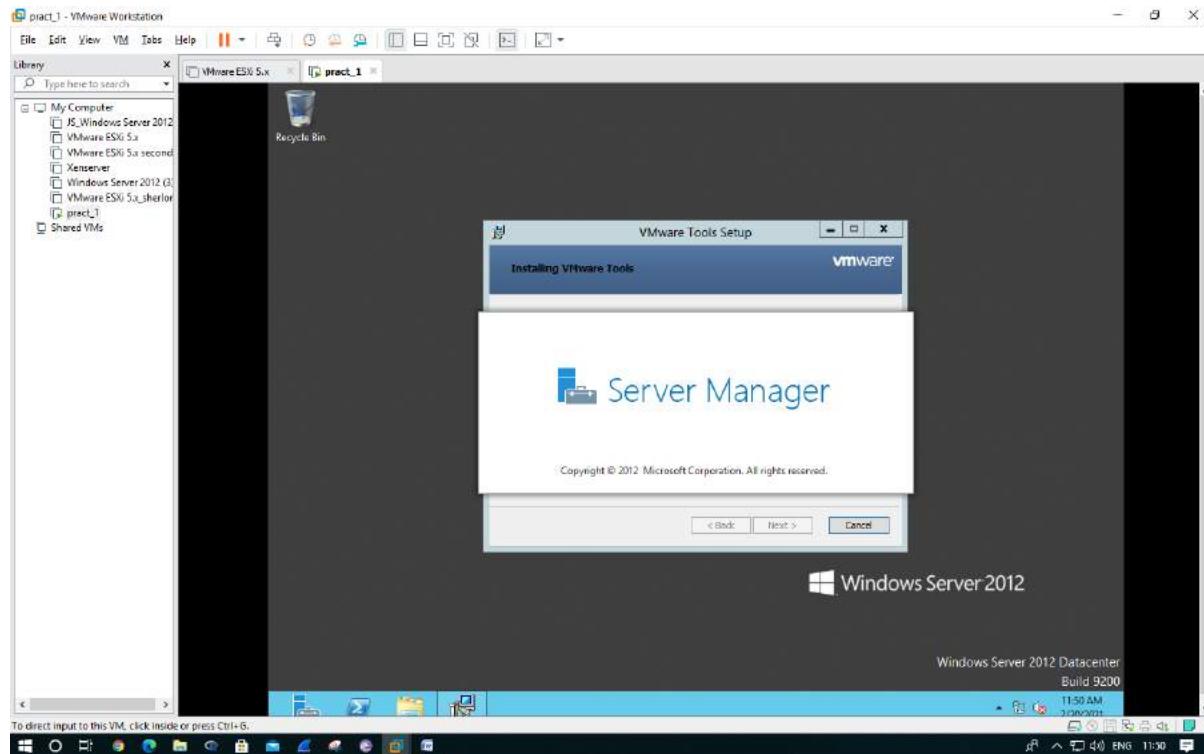


Once finished power on the virtual machine.

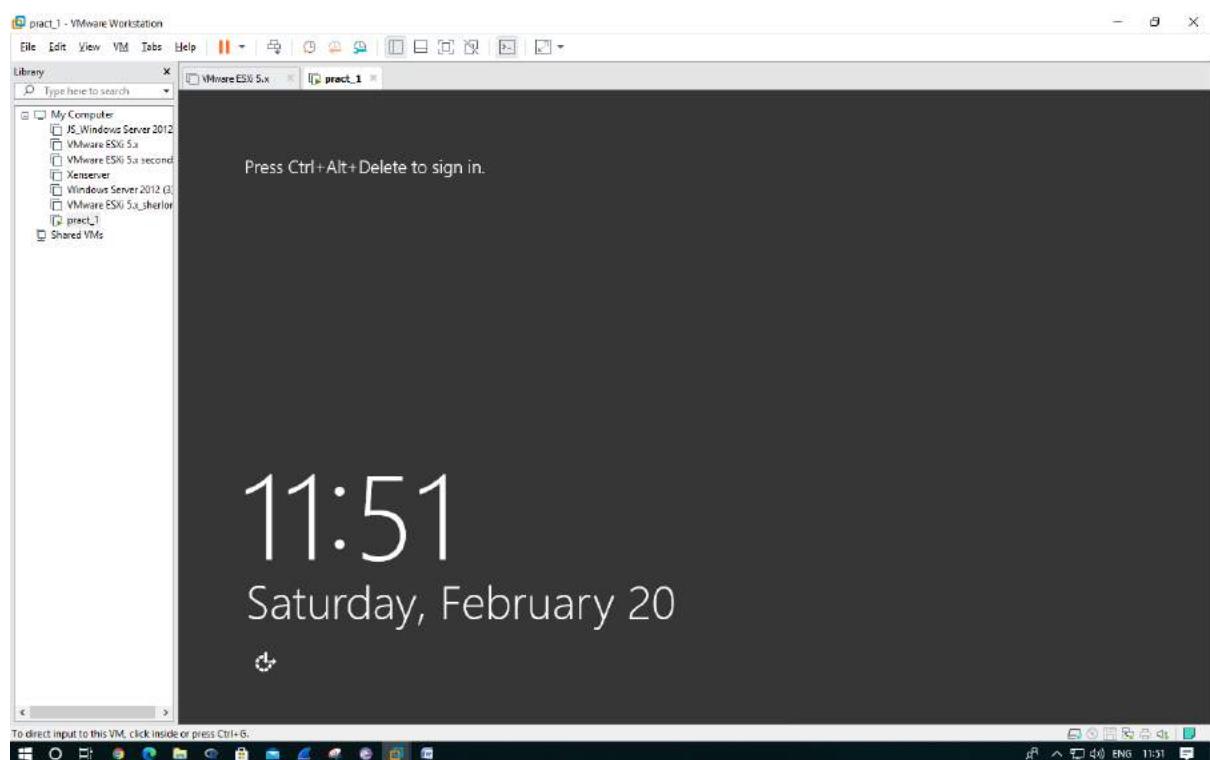
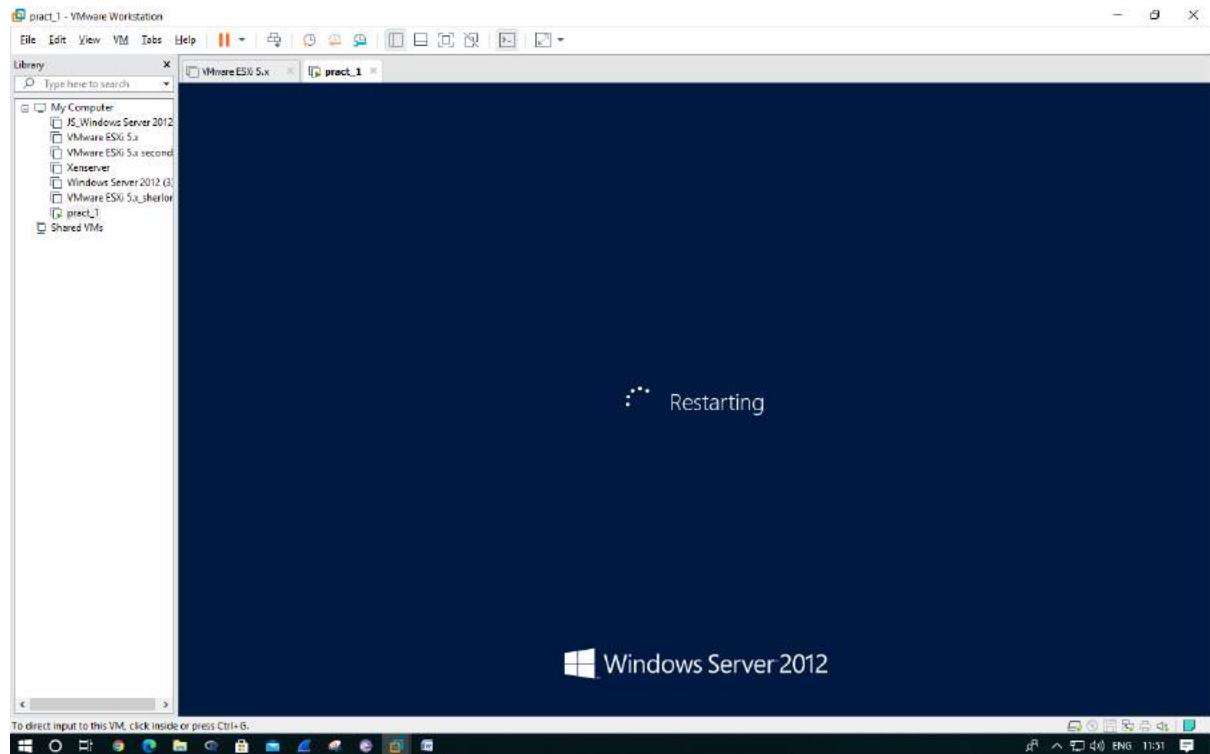


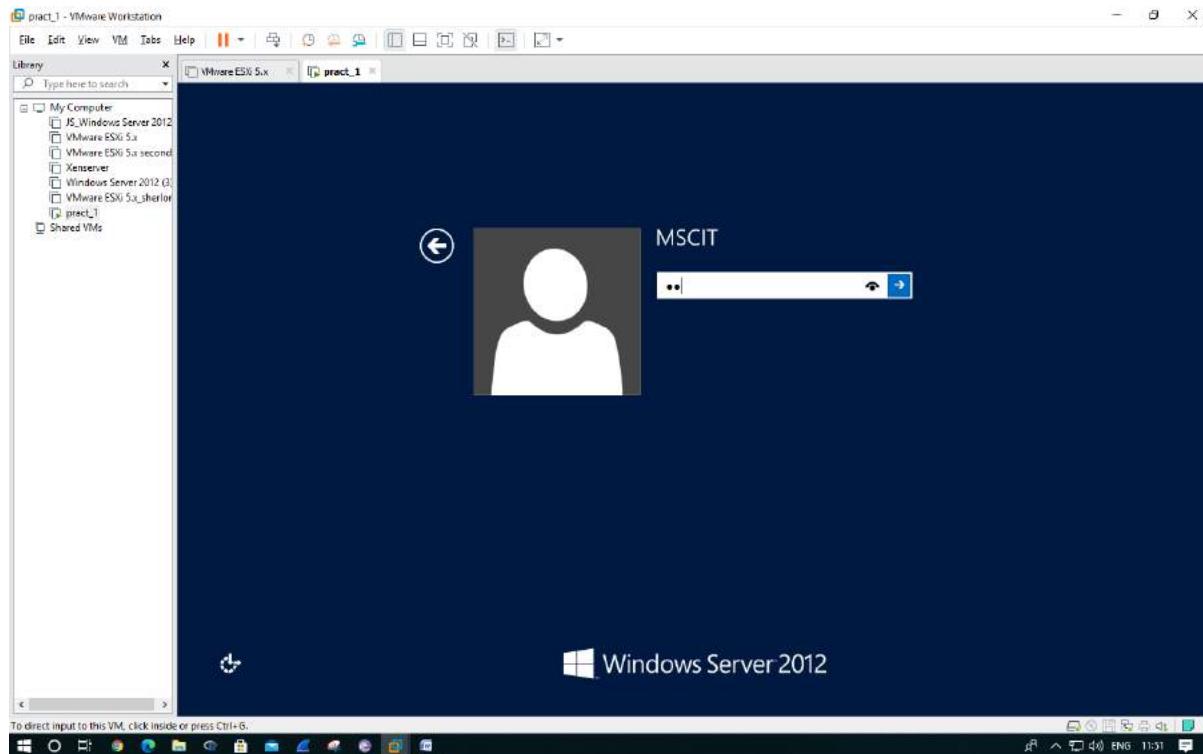
Loading will take some time.



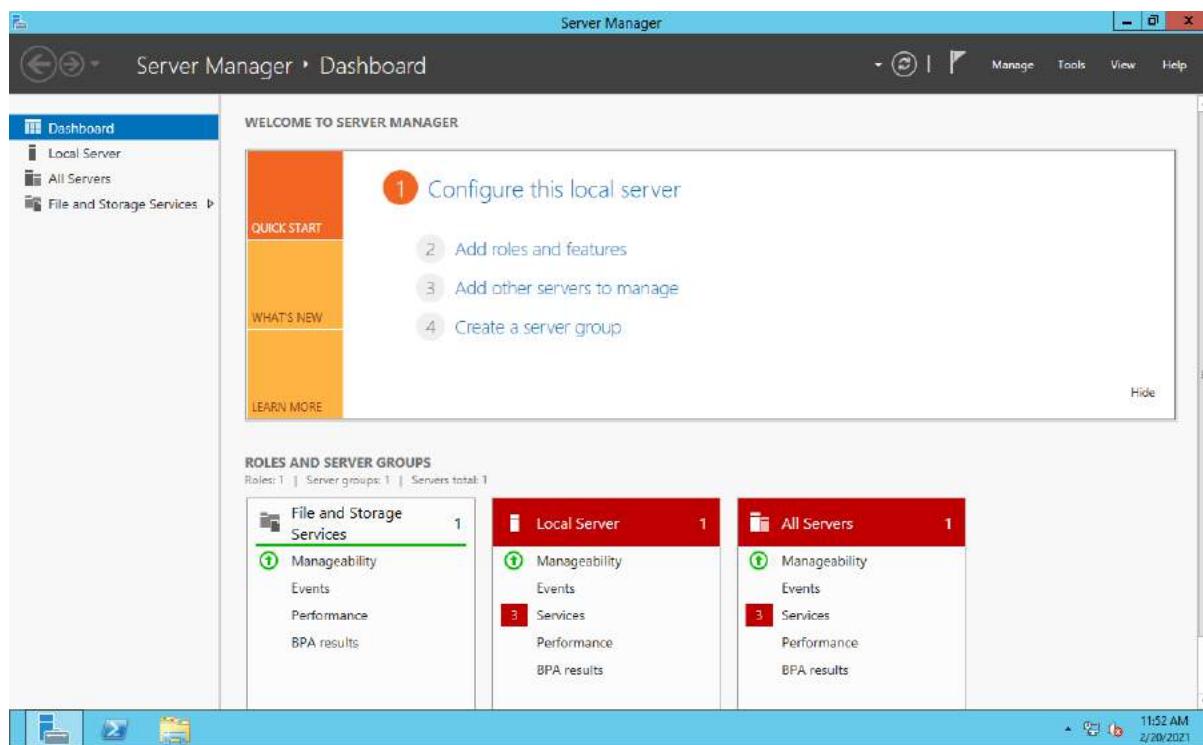


Click on yes let the system restart again.

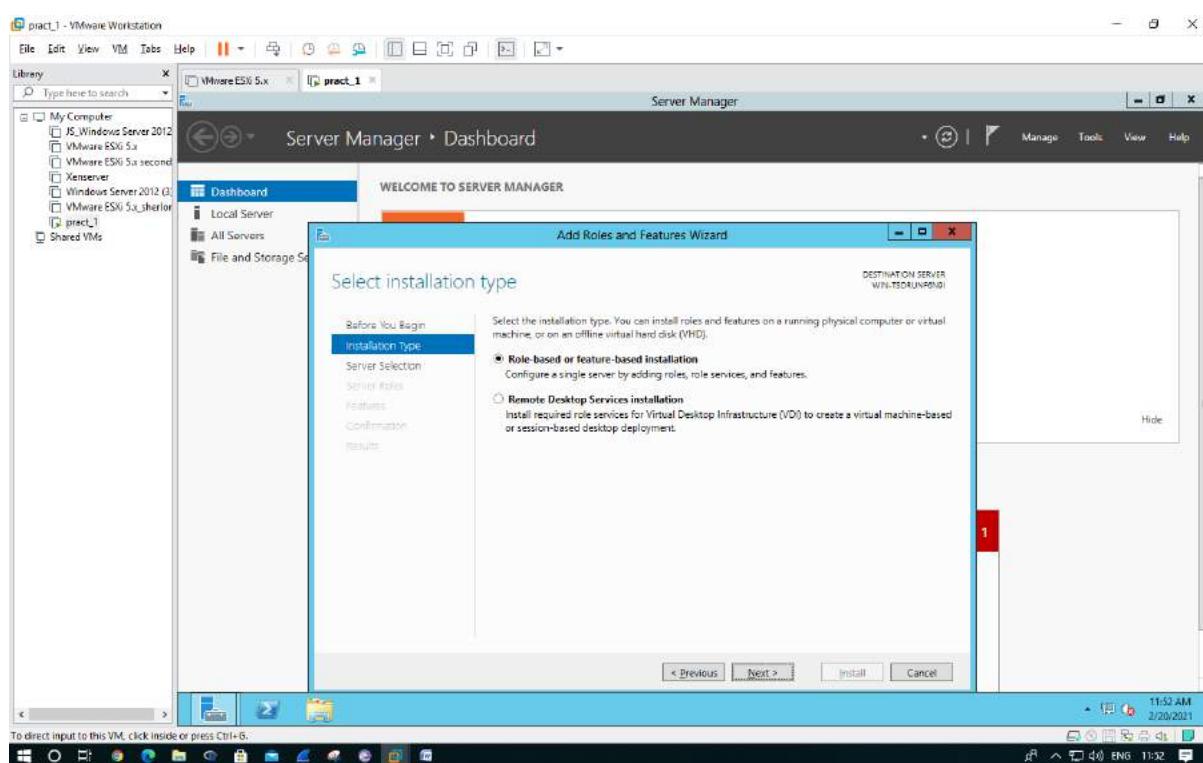
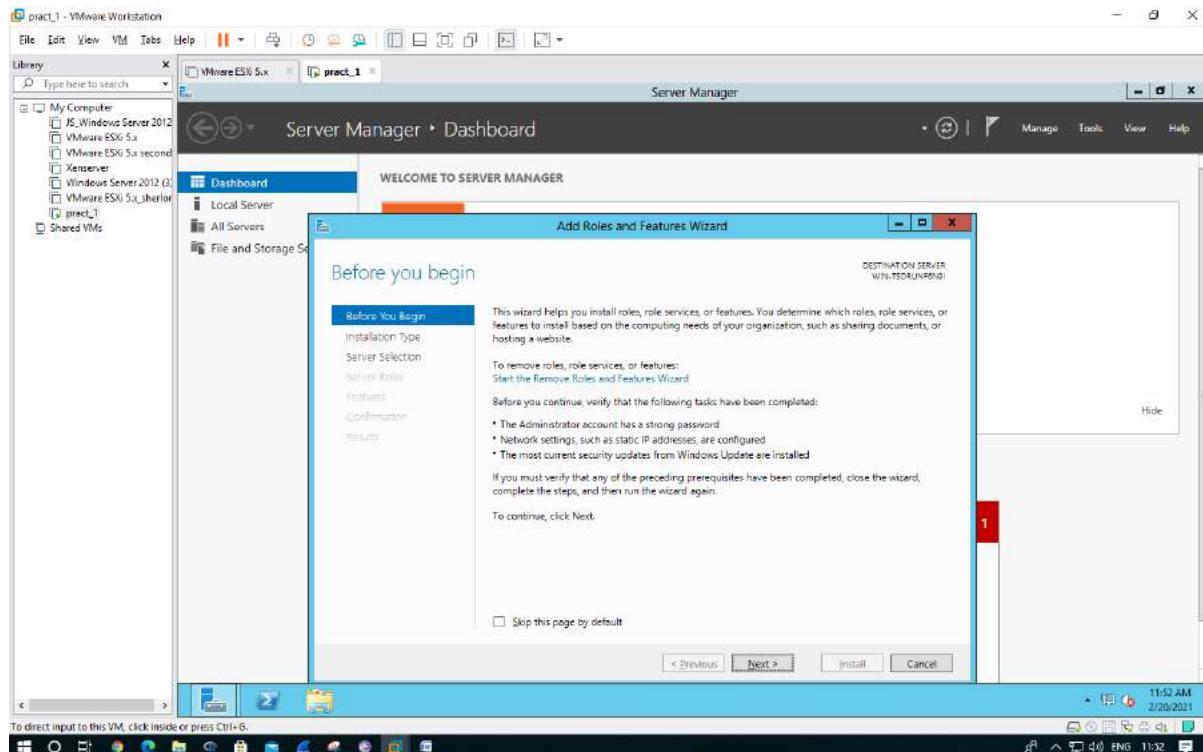


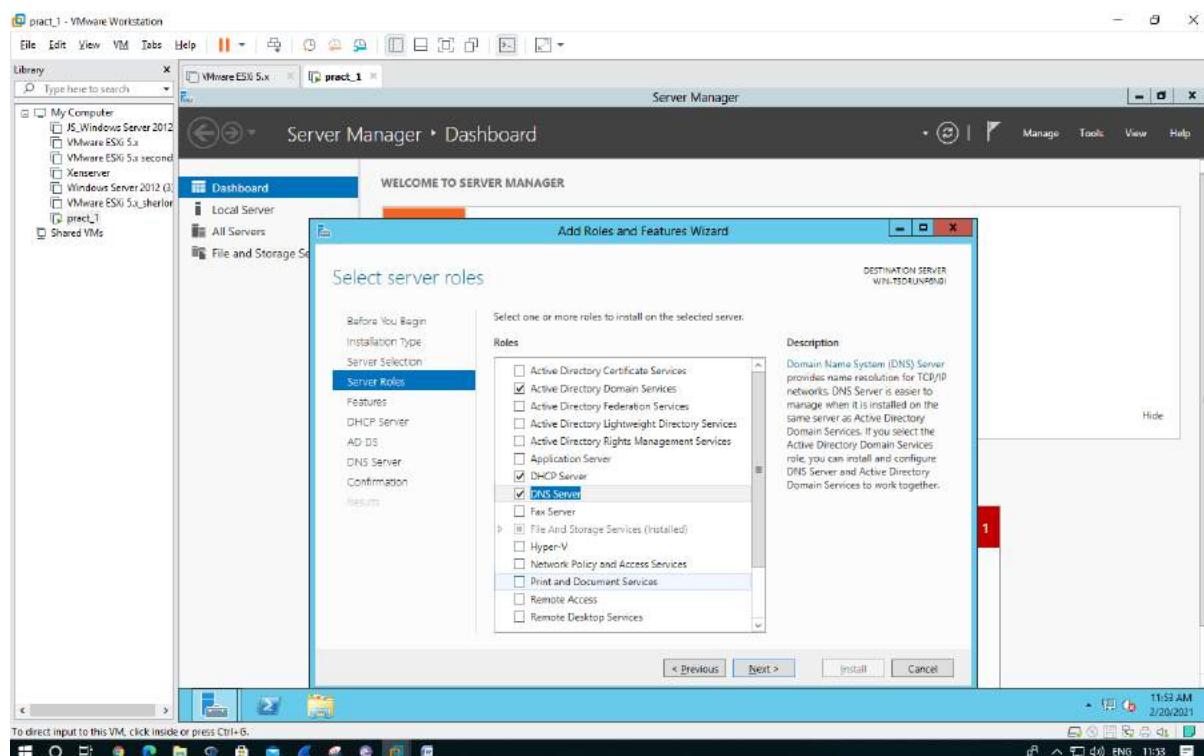
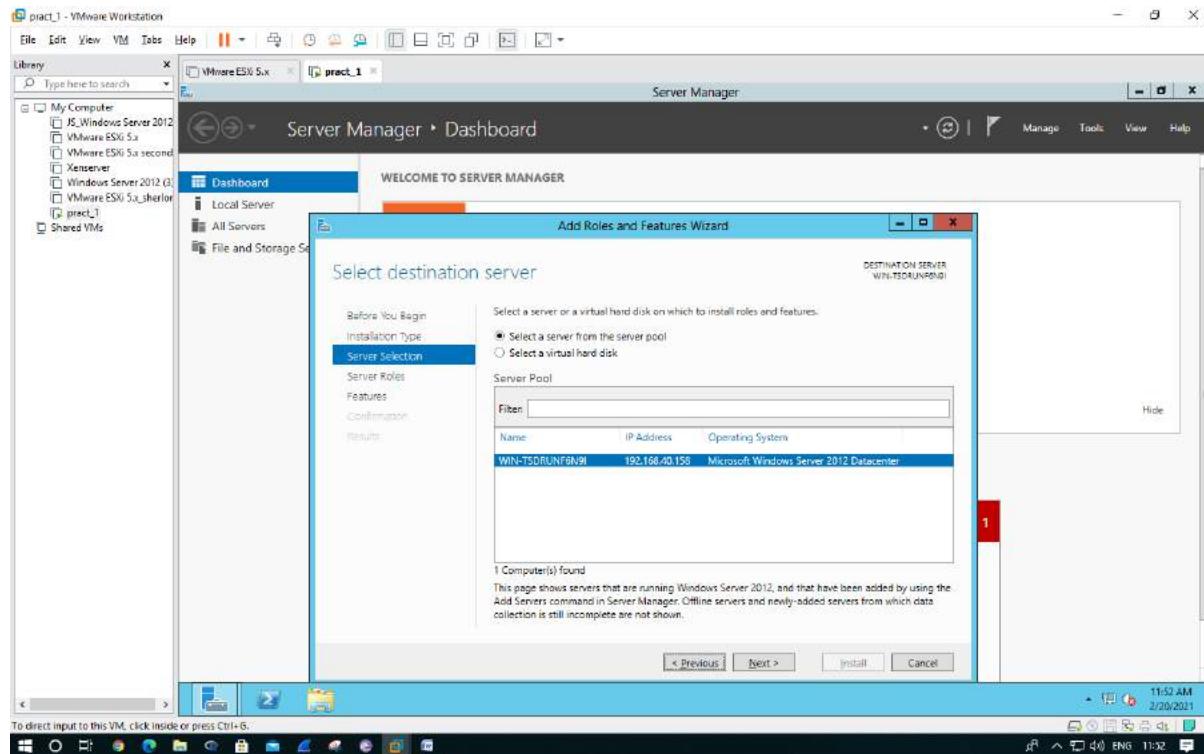


After this you can login with the same password as the device have by default.

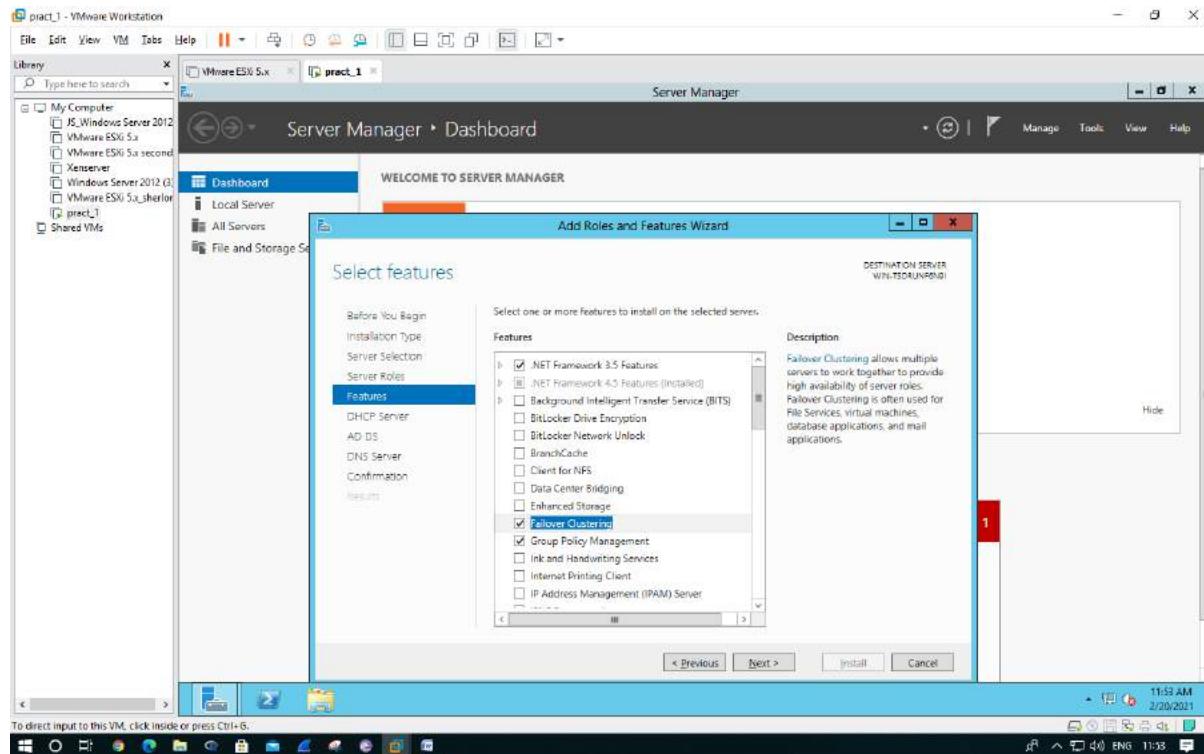


Click on Add roles and features.

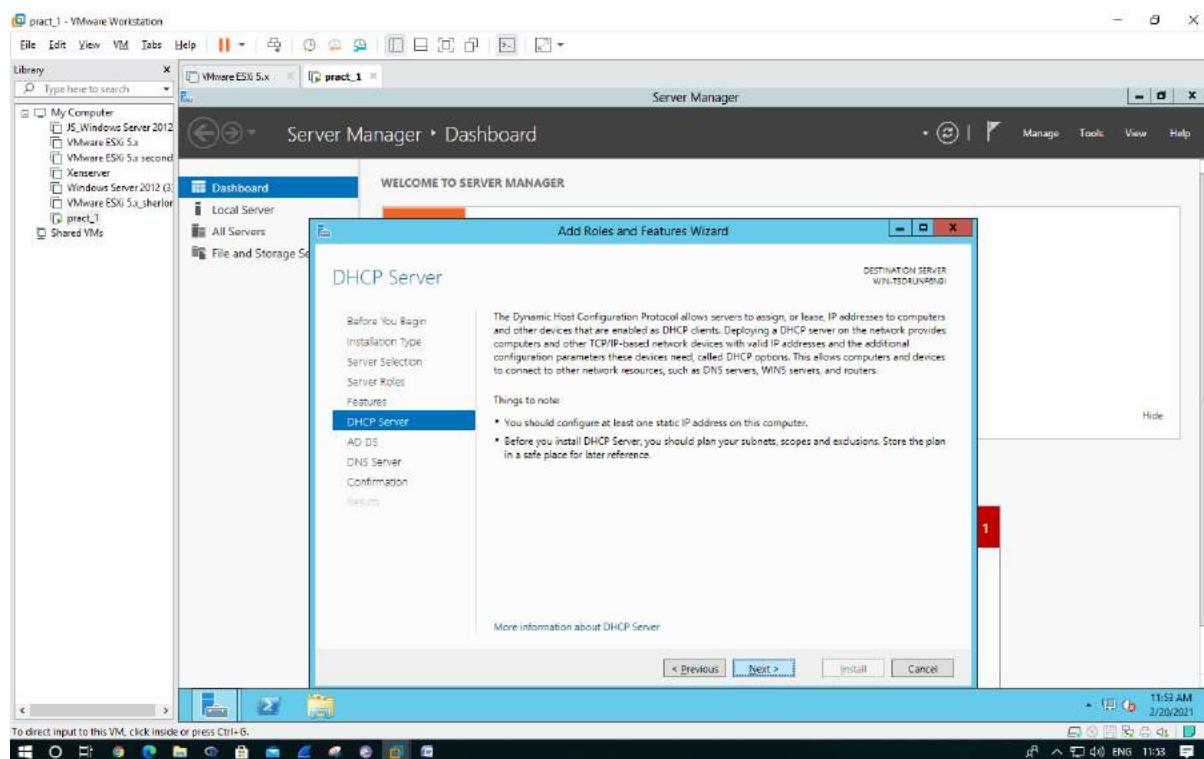




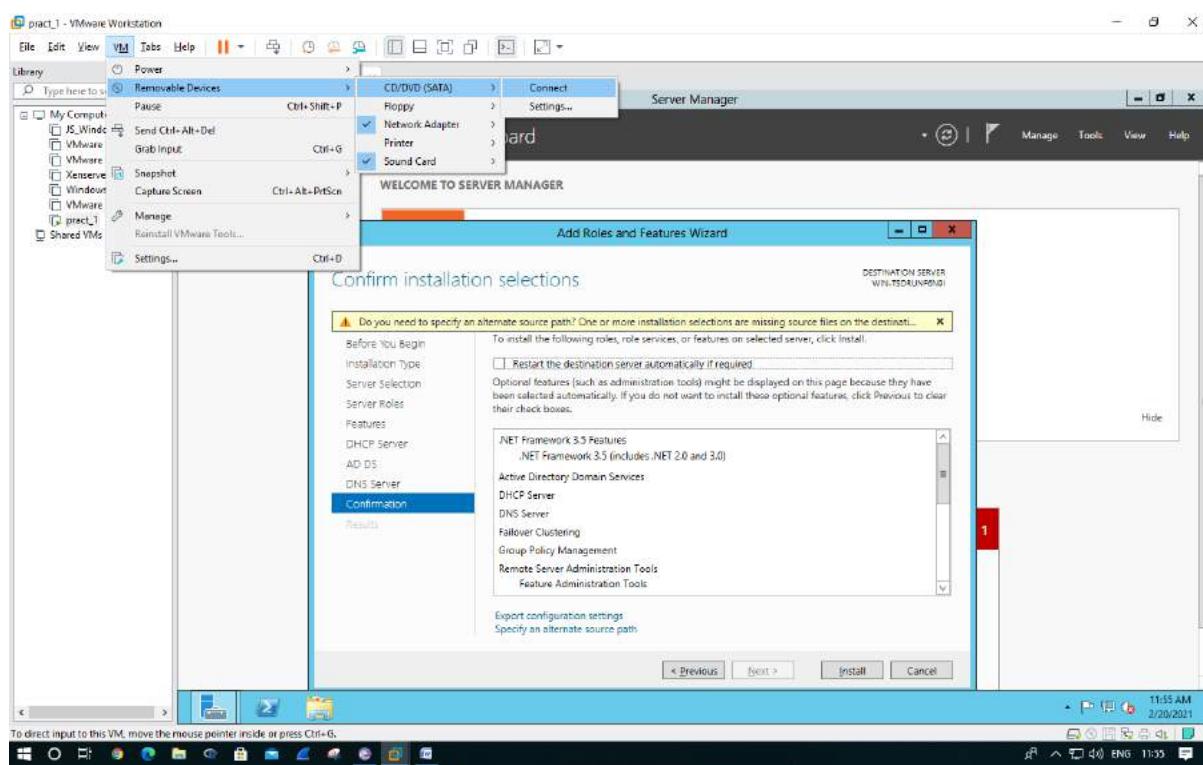
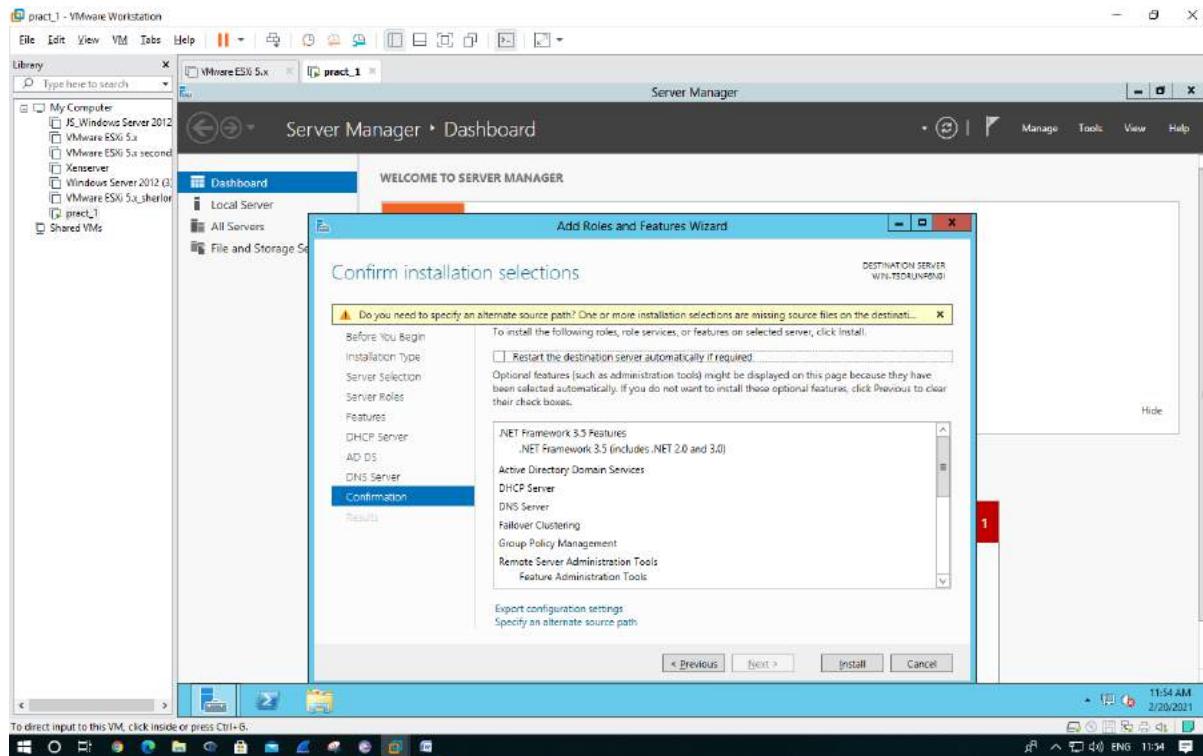
Select Active directory domain services, DHCP server and DNS server.



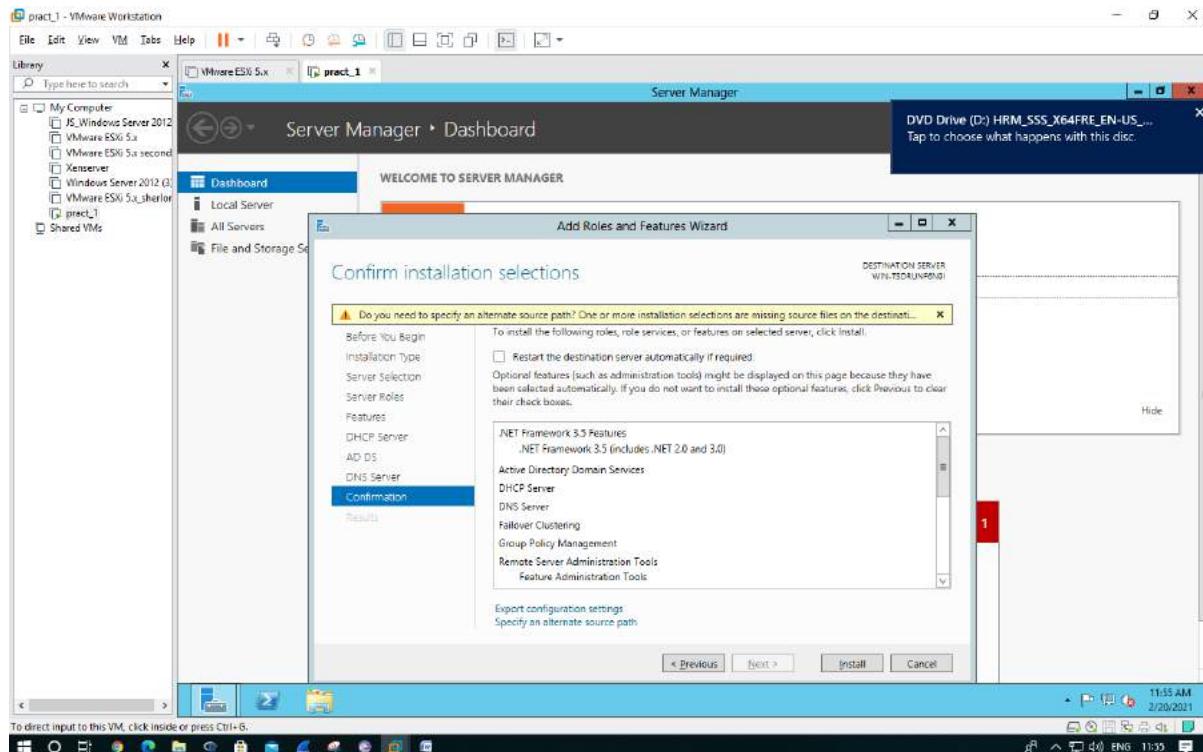
Select .NET Framework 3.5 features and Failover Clustering



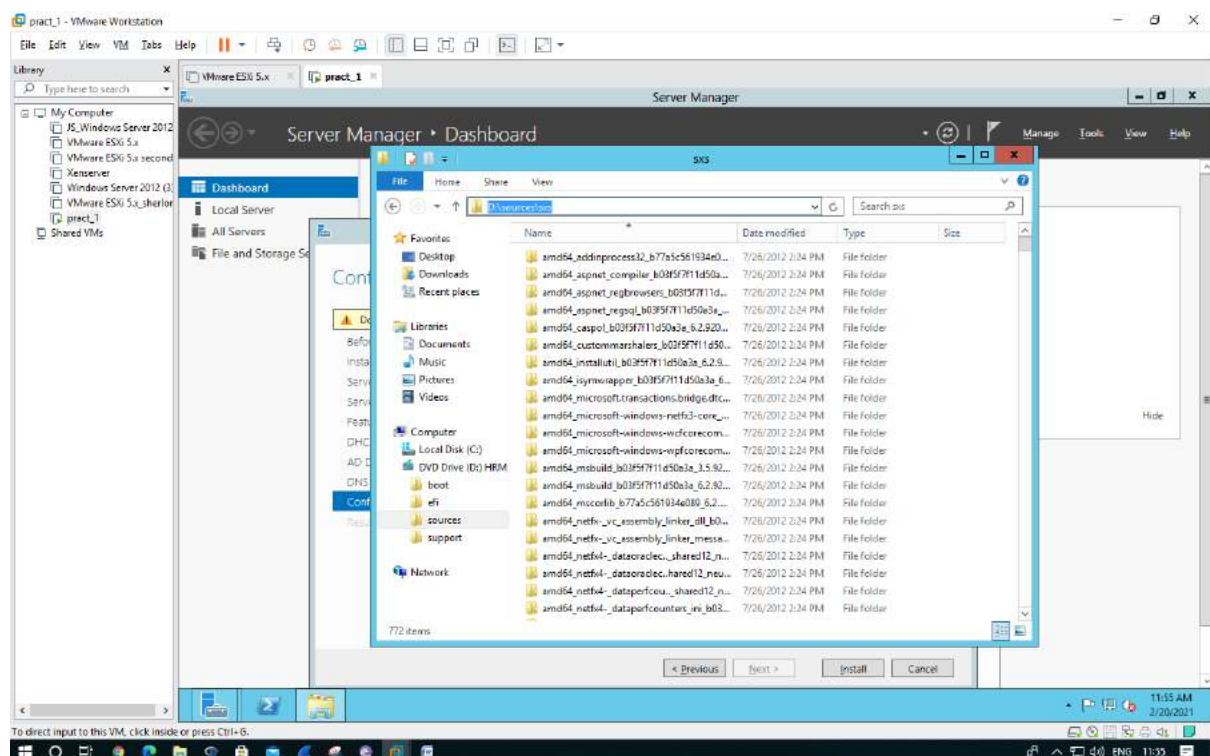
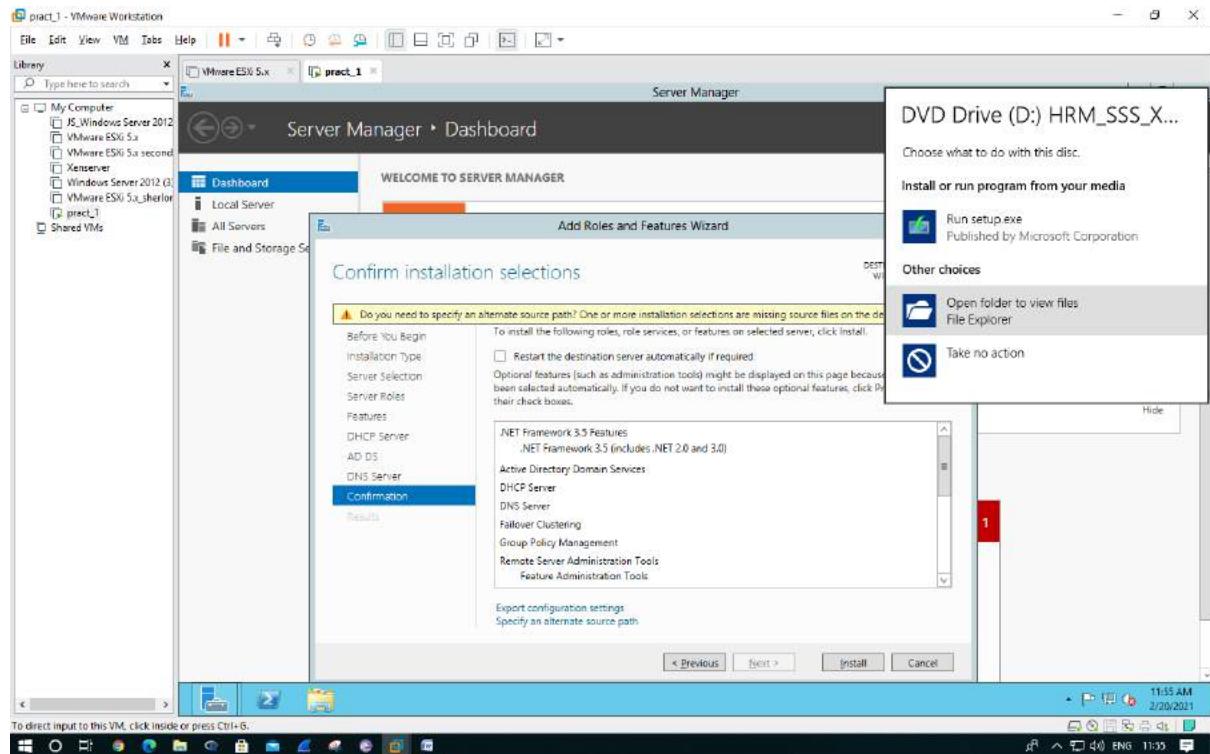
Keep clicking next



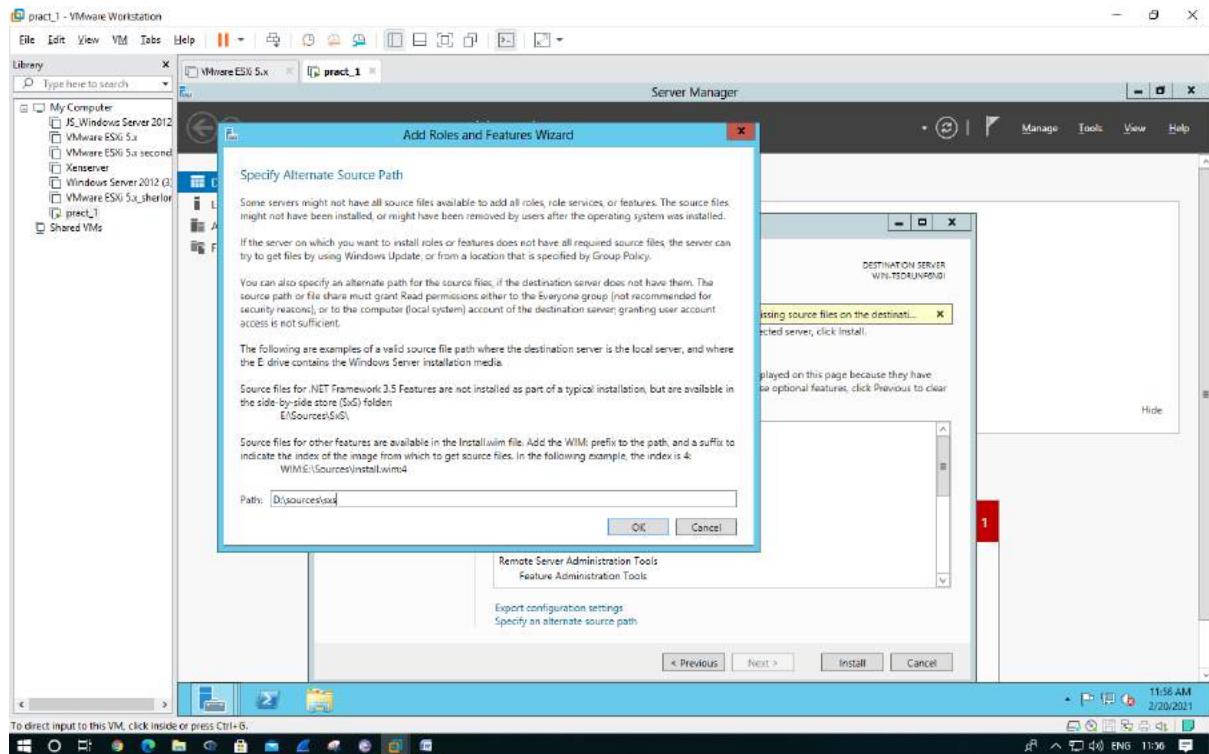
Before installing you need to set path this way you need to set path.



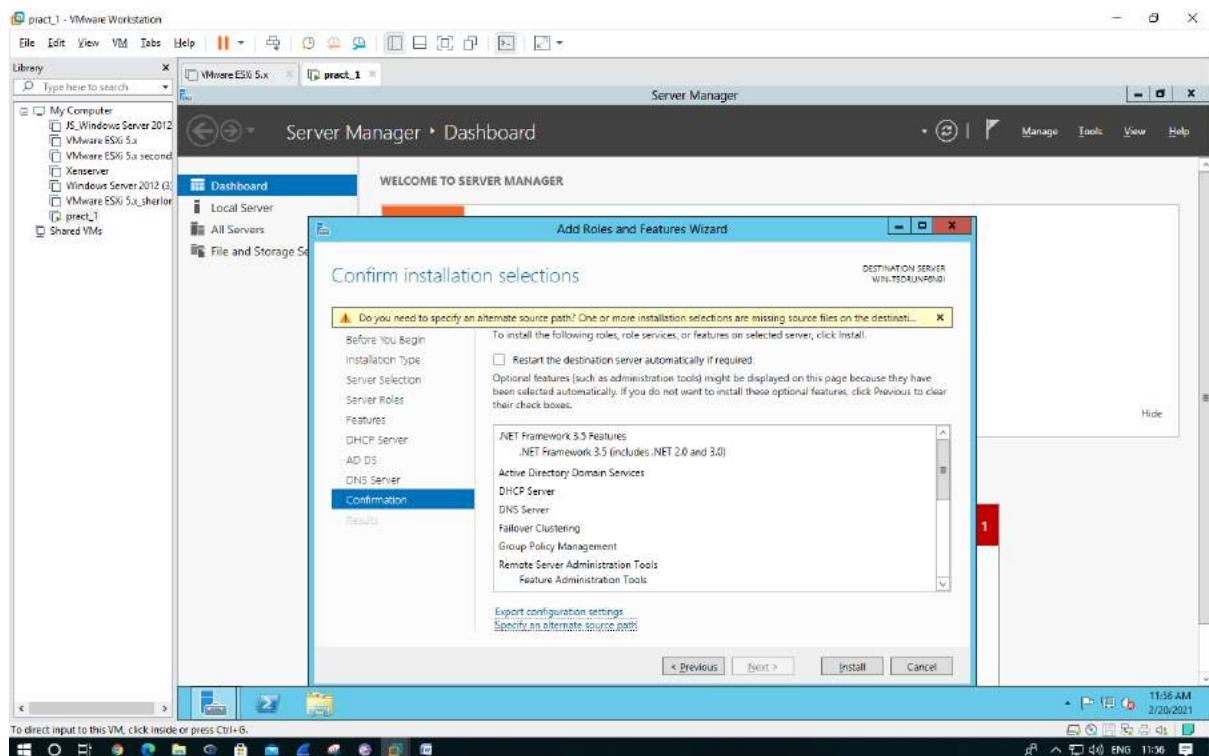
Click on drive on top right

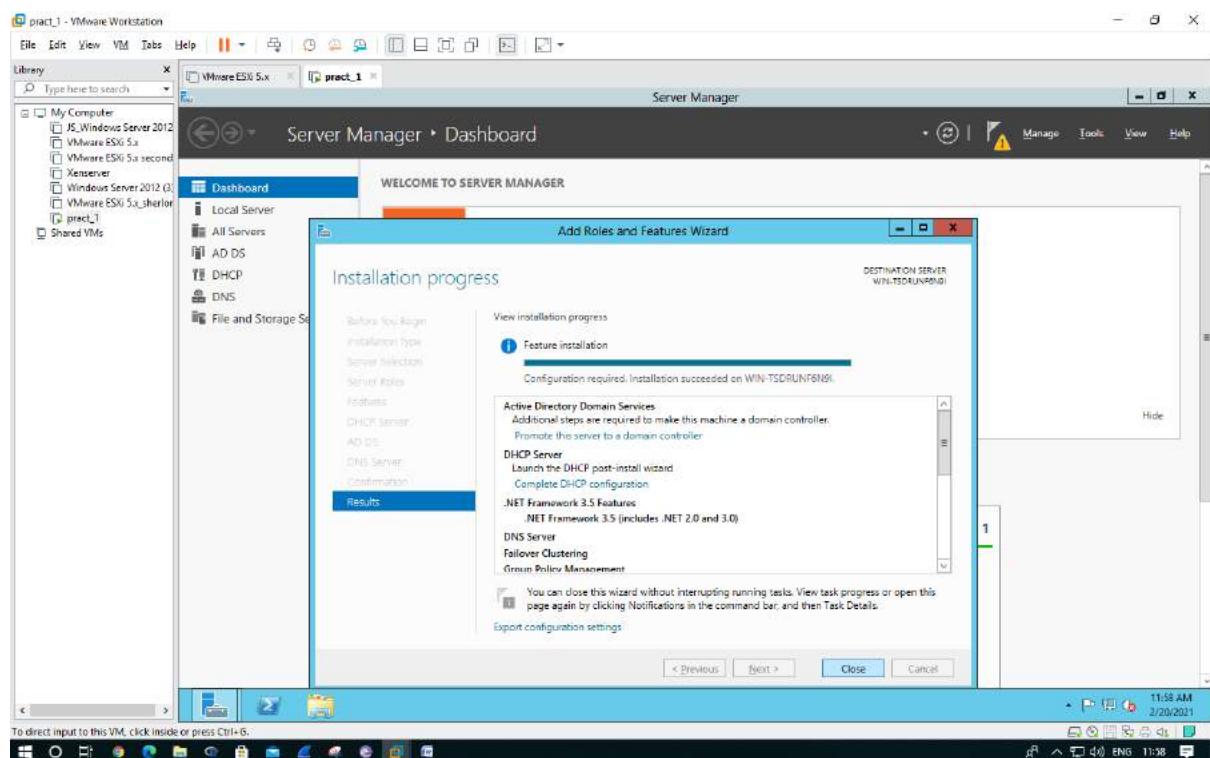
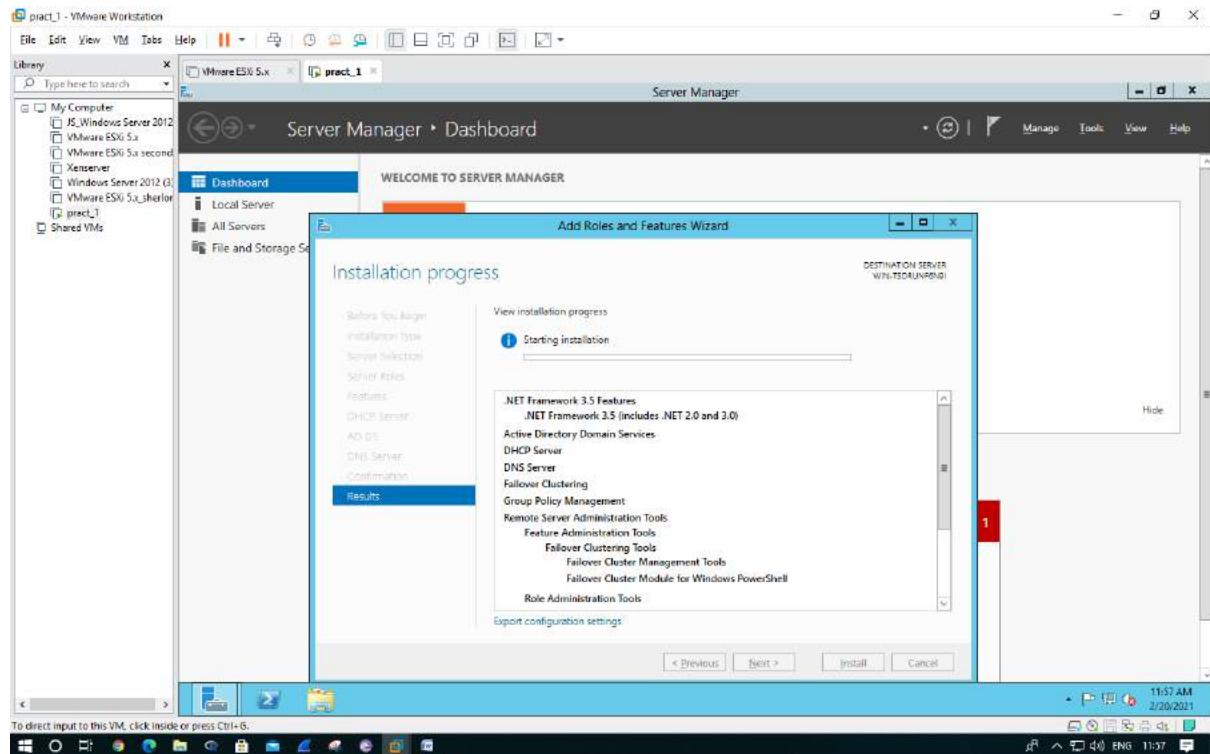


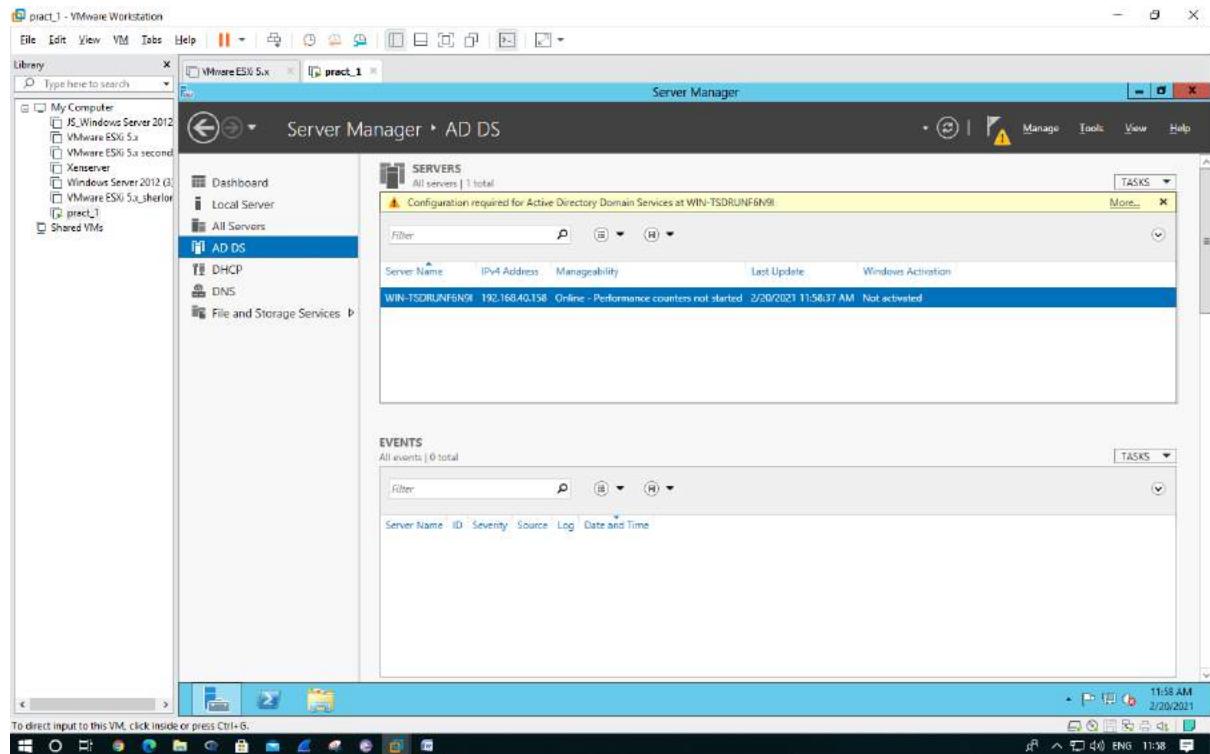
Go to source then sxs then copy path.



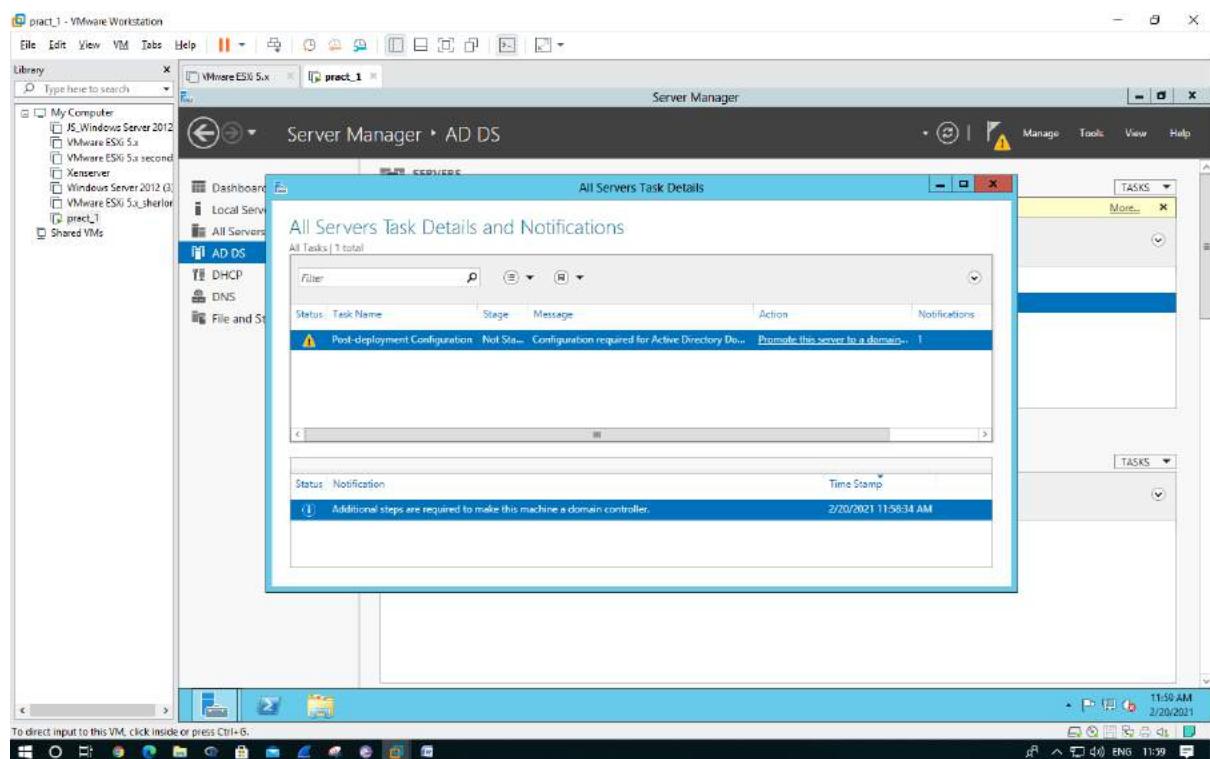
Click on 'Specify an alternate source path' then paste the path there and install.



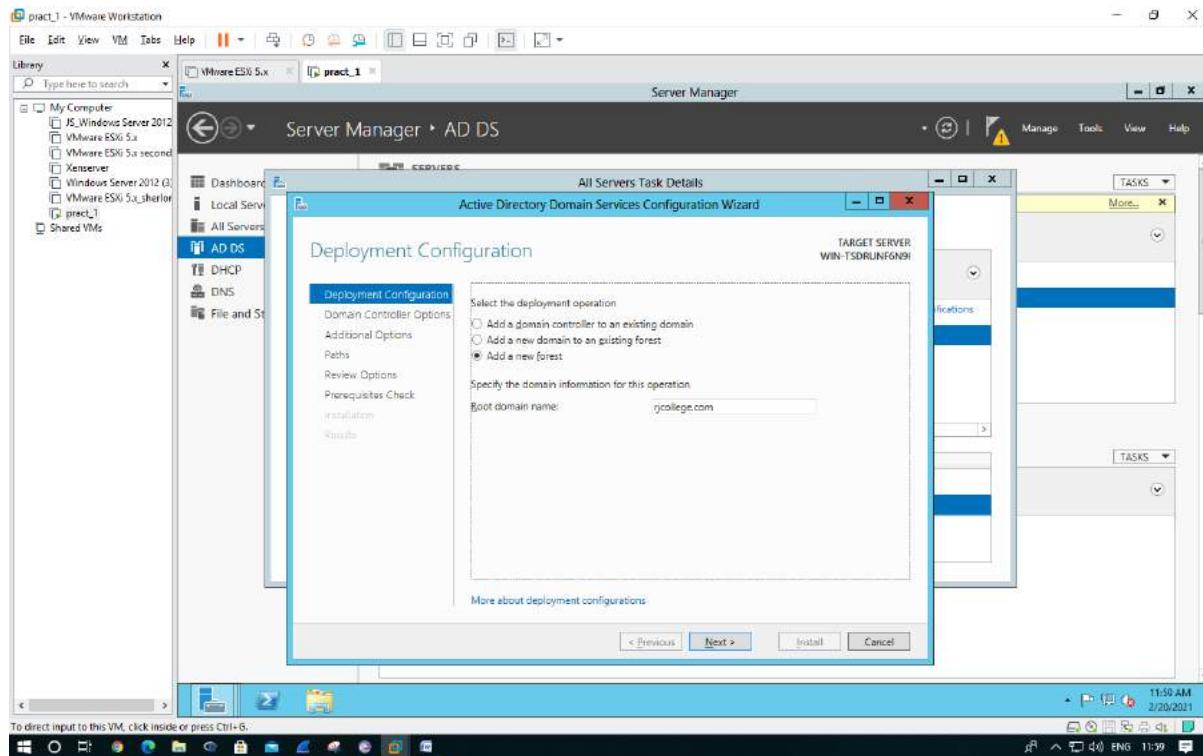




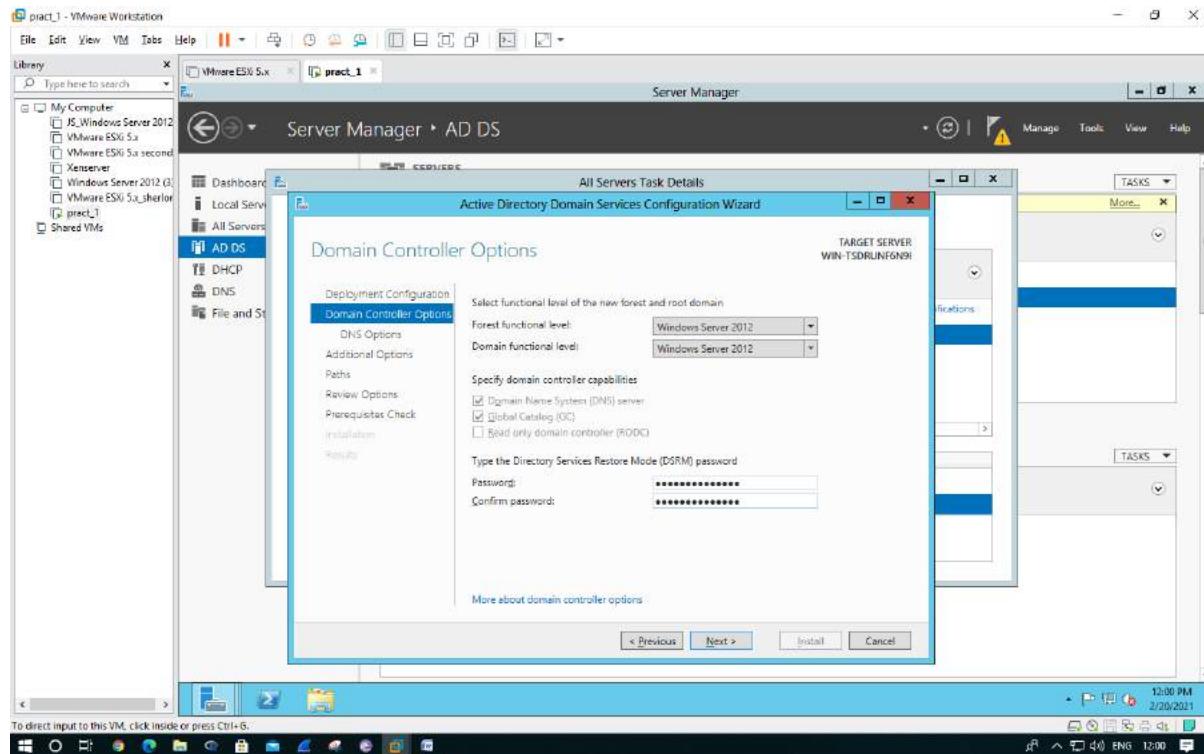
Click on more right below task option.



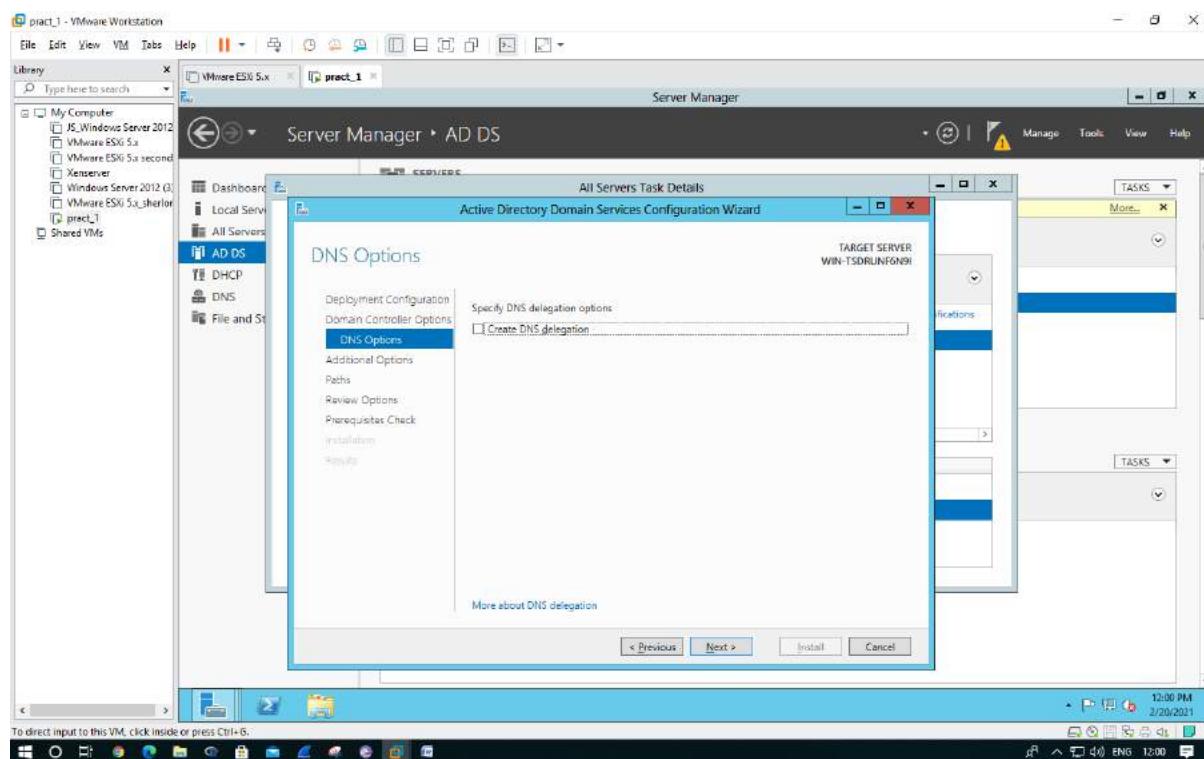
Click on ‘promote this server to a domain’ option.



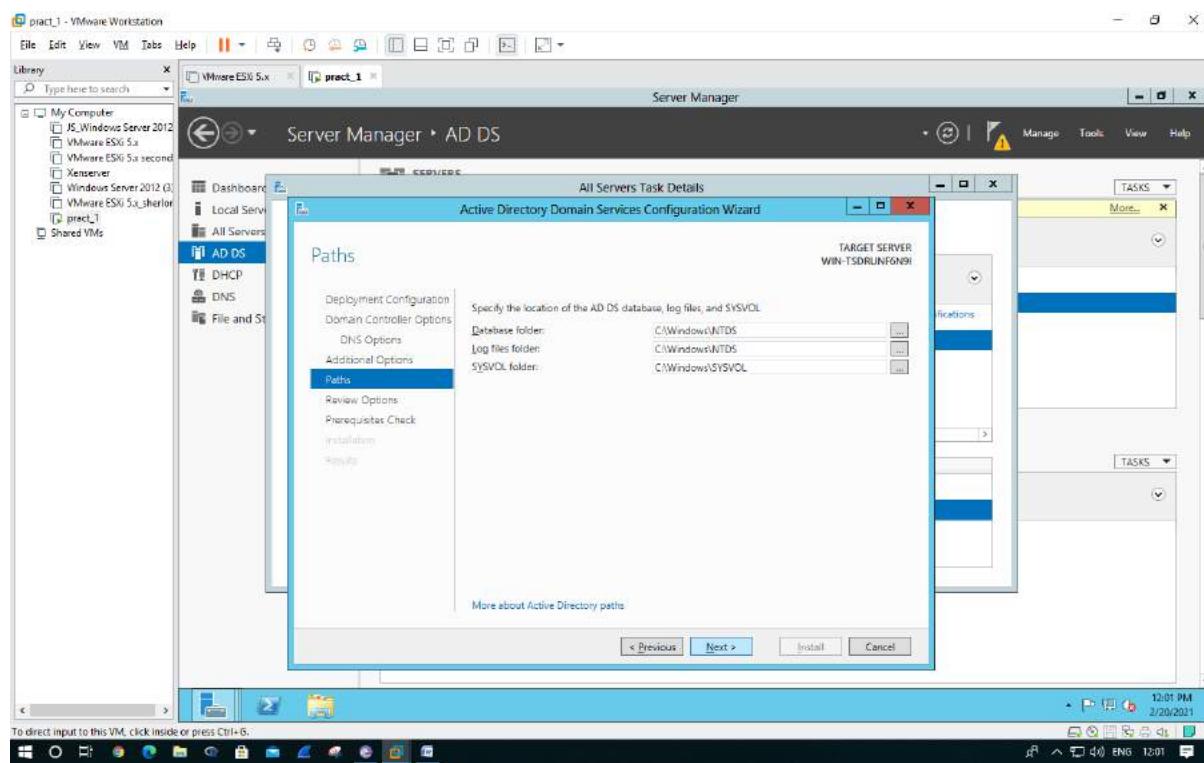
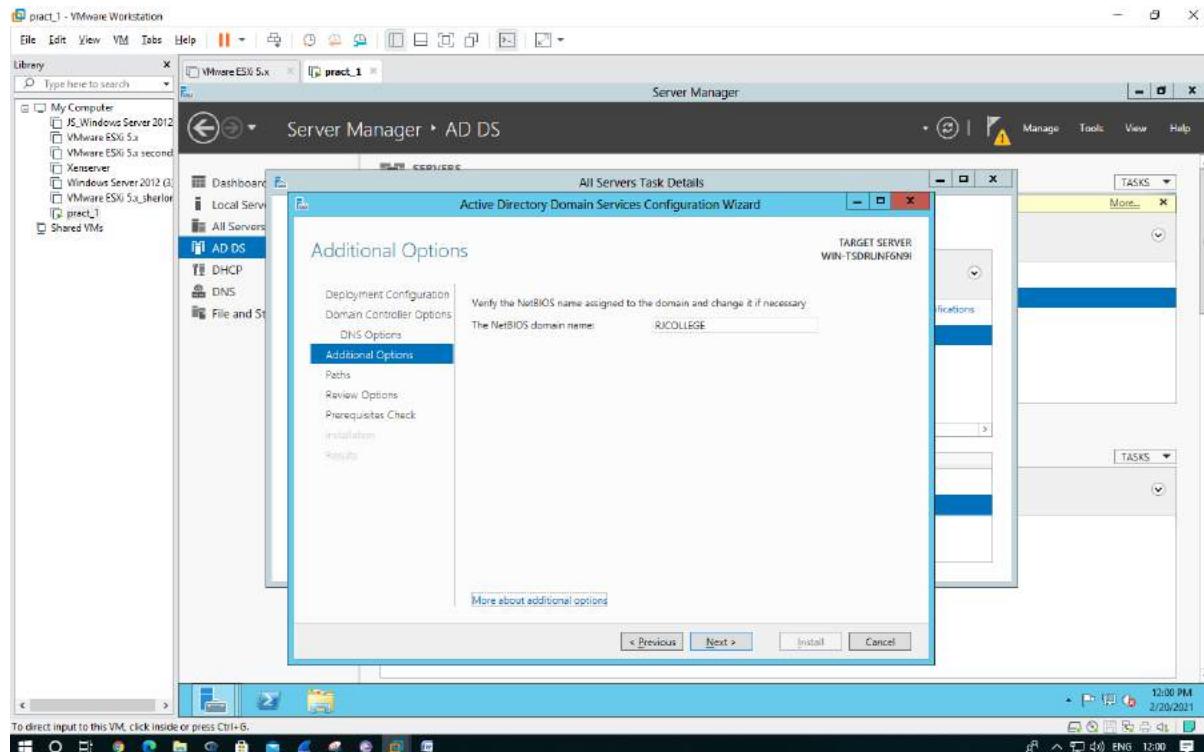
Select ‘Add a new forest’ option and set Root domain name as ‘rjcollege.com’.

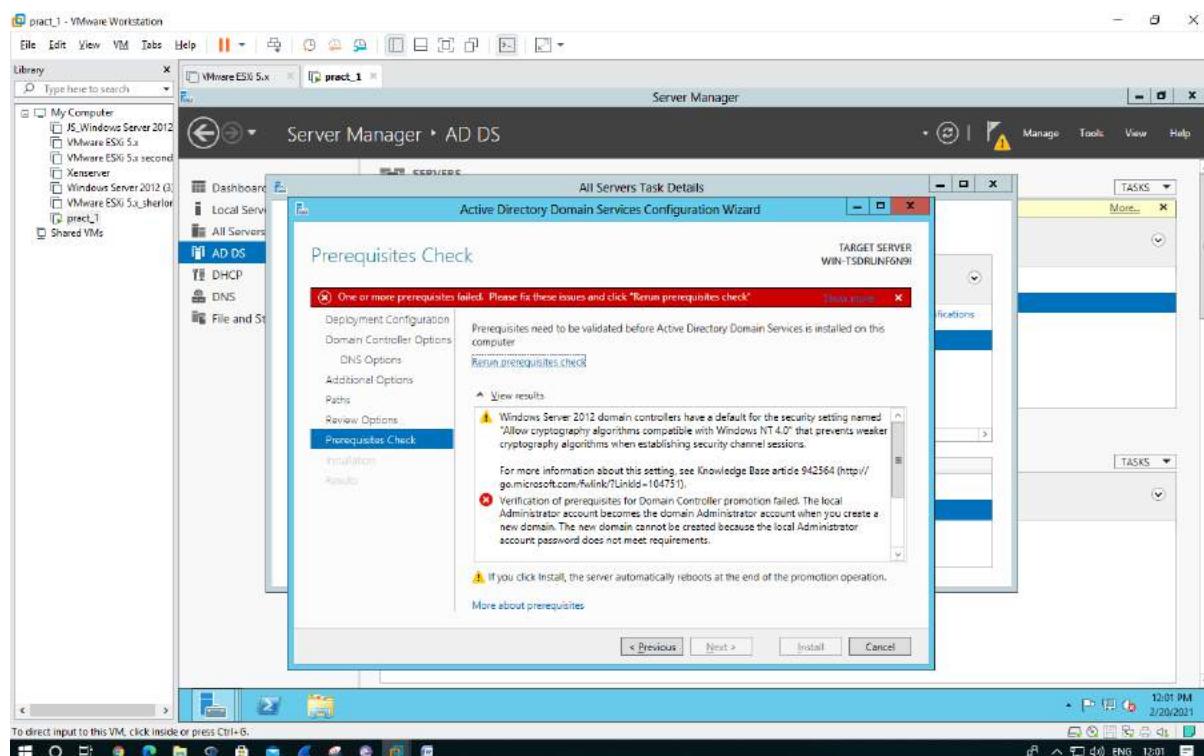
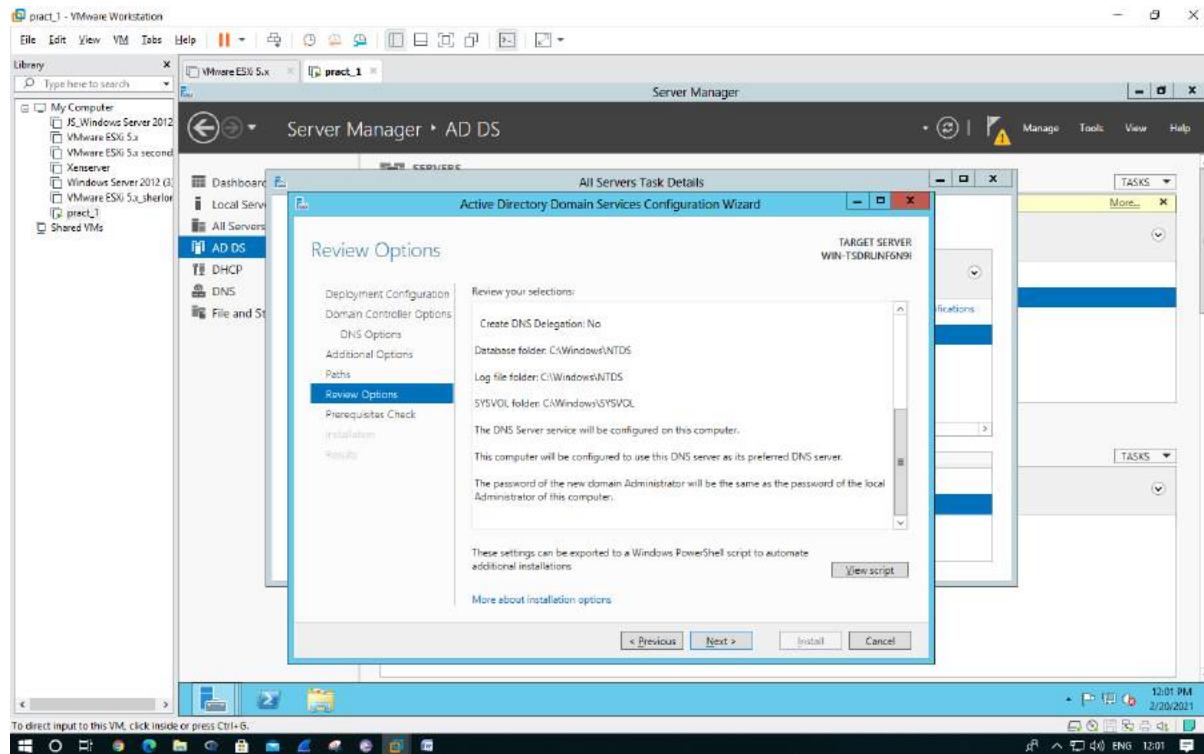


Set a difficult password means strong password.

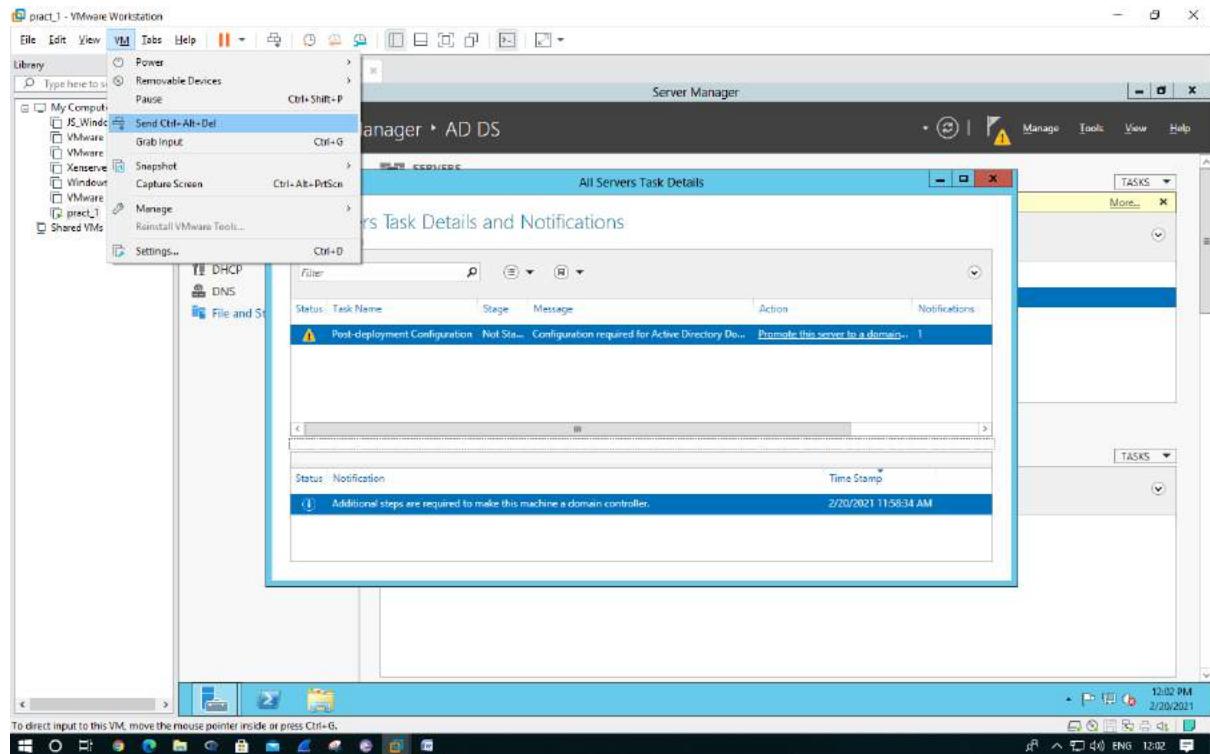


Unclick the create dns delegation option and next.

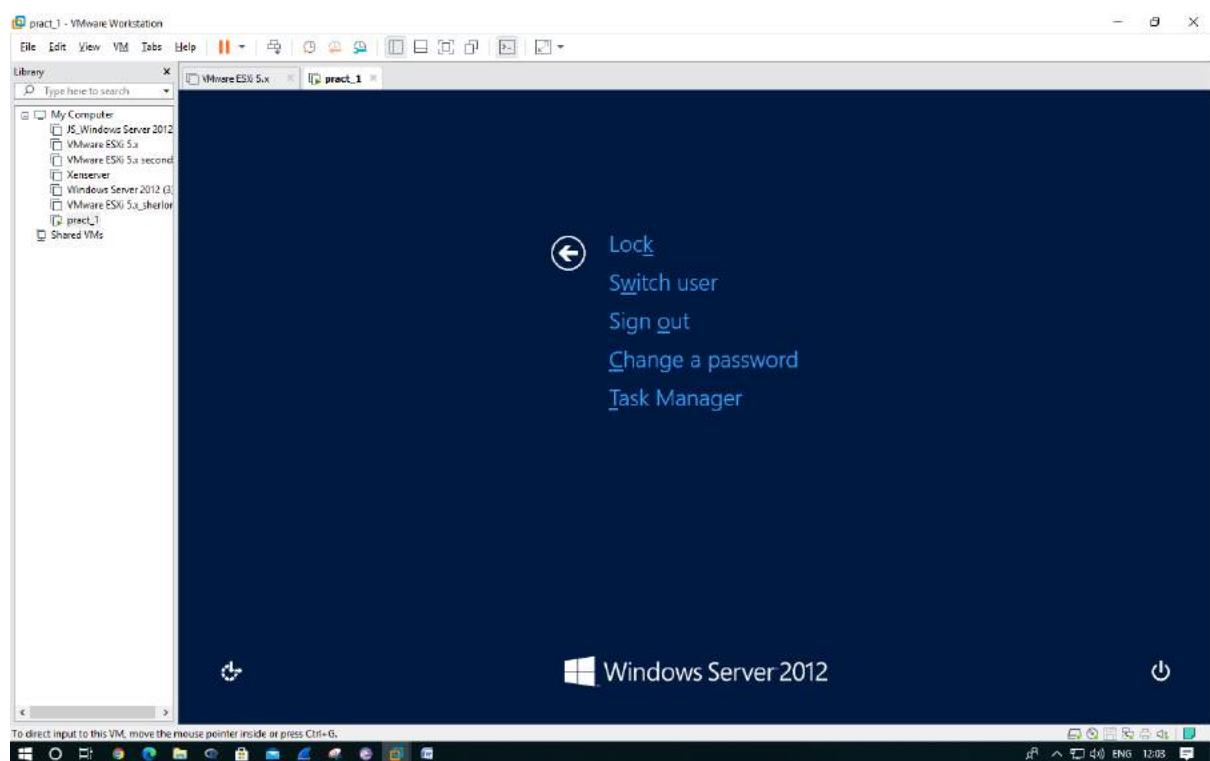




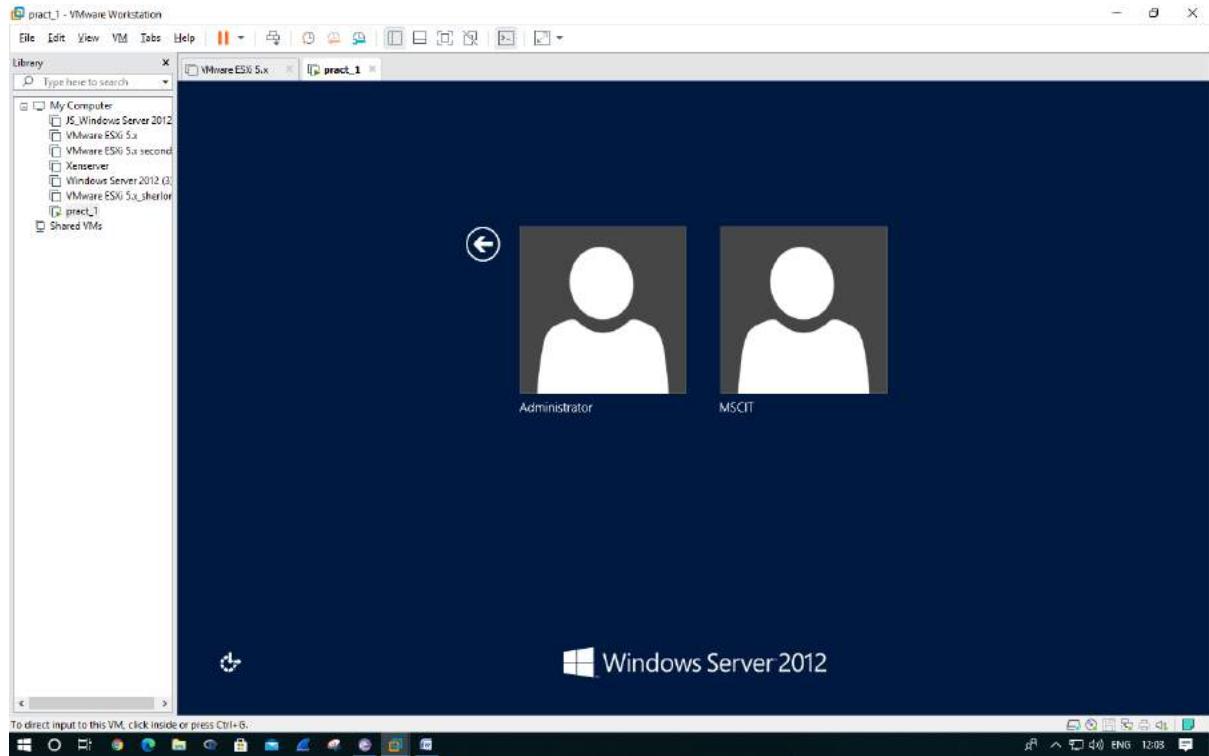
Many times this error occur will see how to solve it.



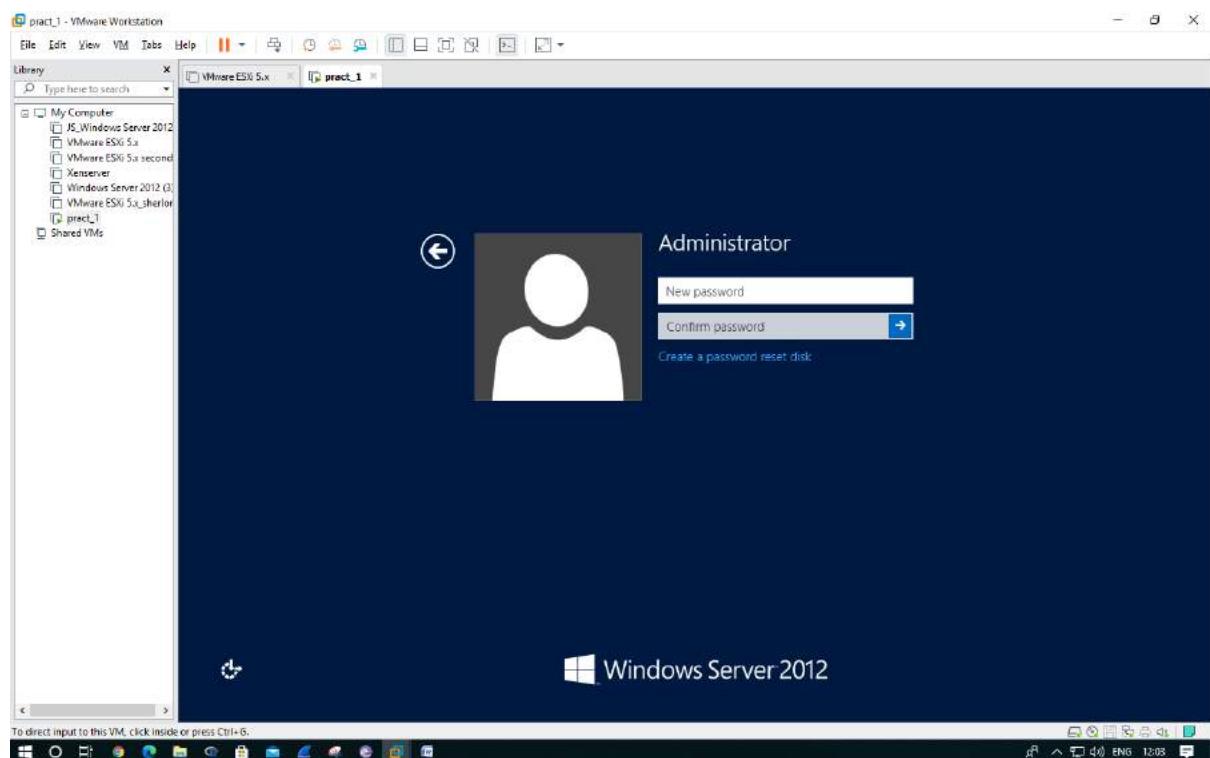
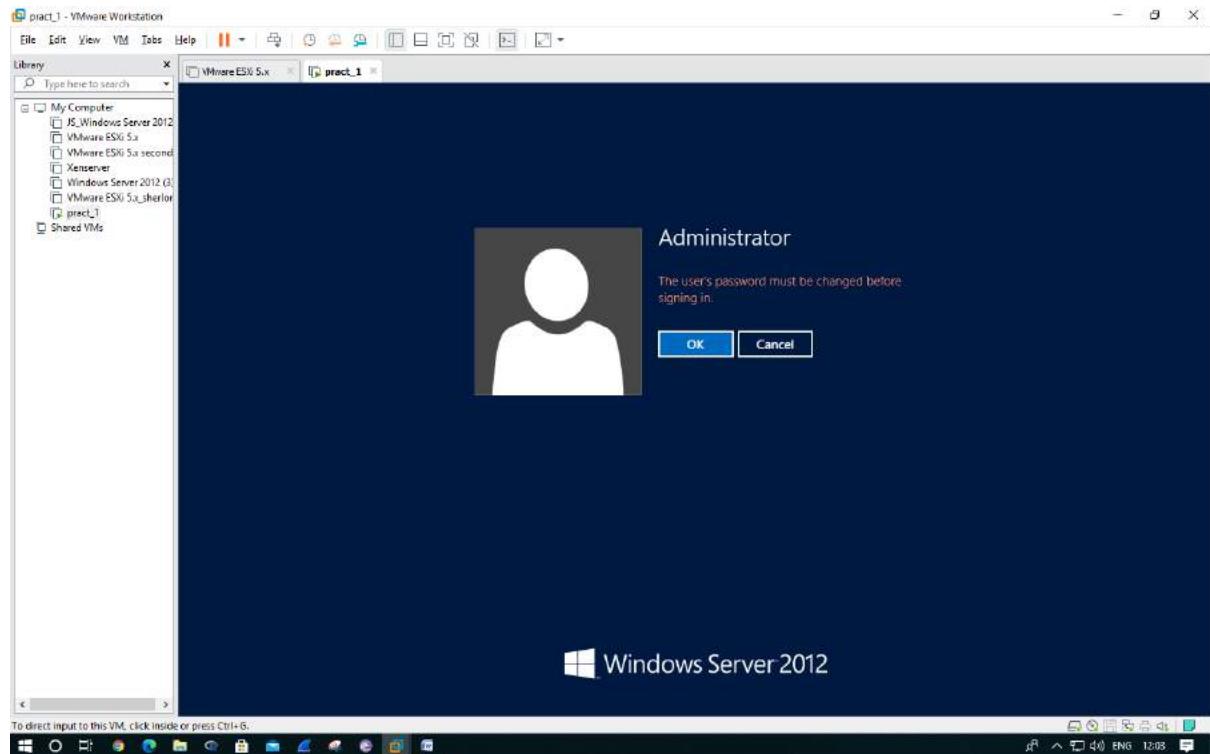
First logout from system.

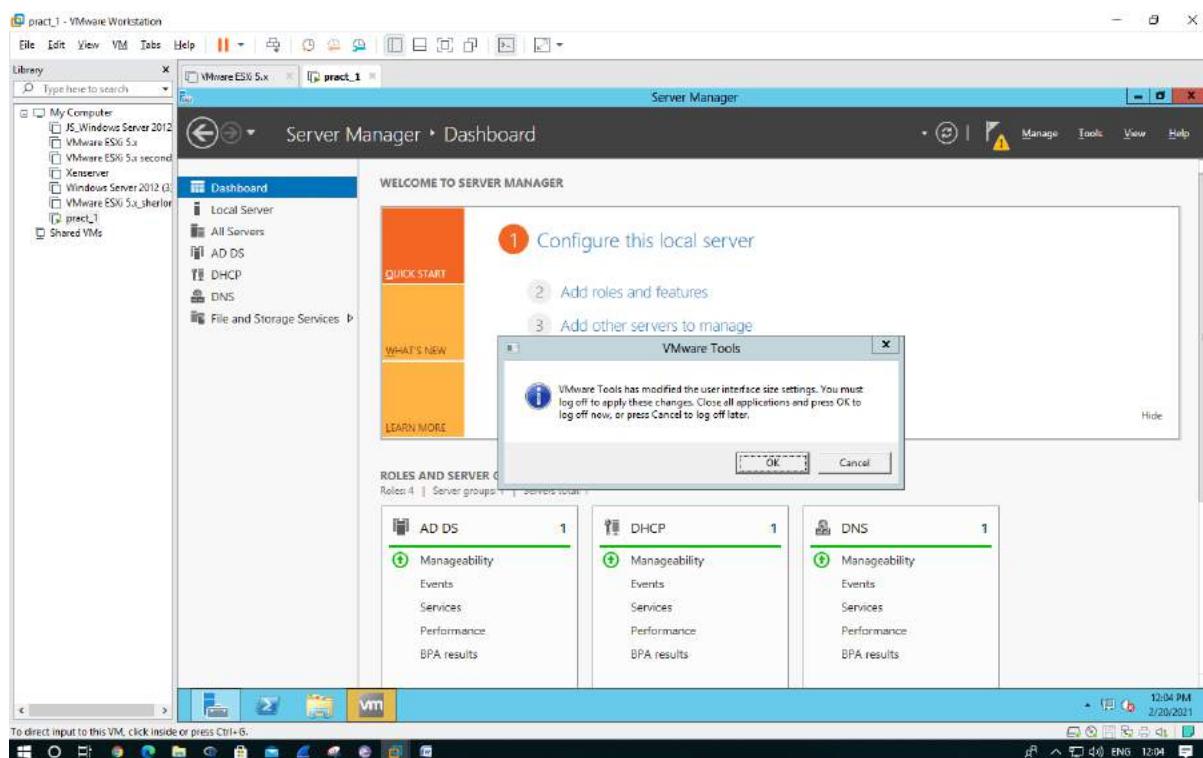
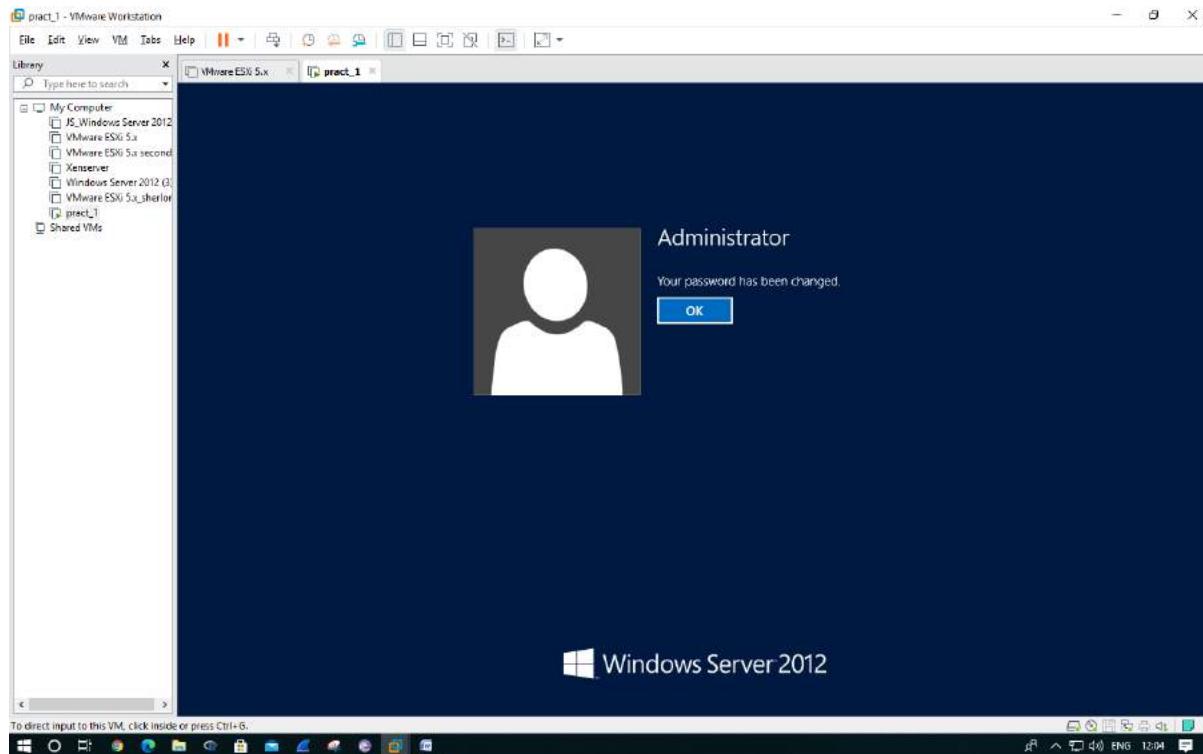


Sign out

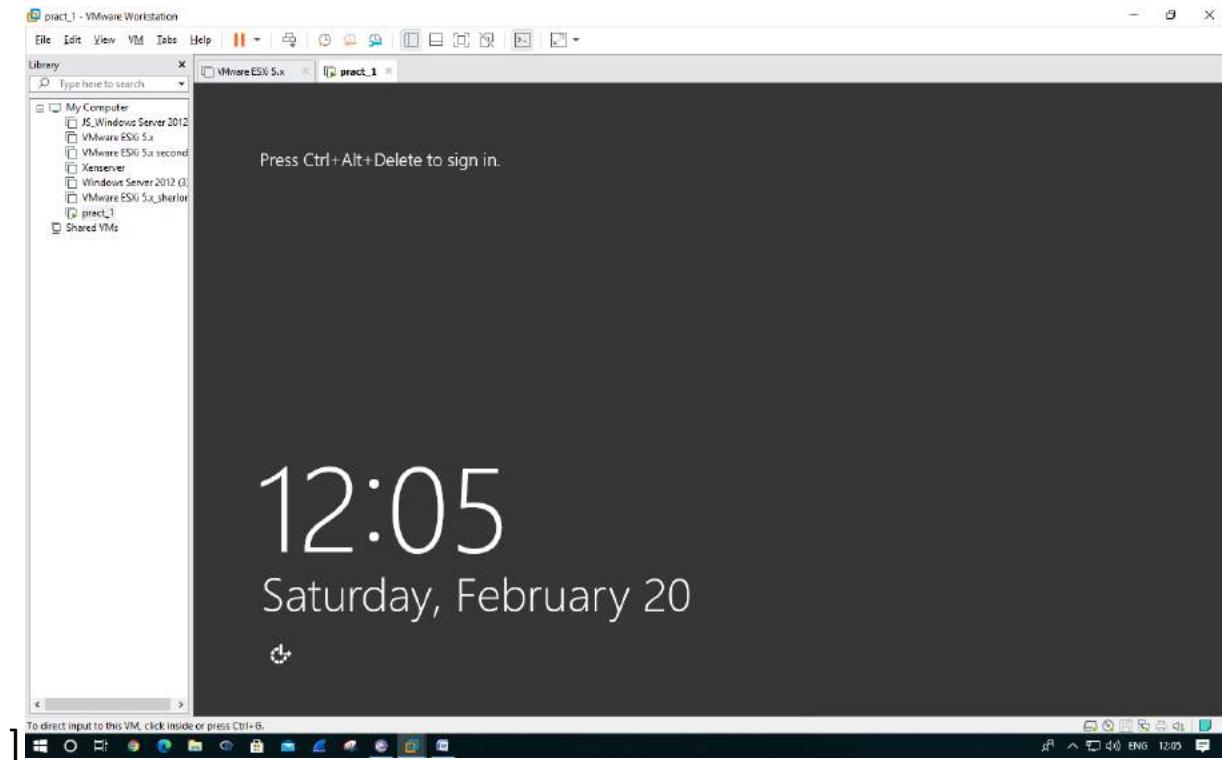


Click on administrator option to create new login account.

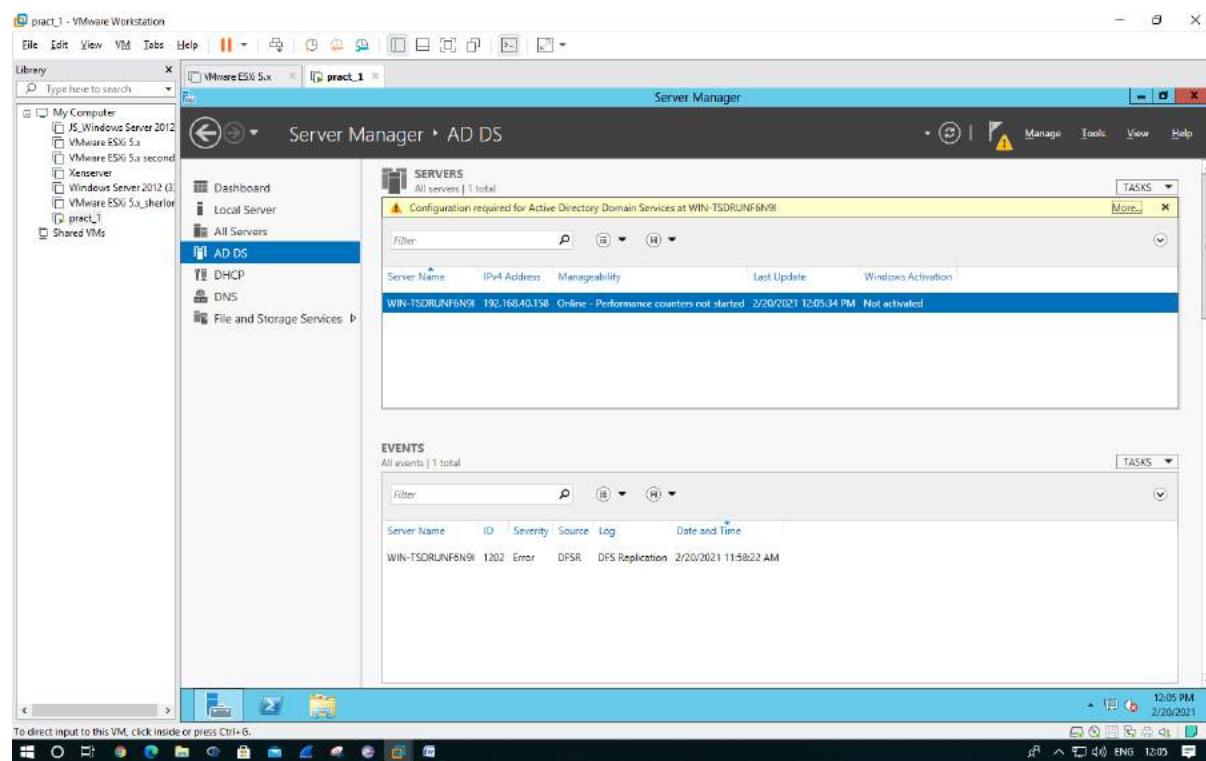




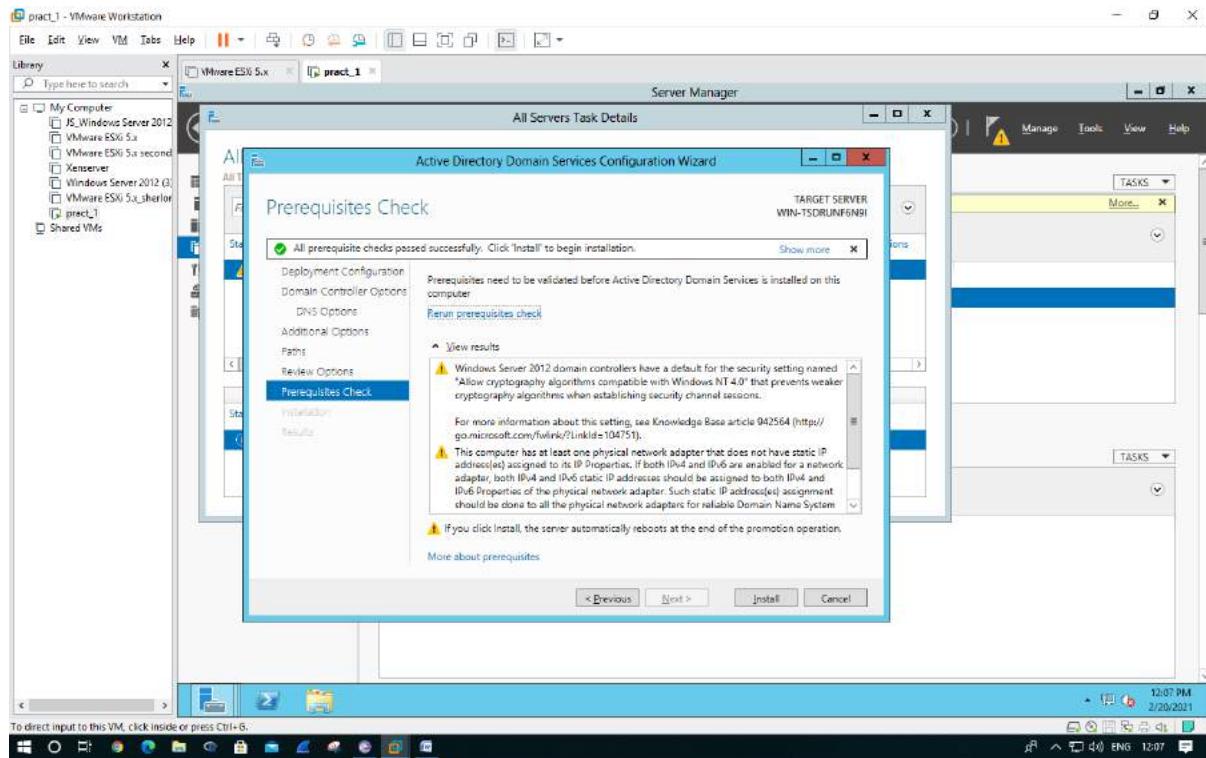
Select ok.



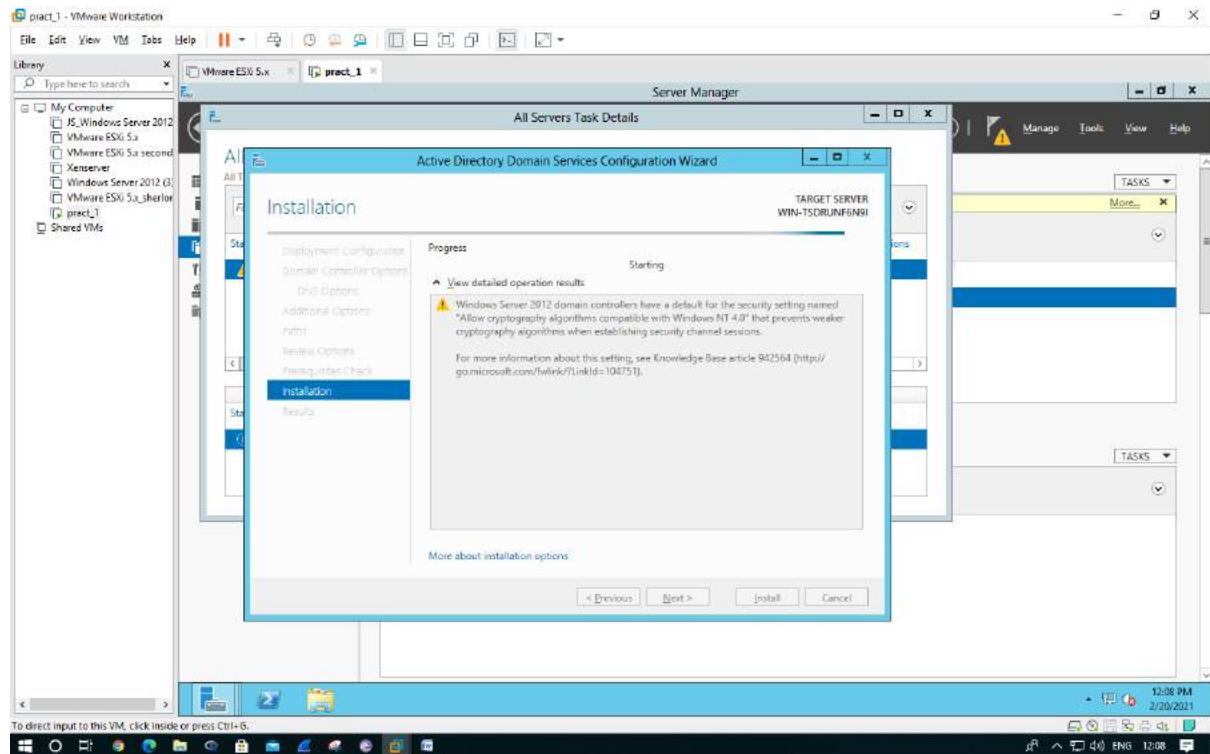
Now sign in and repeat the earlier steps again.



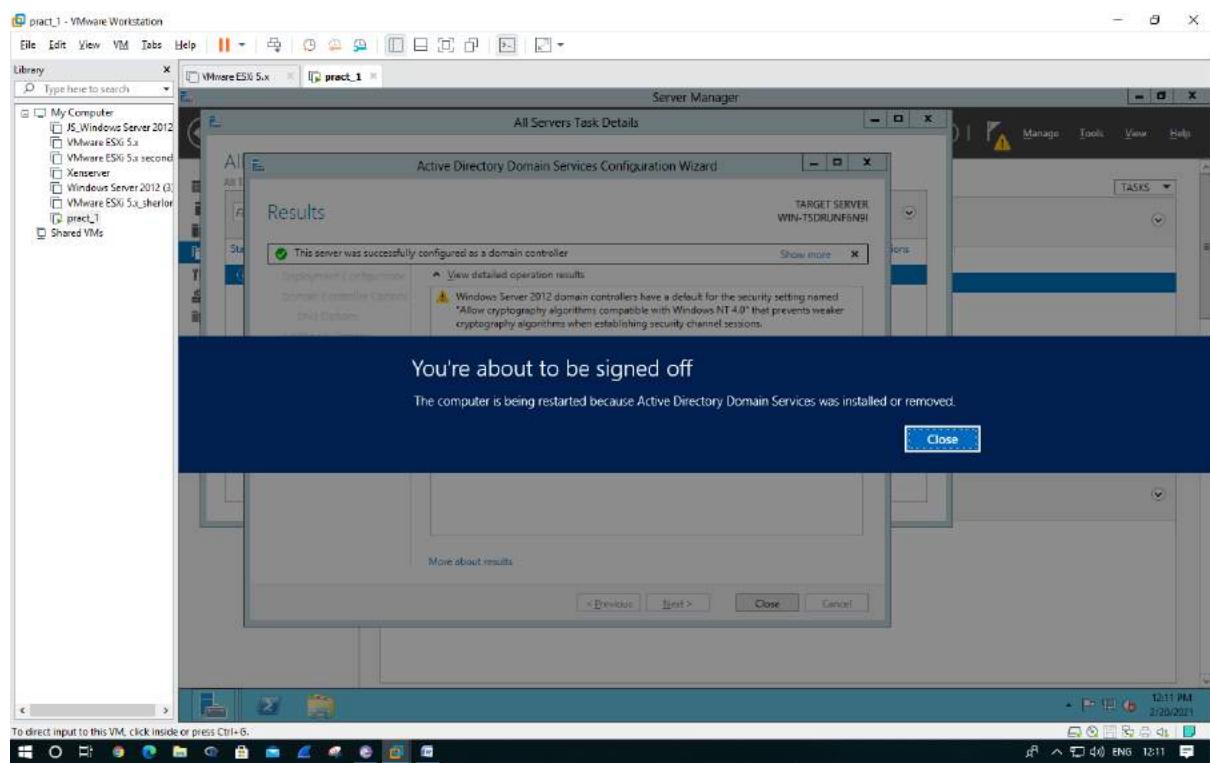
Repeat the AD DS process again

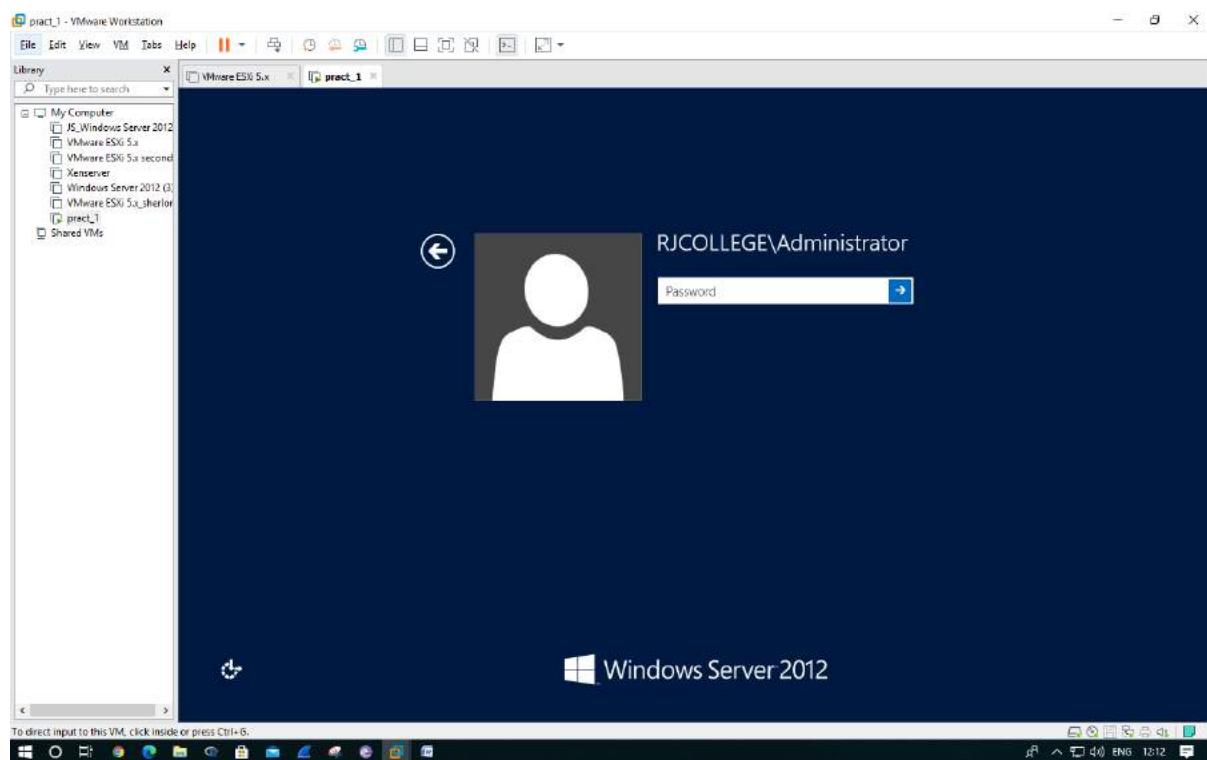
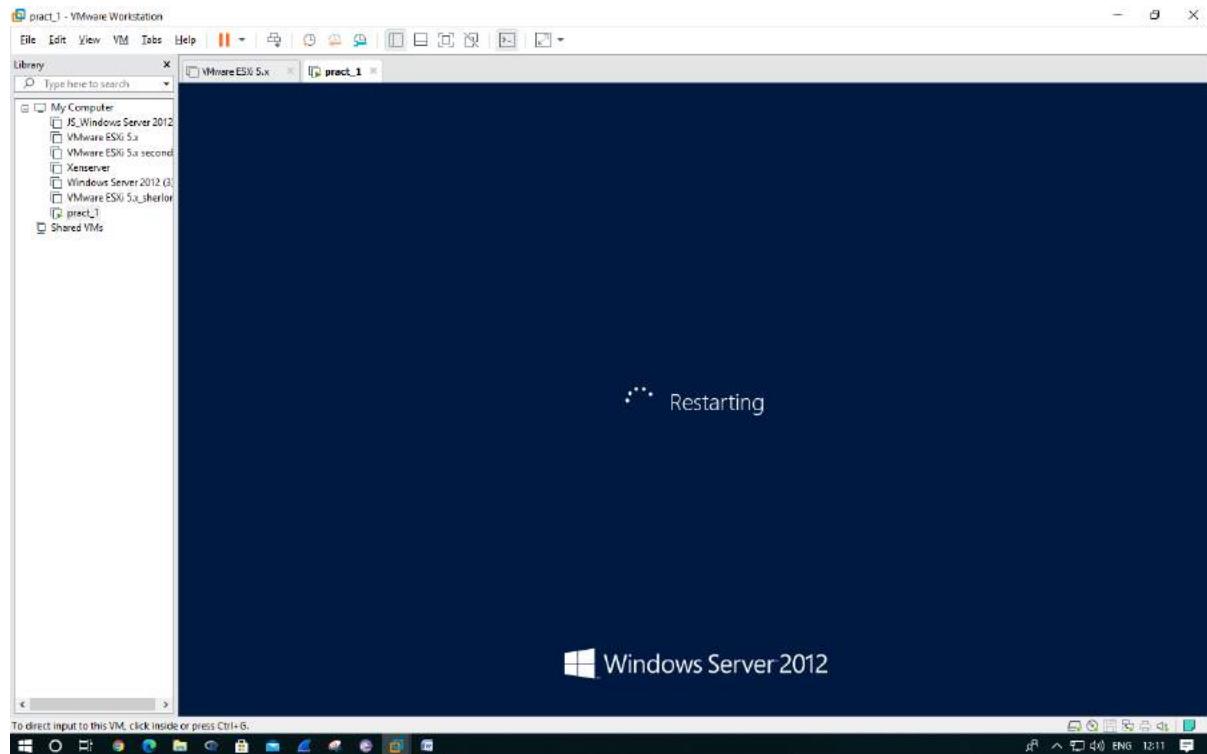


Error solved

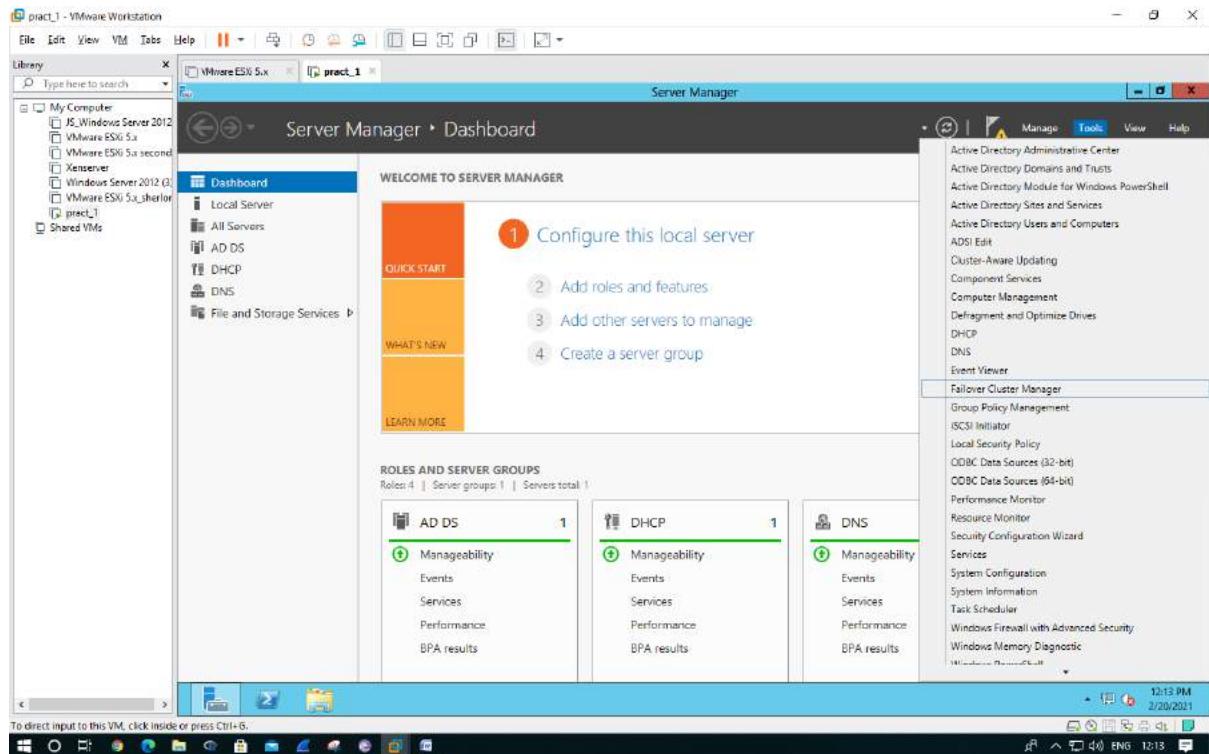


Installation will take sometime.

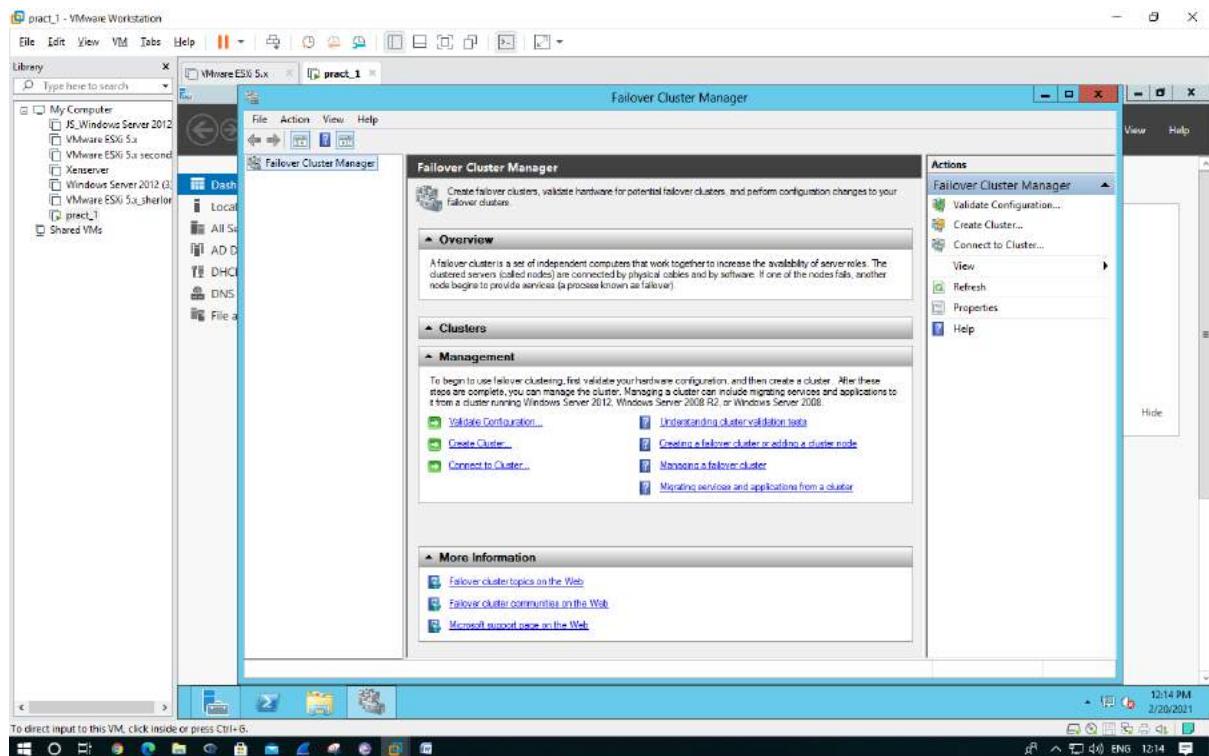




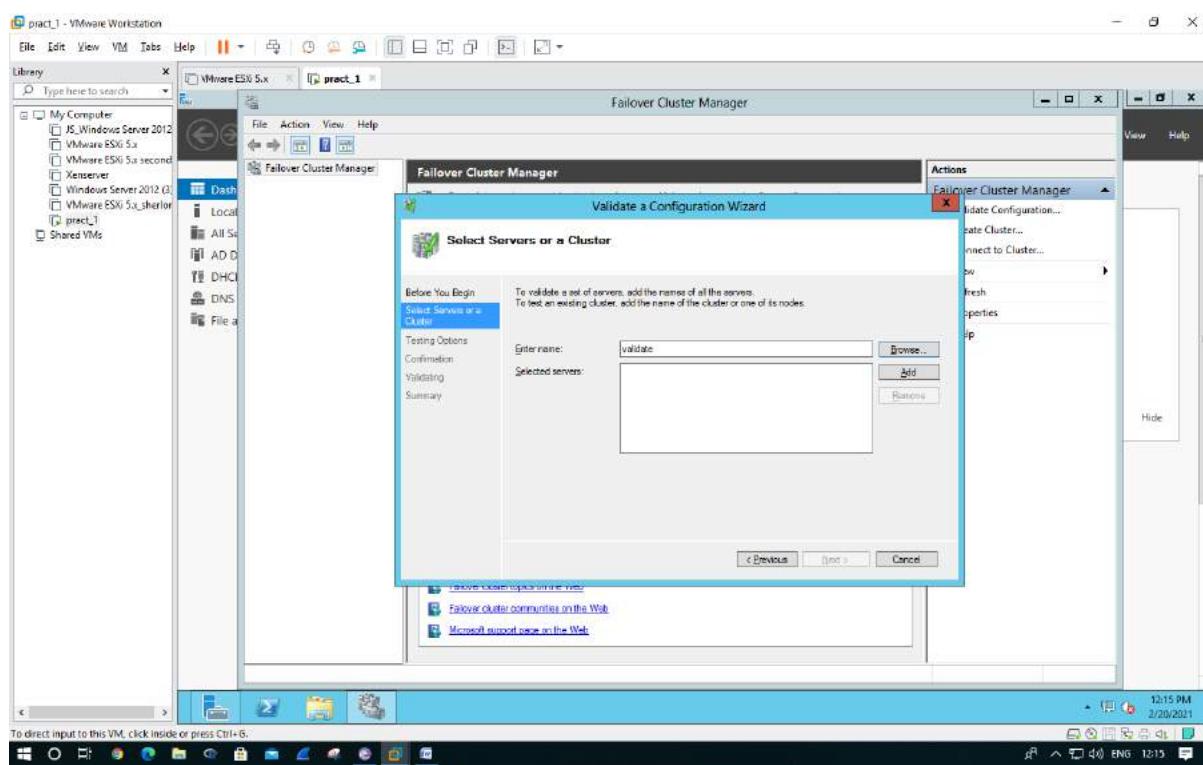
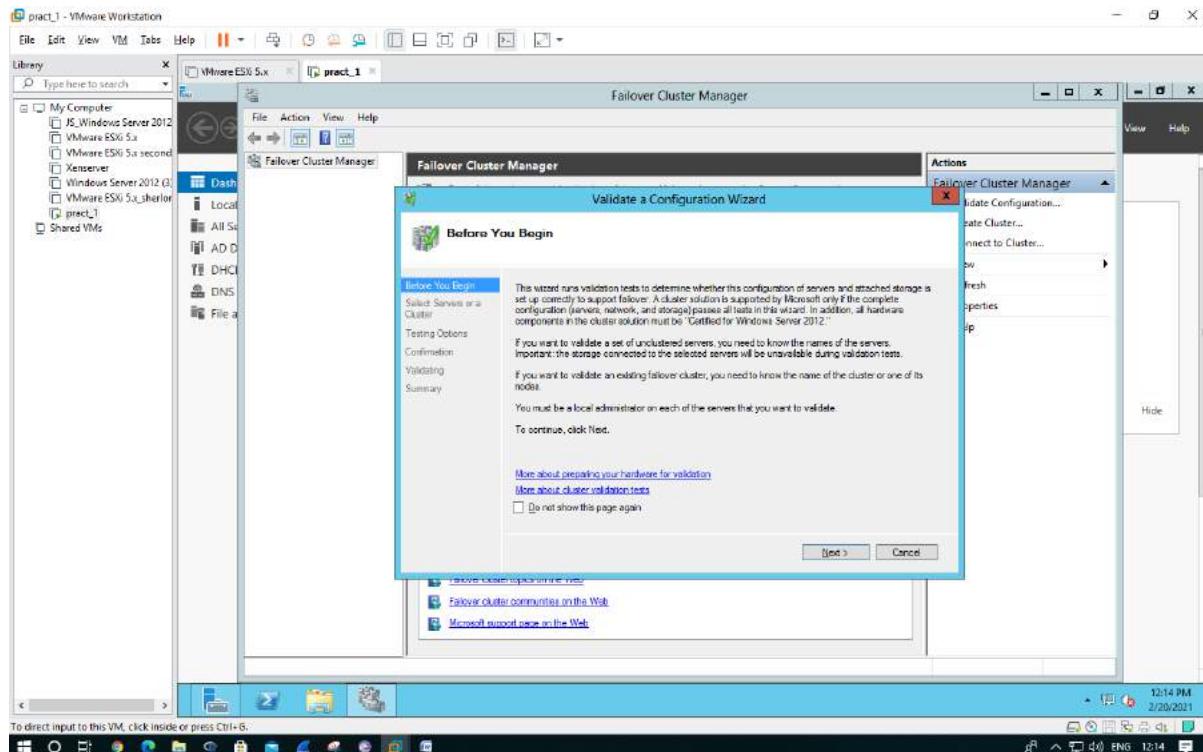
Login with new password.

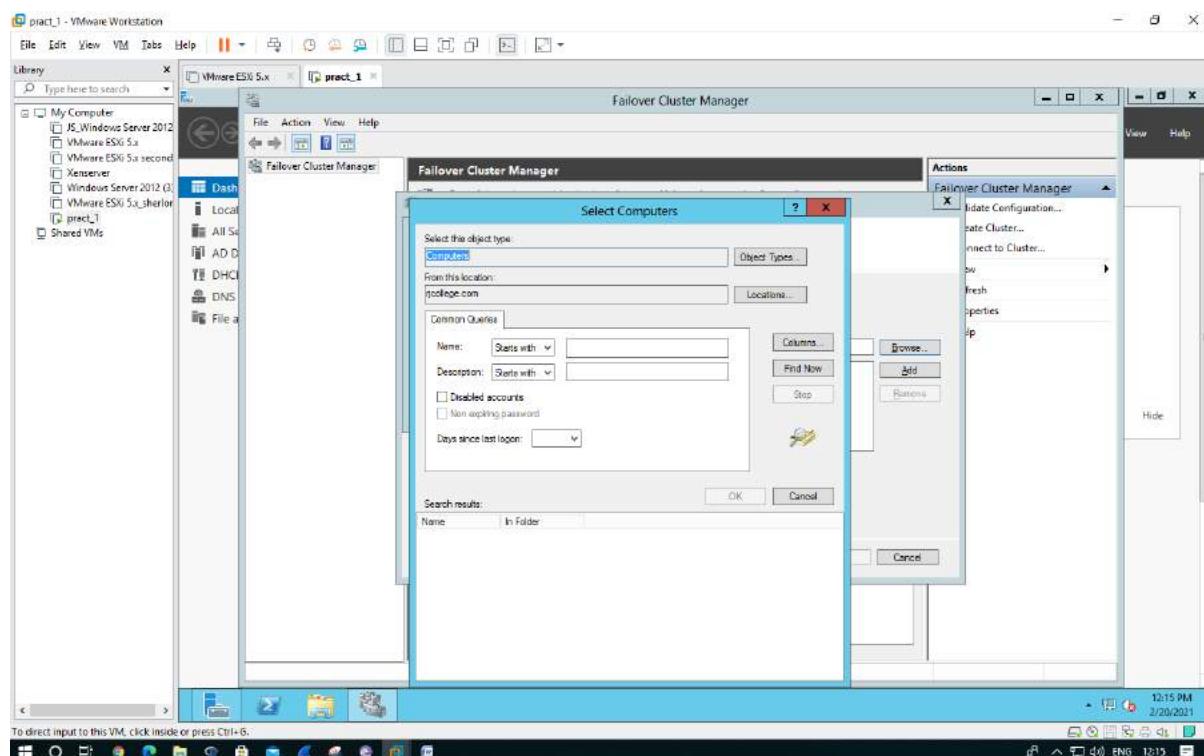
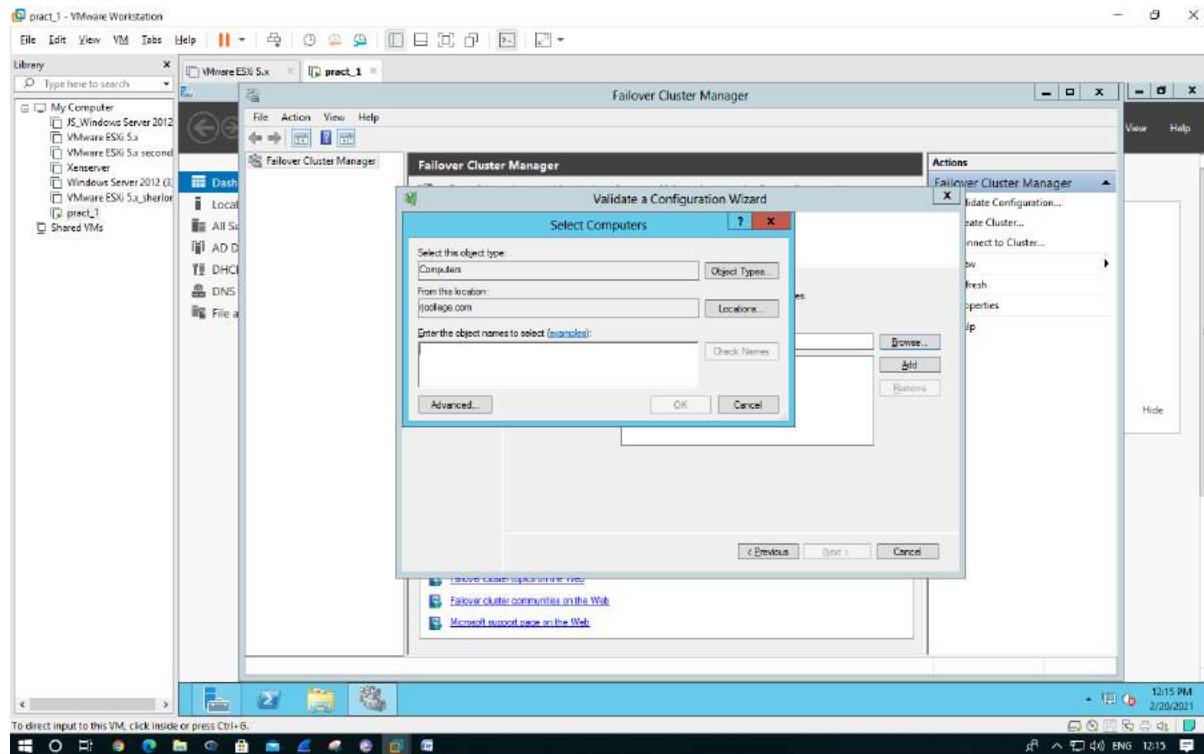


Click on tools and choose failover cluster manager option.

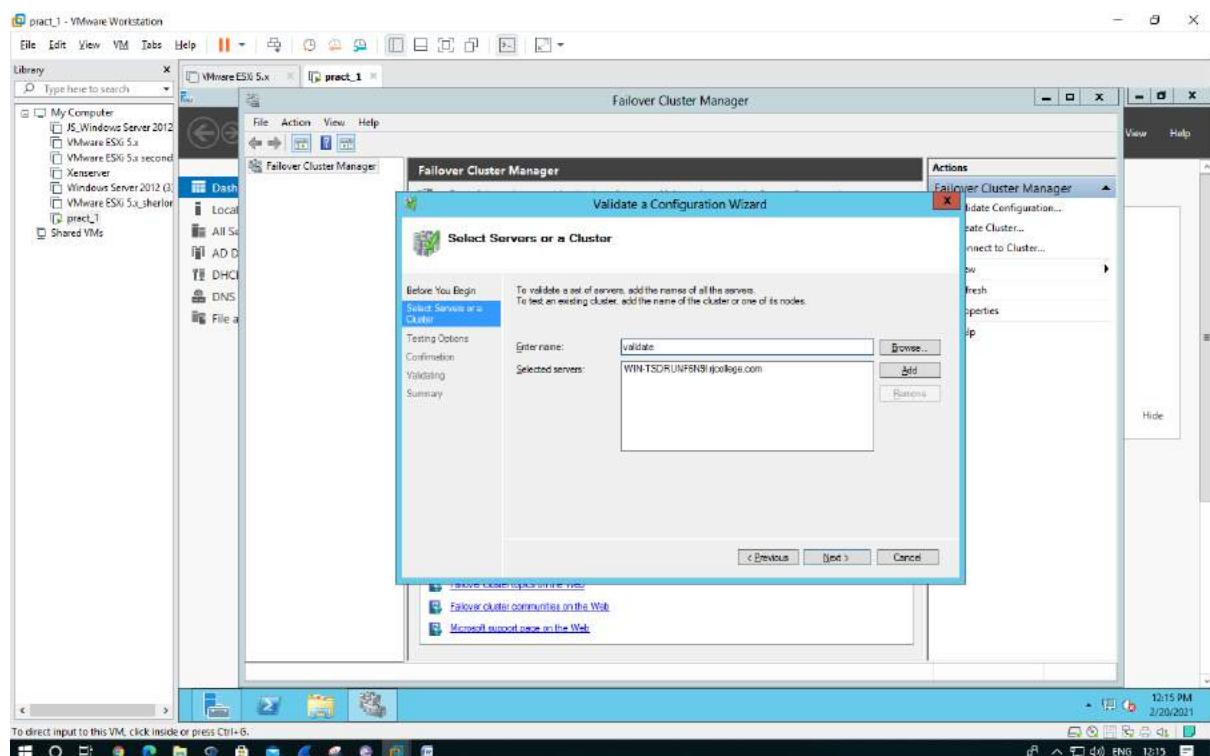
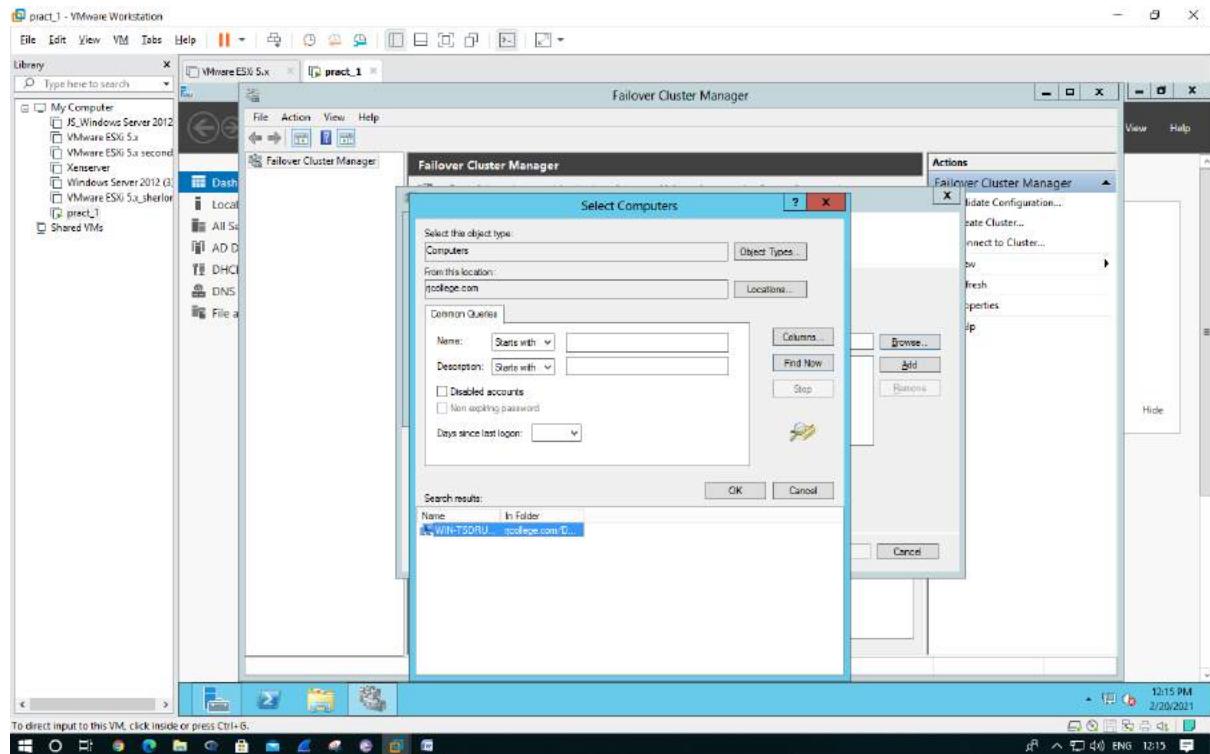


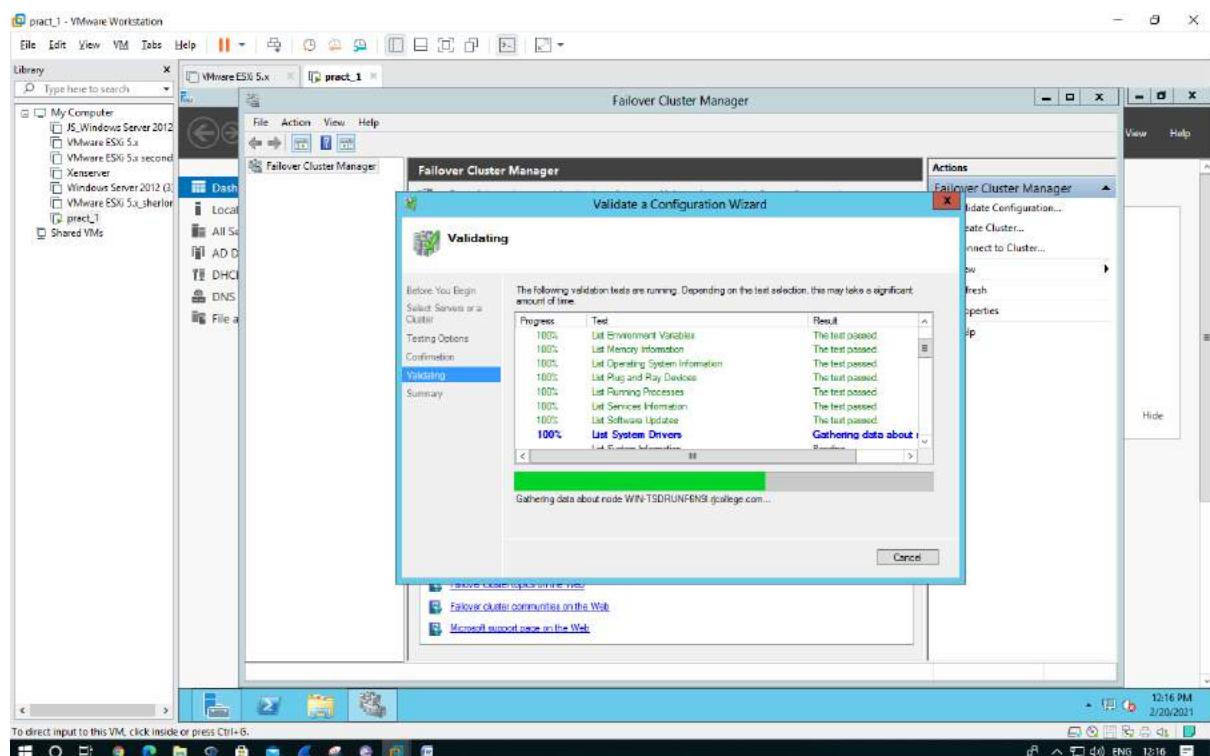
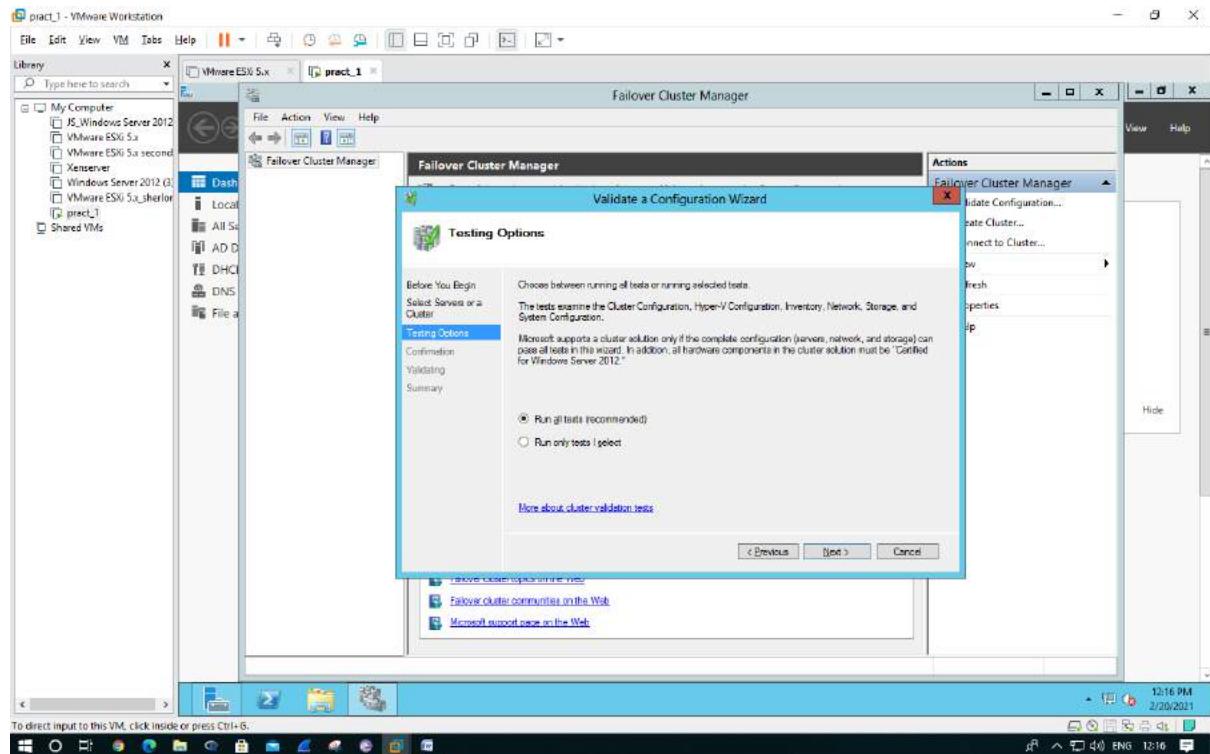
Select validate configuration option.

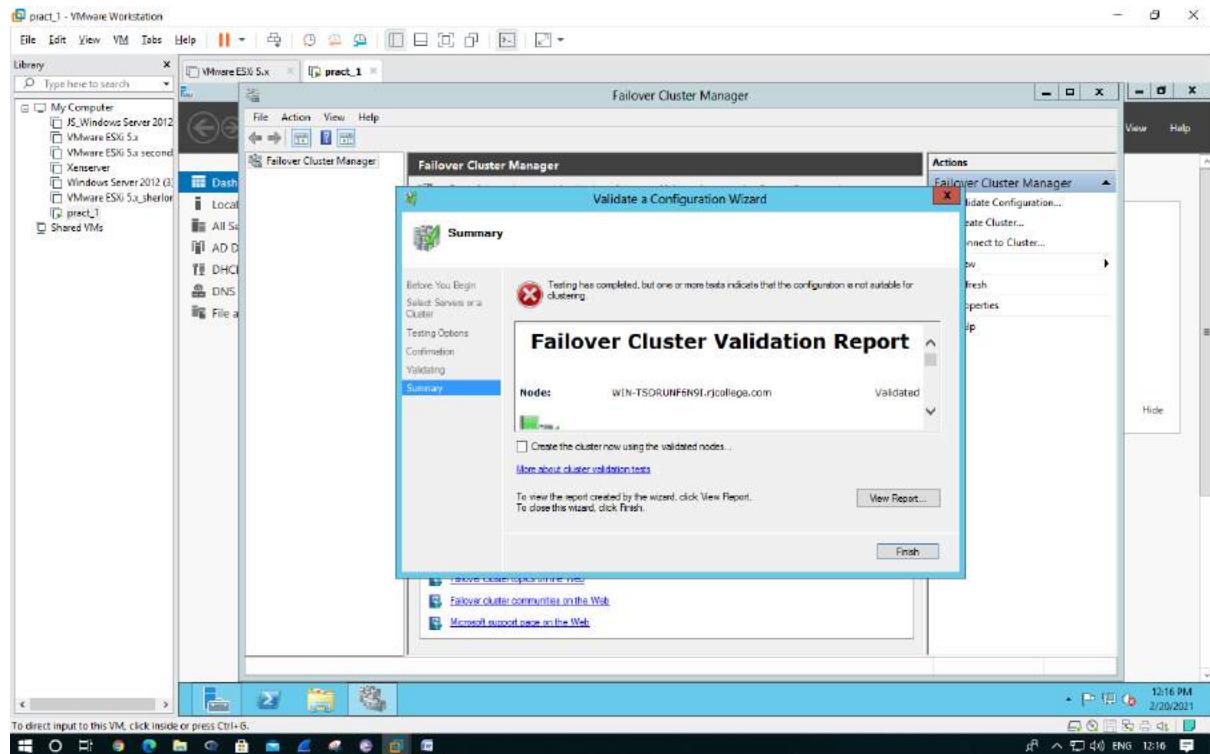




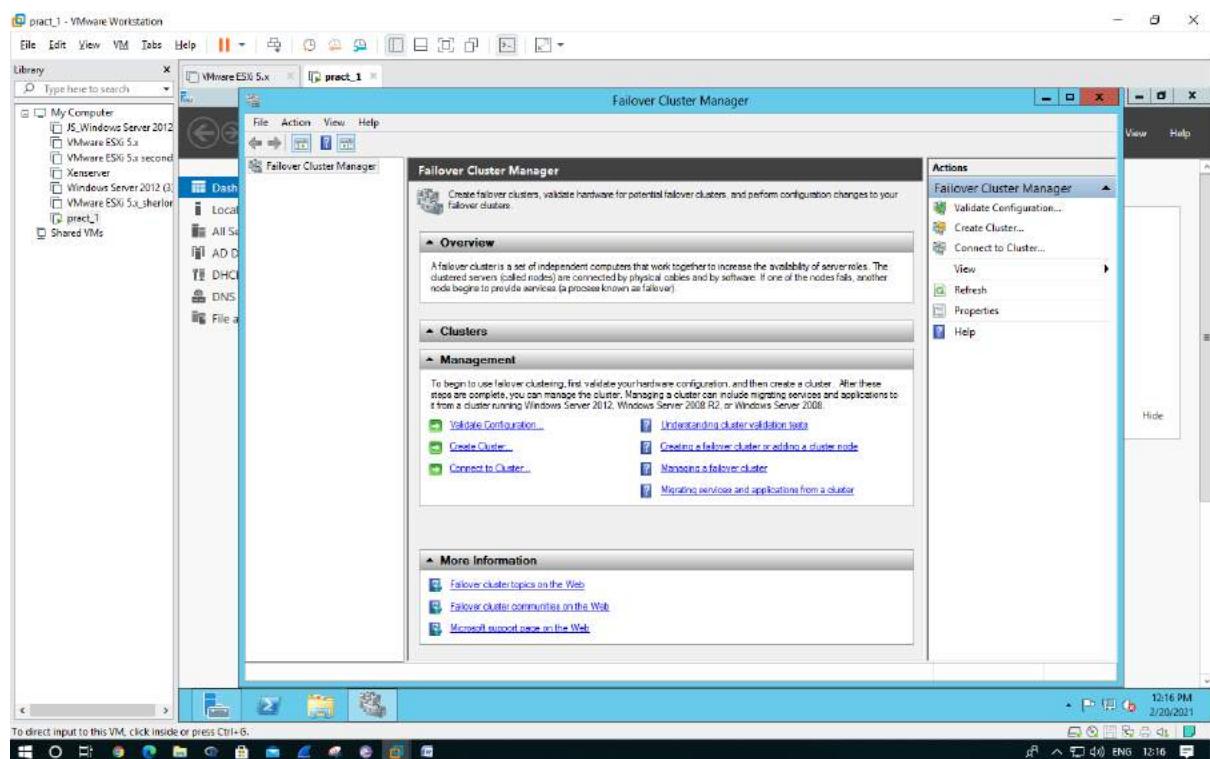
Click on browser then on advanced option then click on find now.



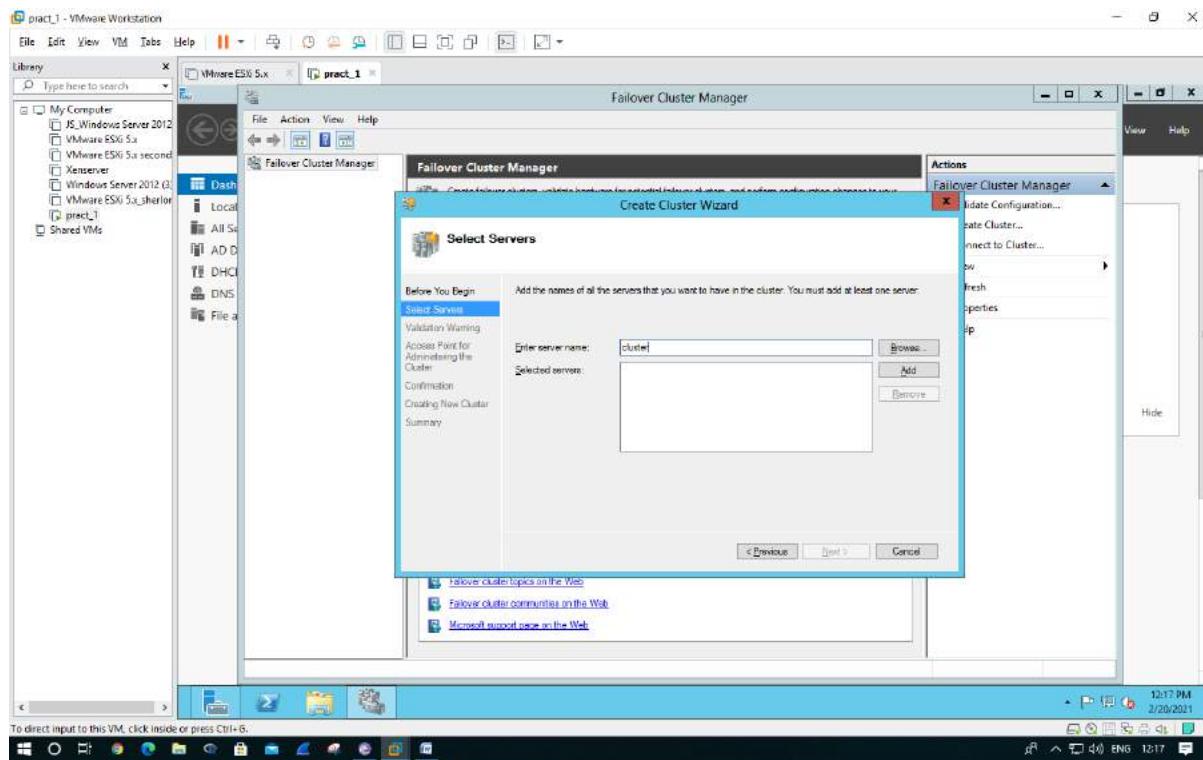
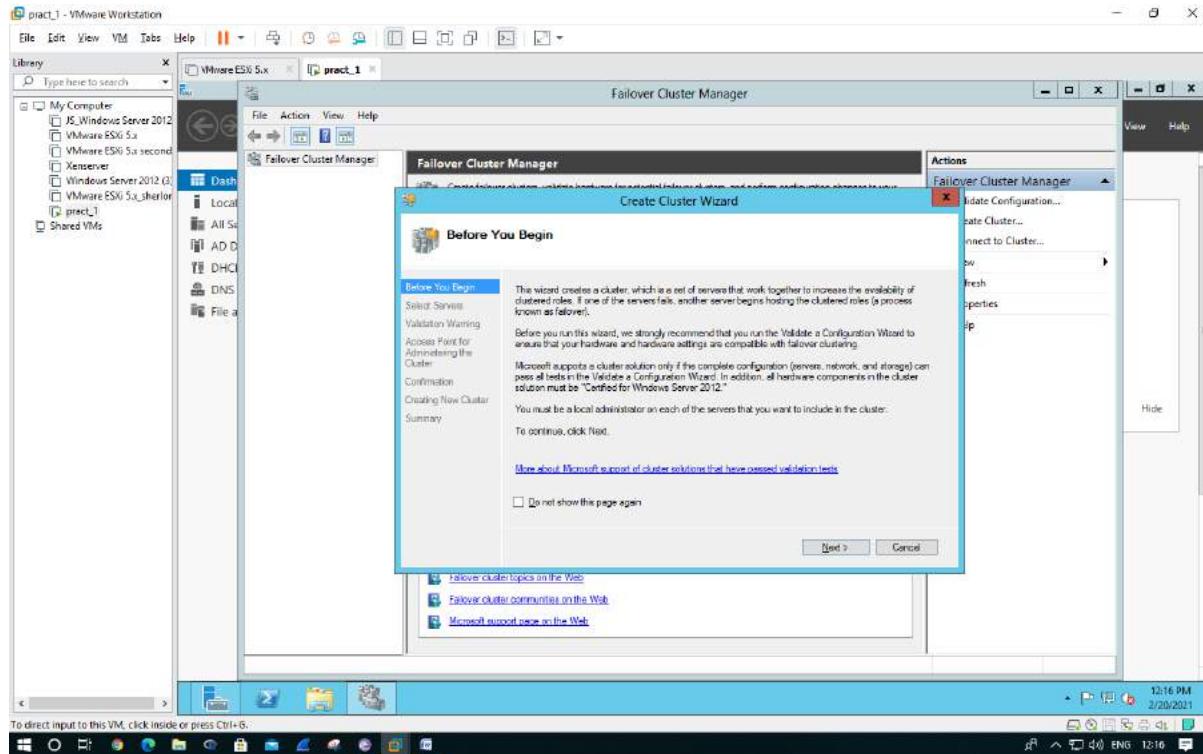


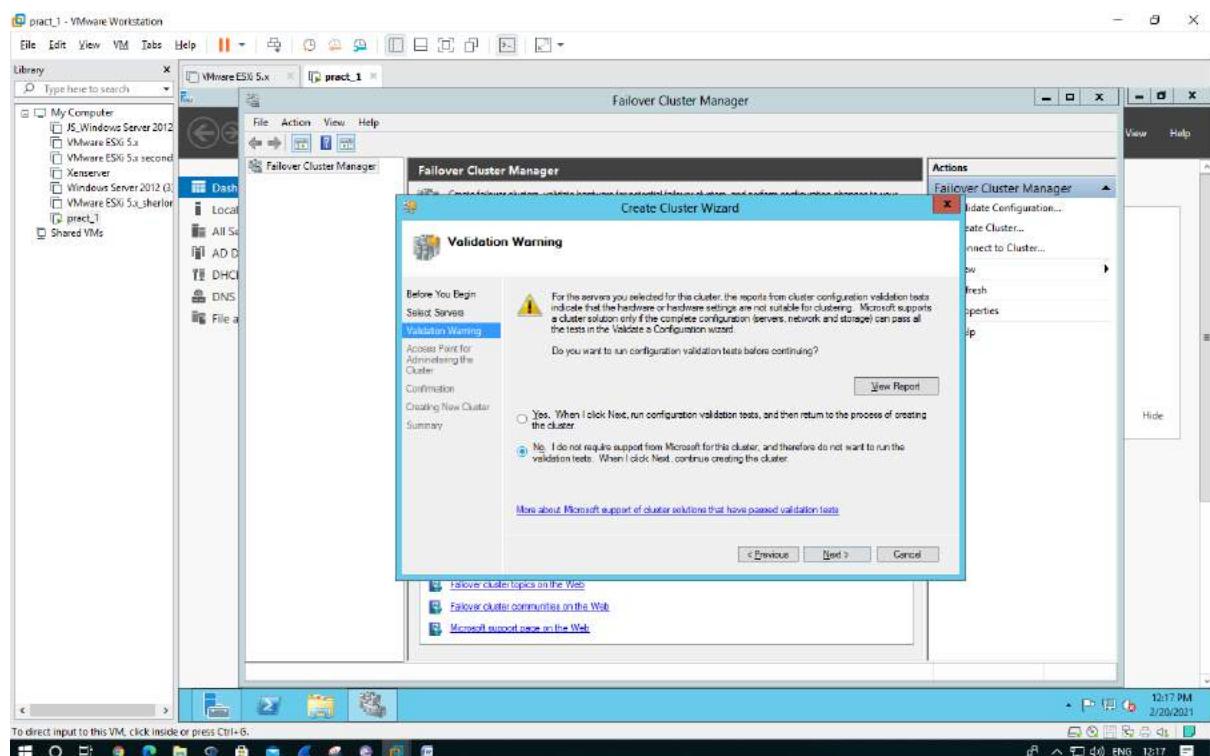
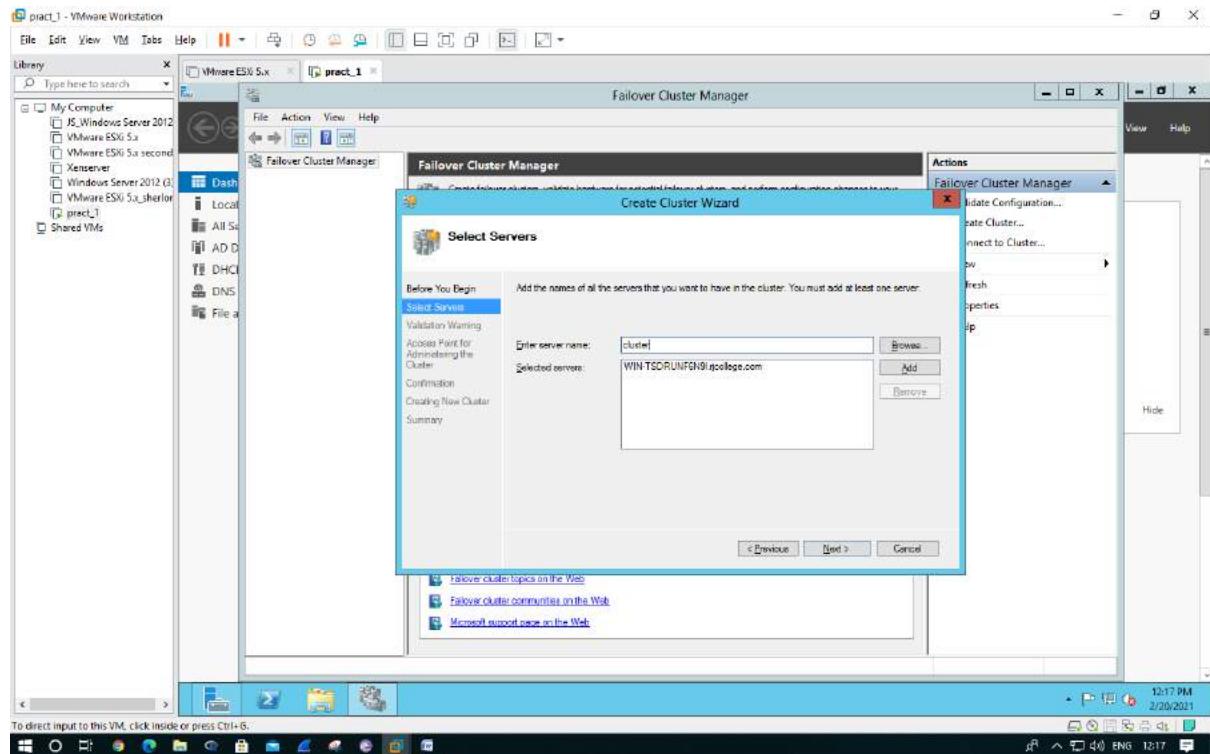


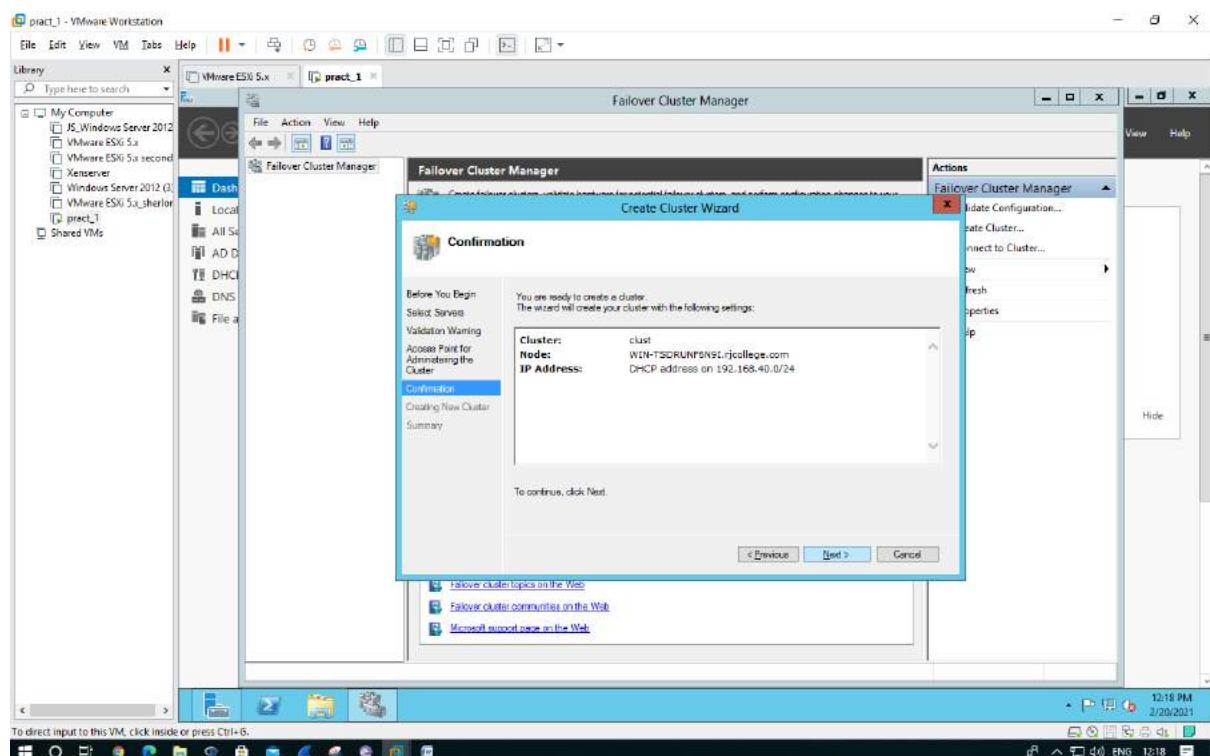
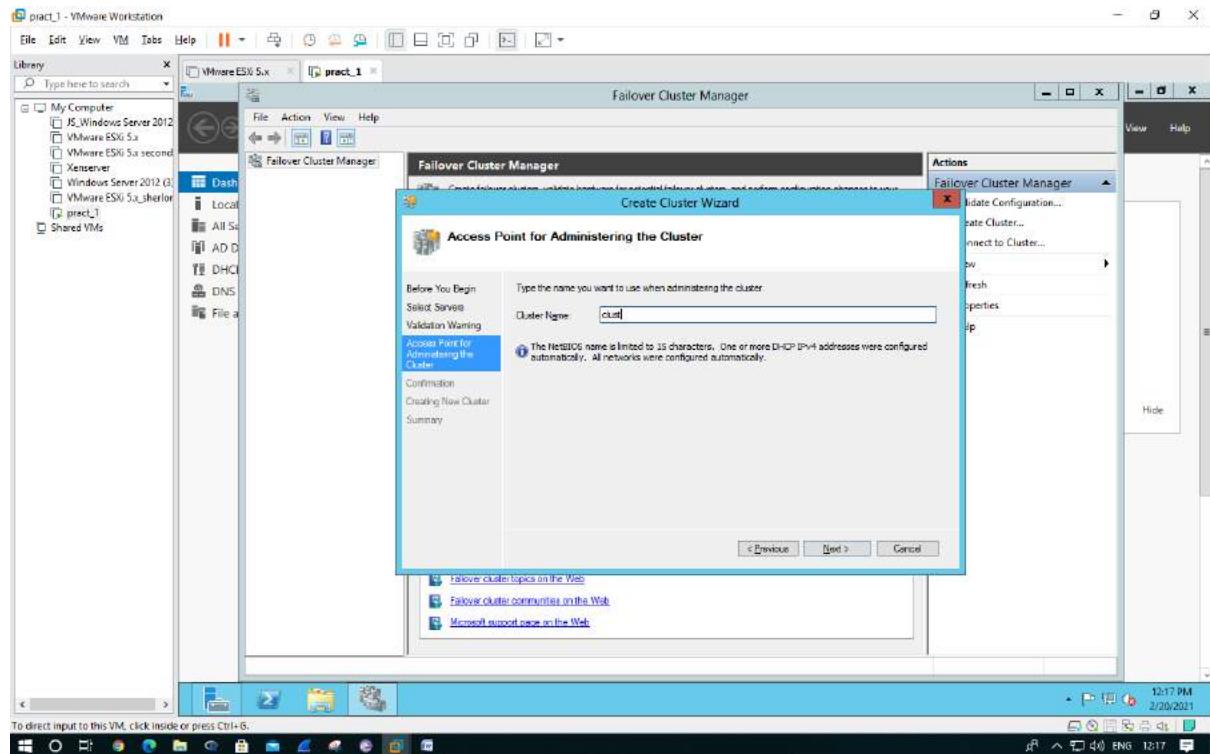
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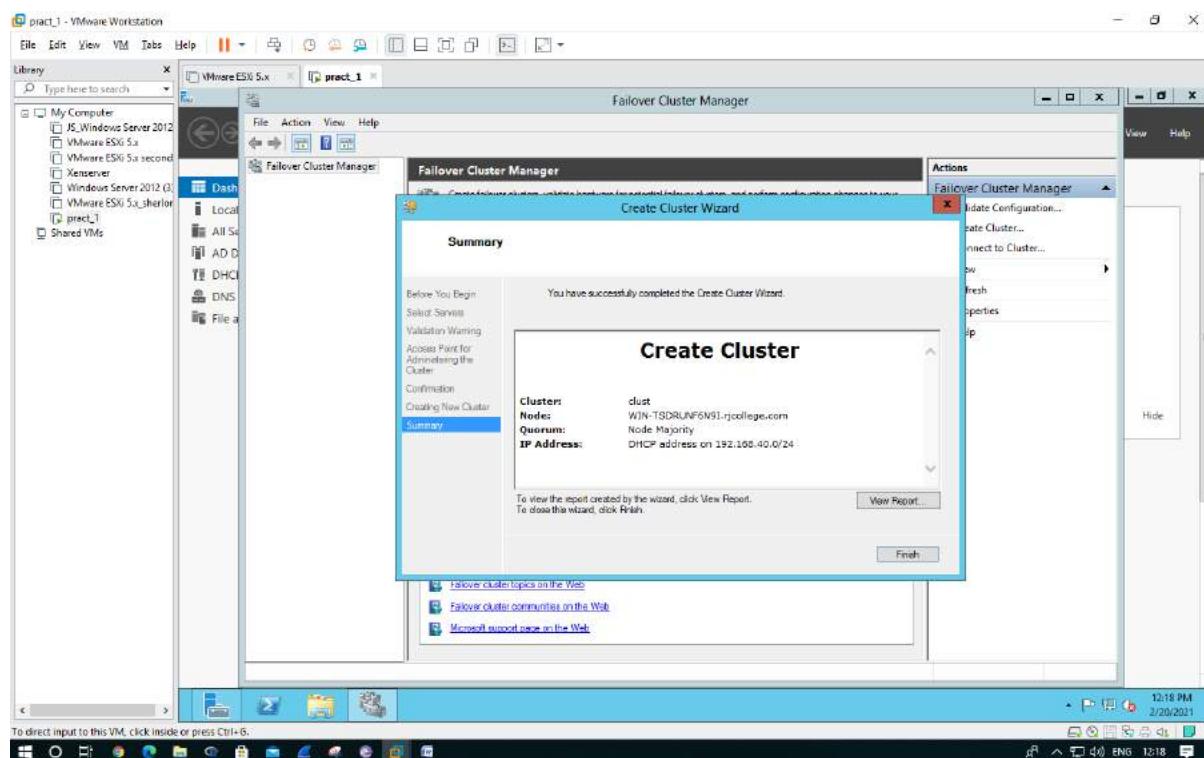
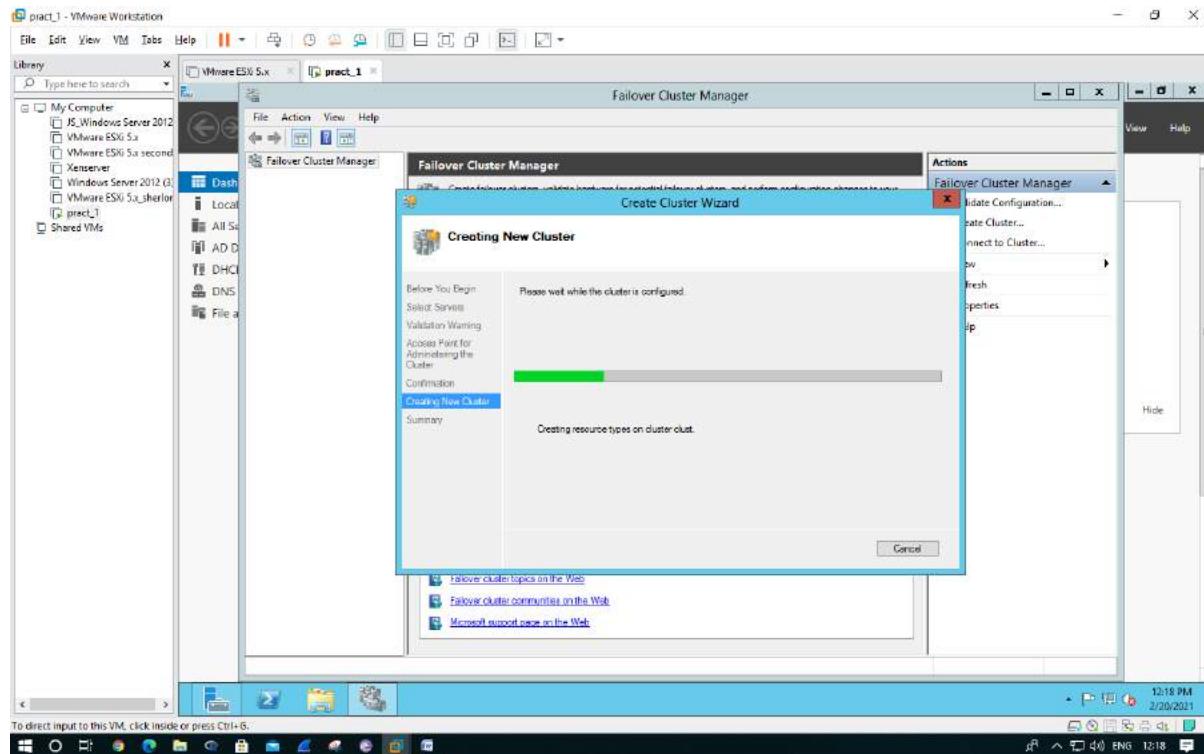


Same process have to repeat with create cluster option too.









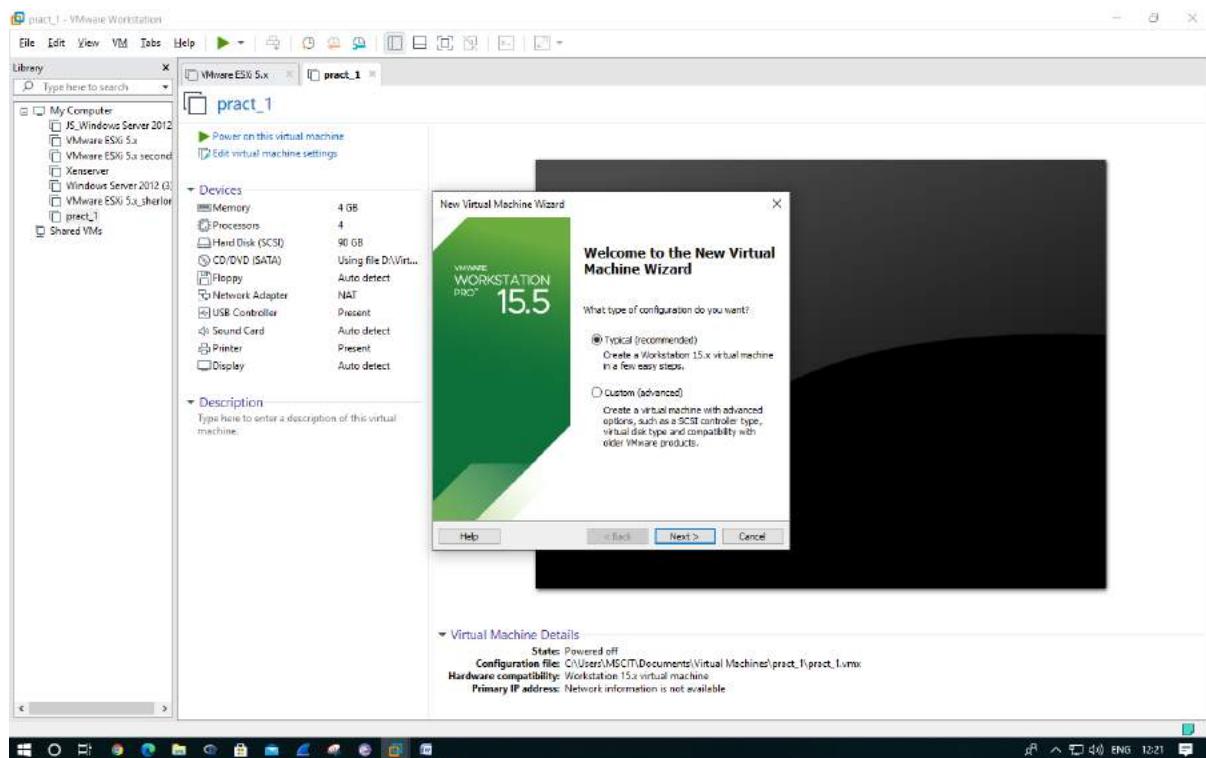
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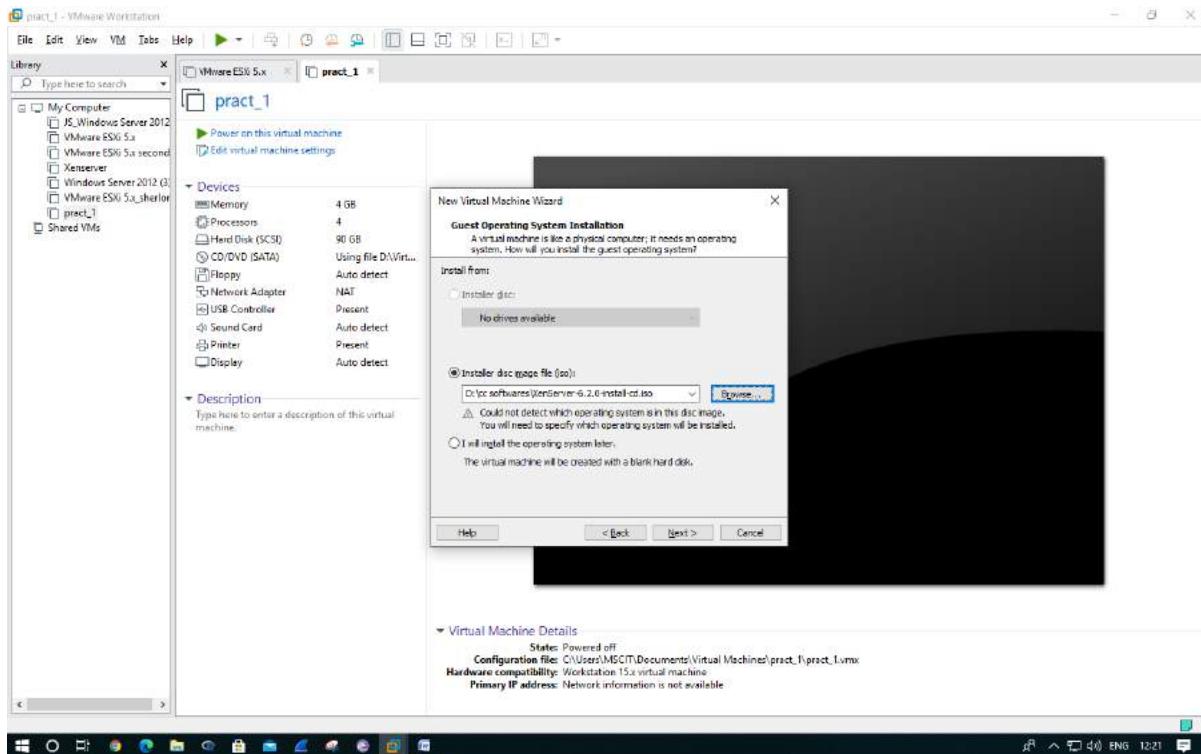
Practical 2

Implementing private cloud with XenServer

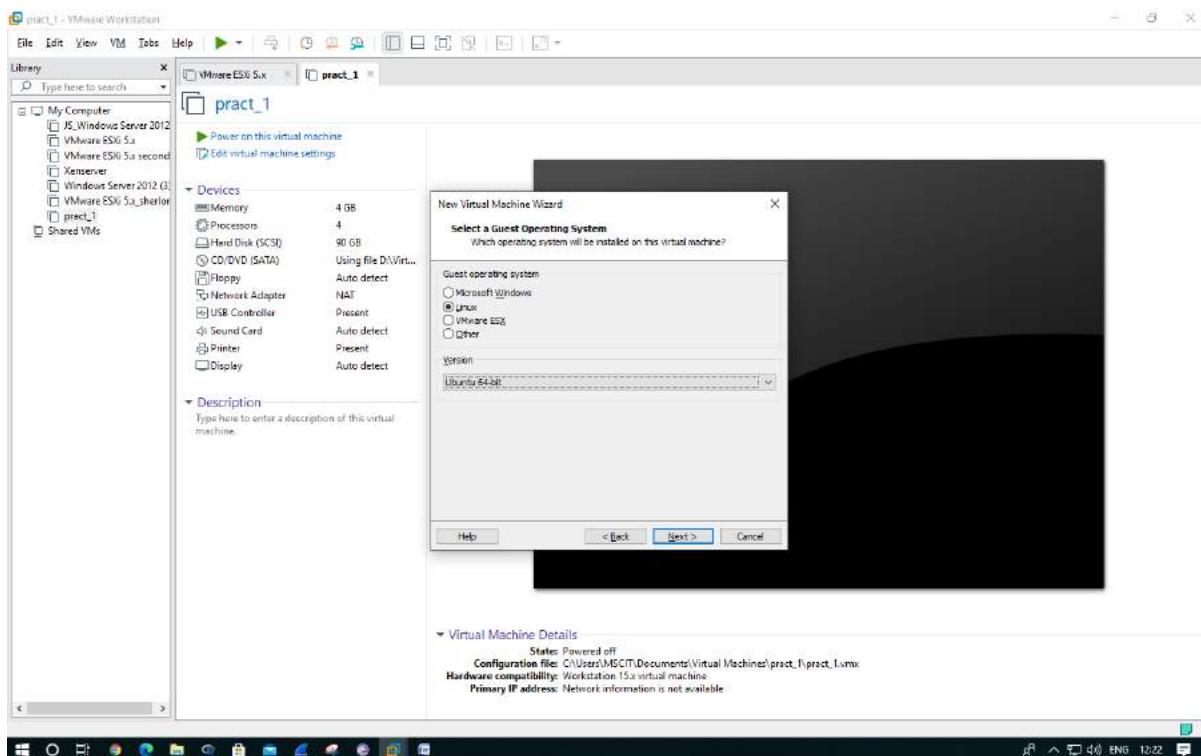
Open VMWare and go to file menu and create new Virtual Machine

Select Typical

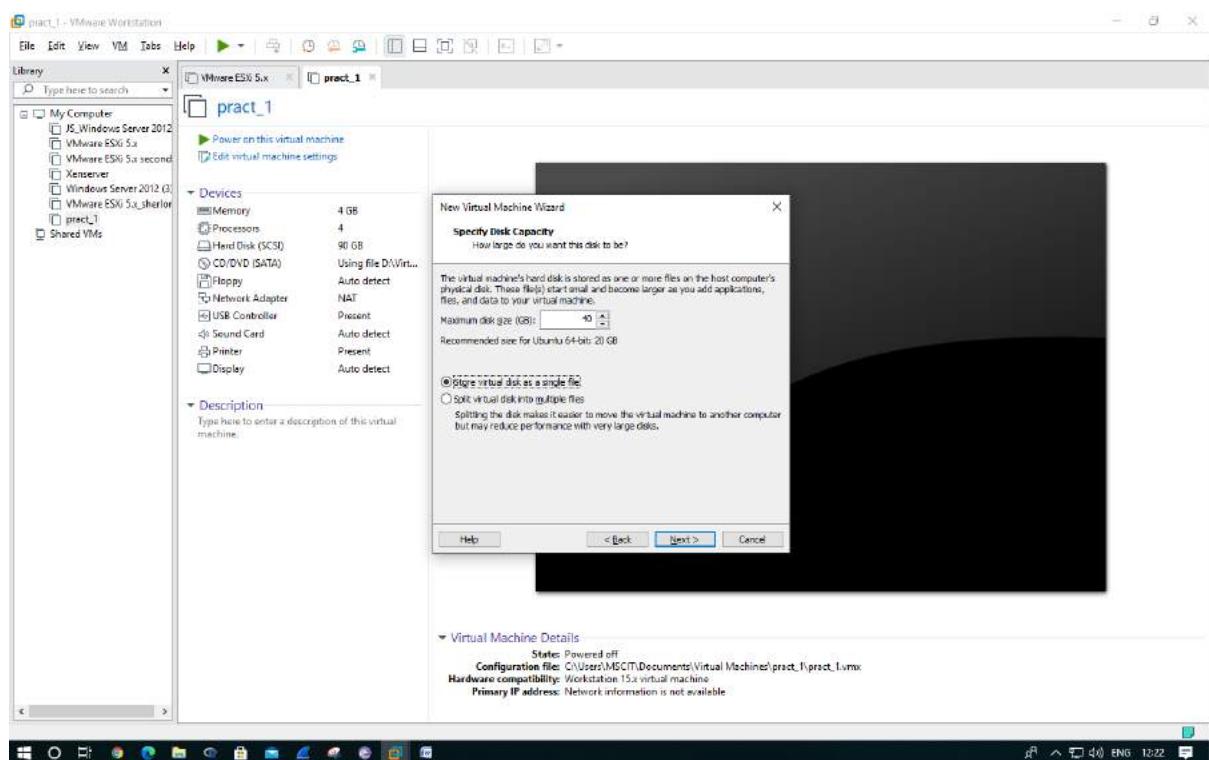
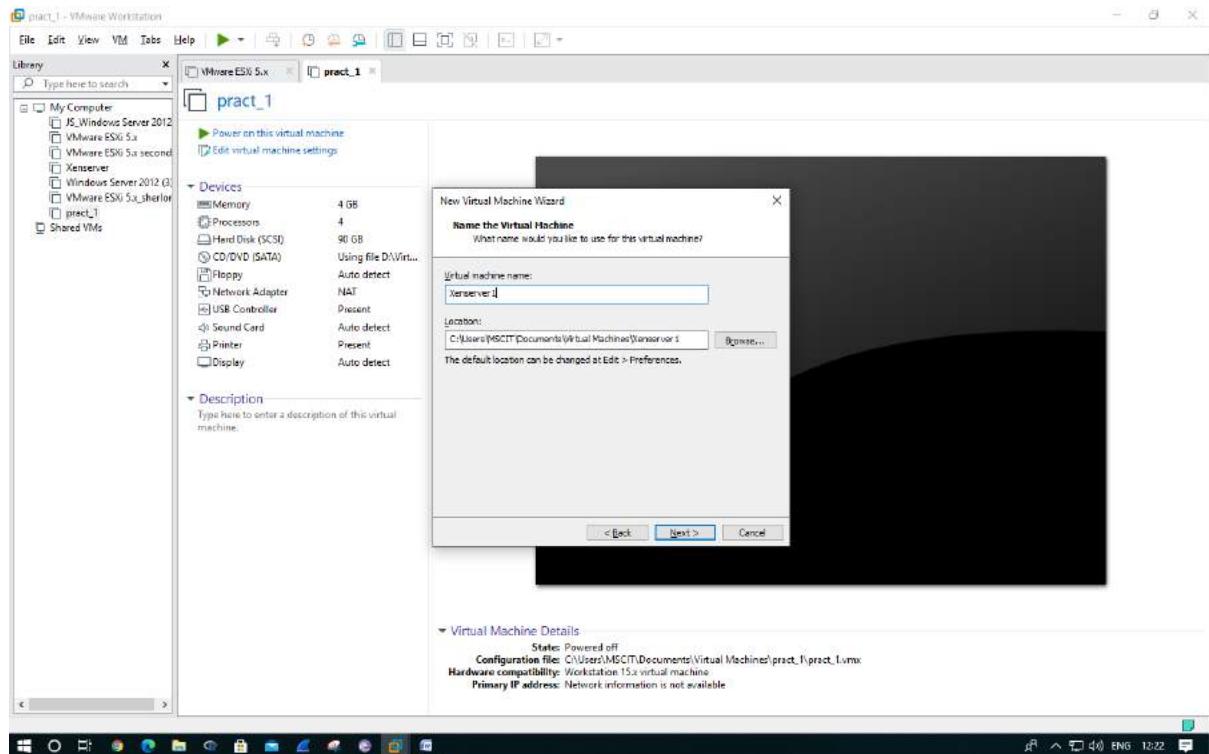


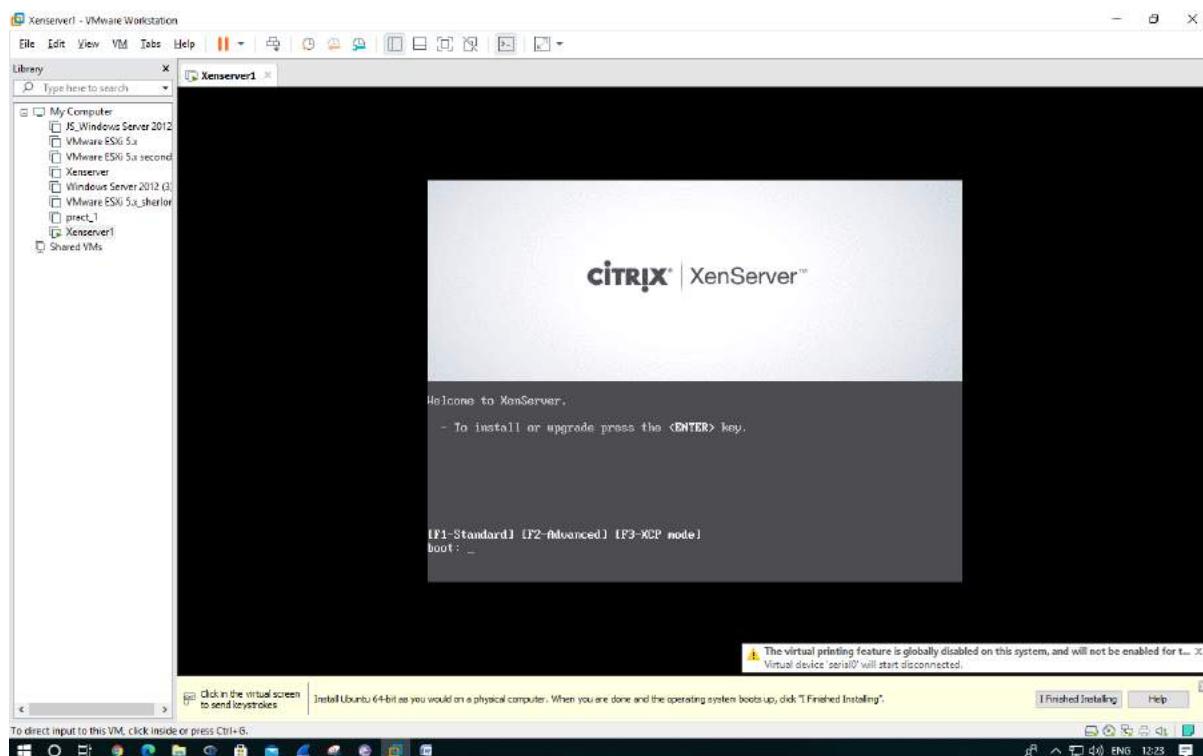
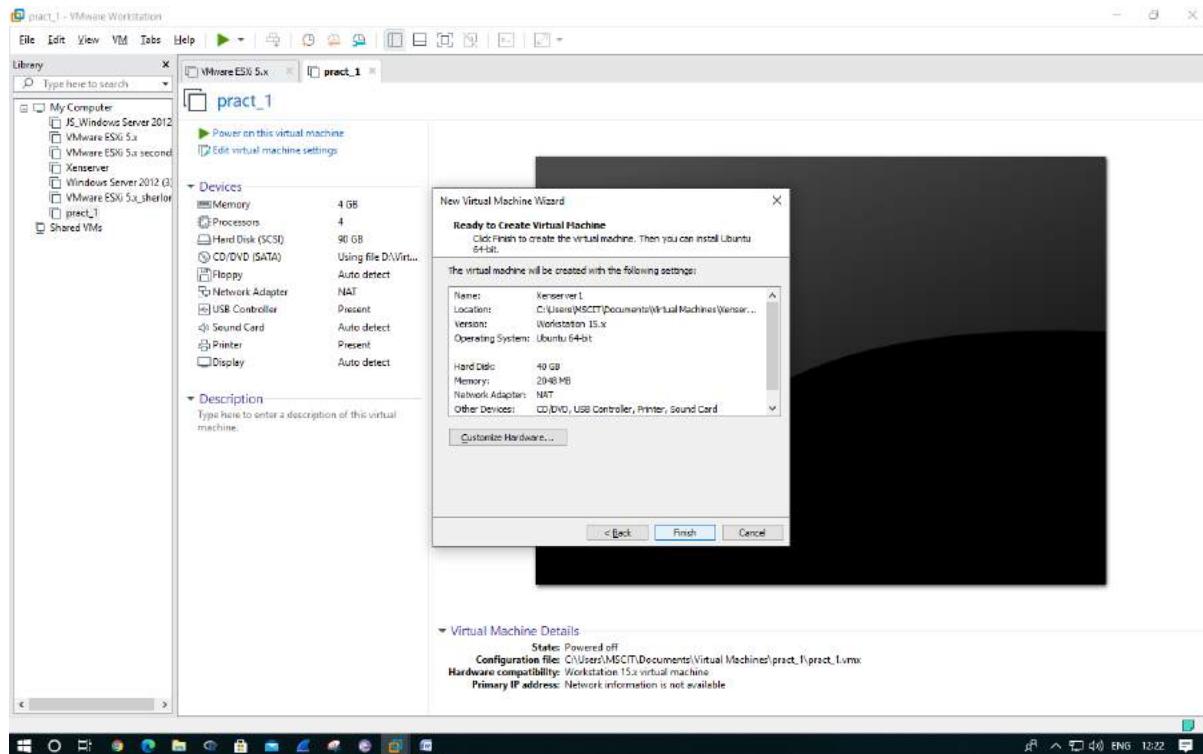


Choose mentioned iso file only.



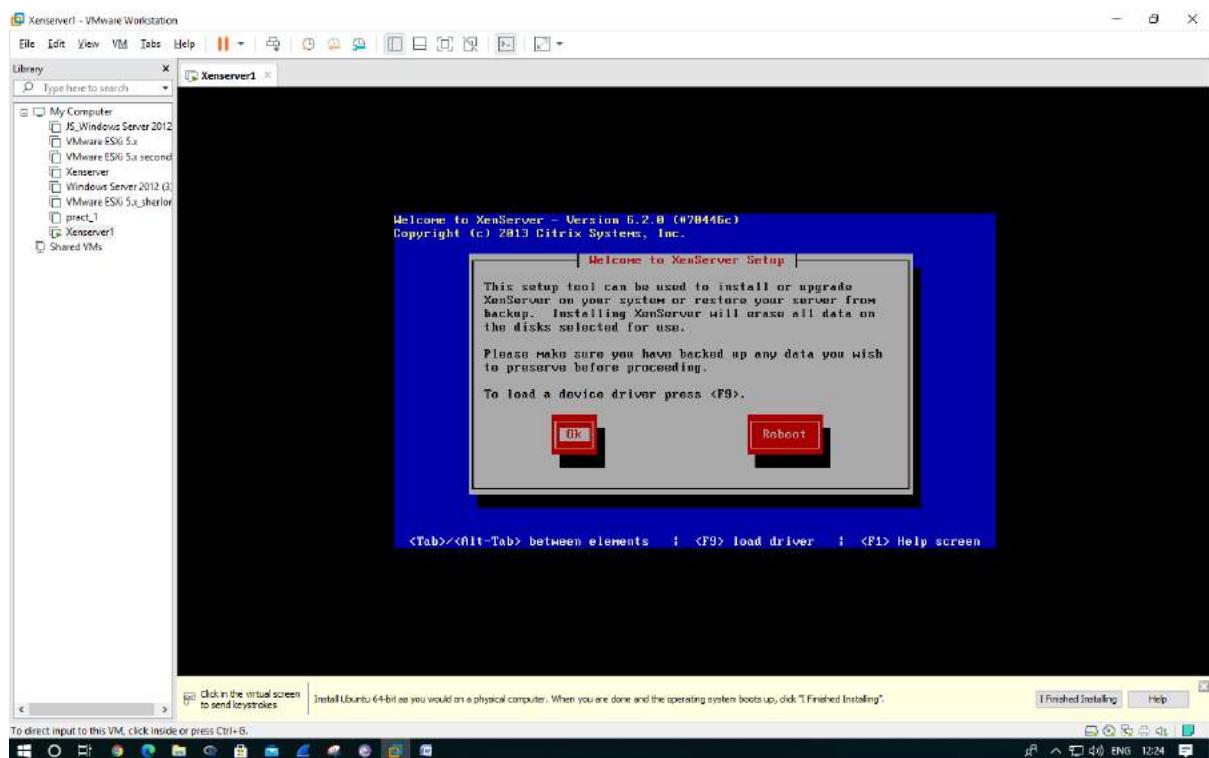
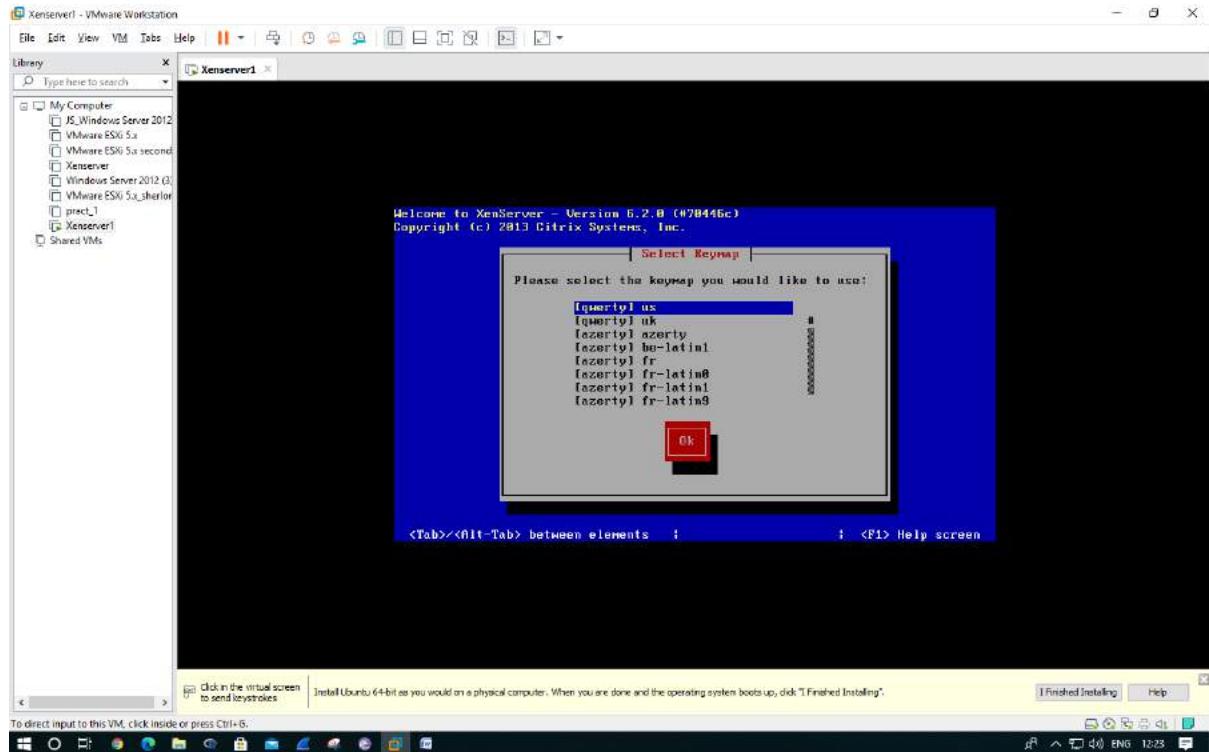
Select Linux and version Ubuntu 64-bit.

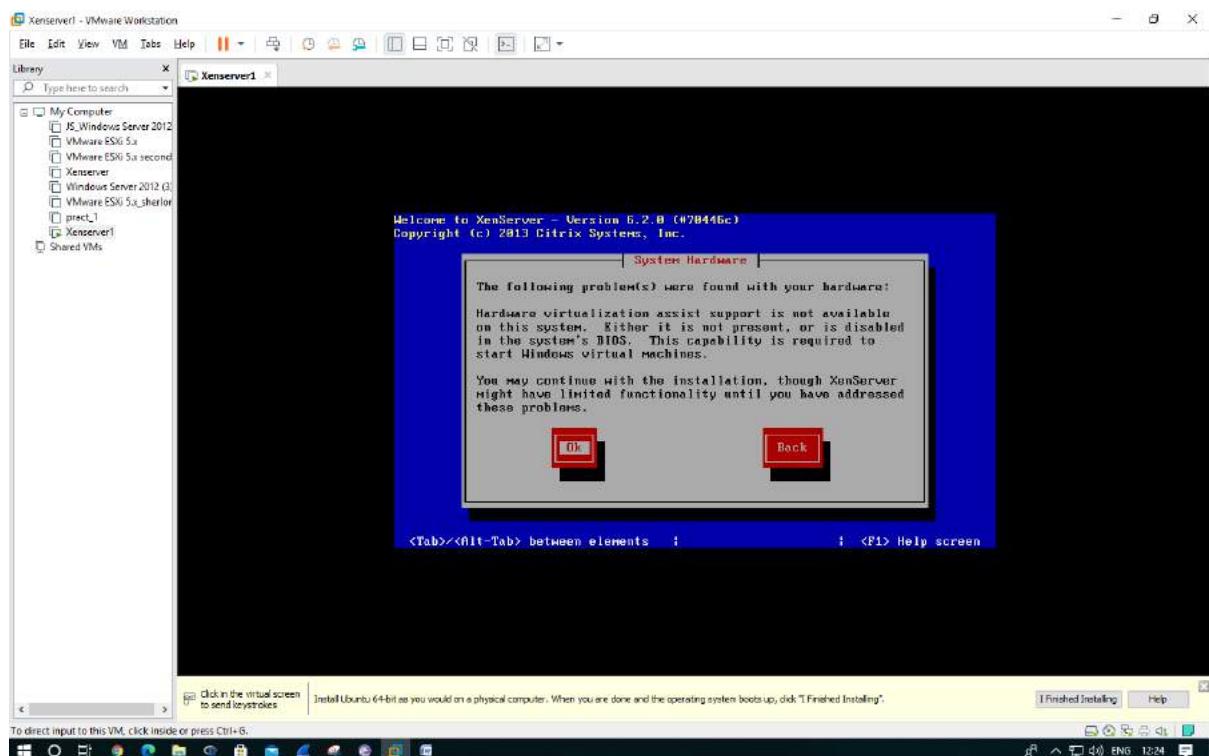
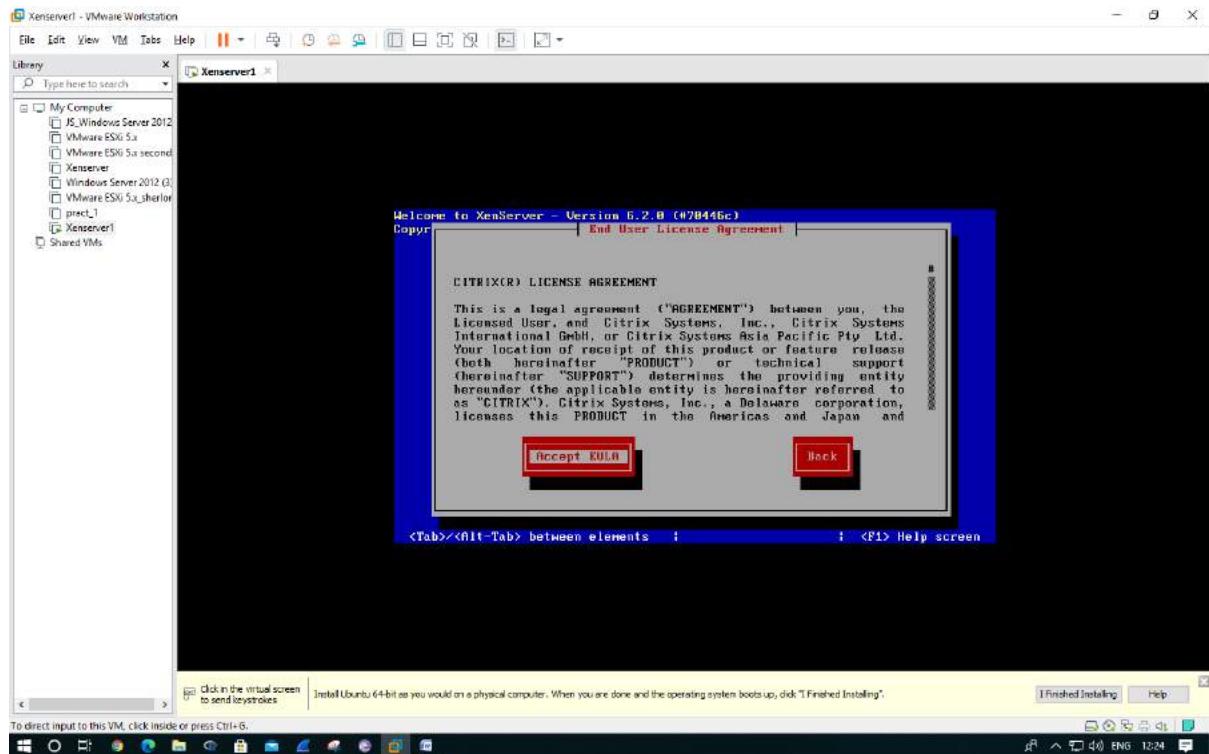


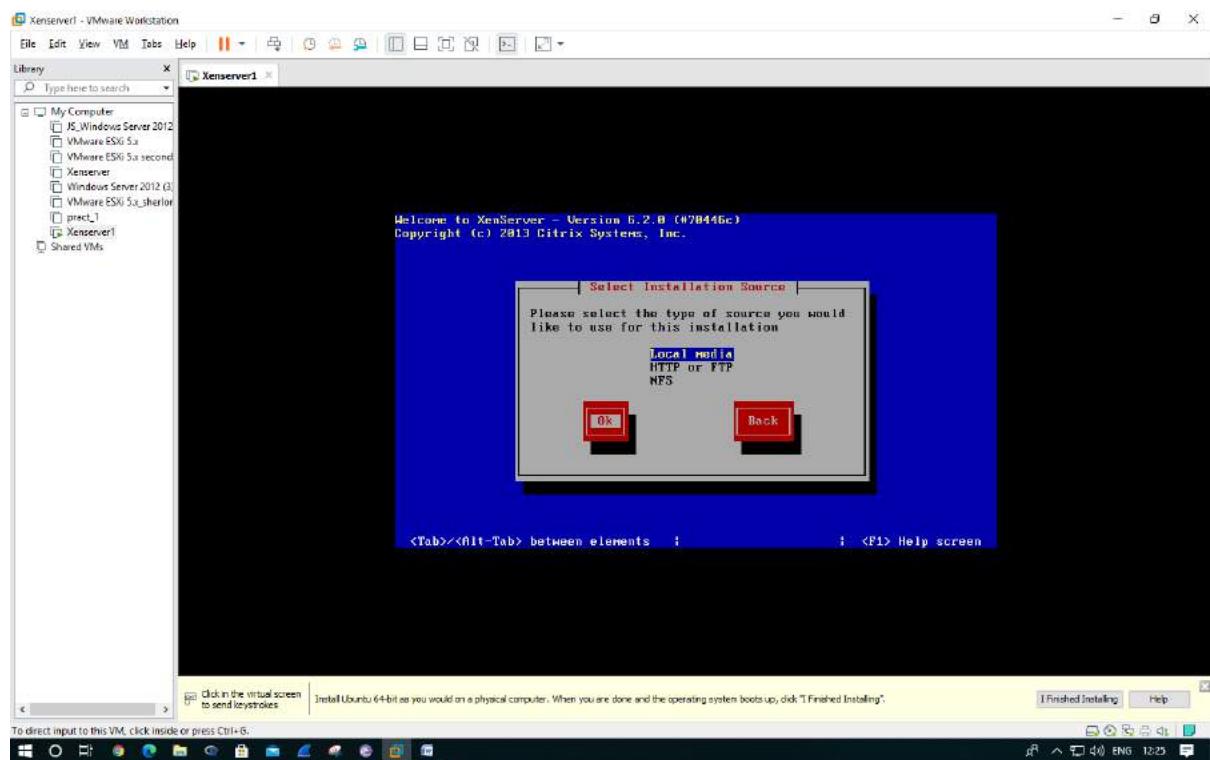
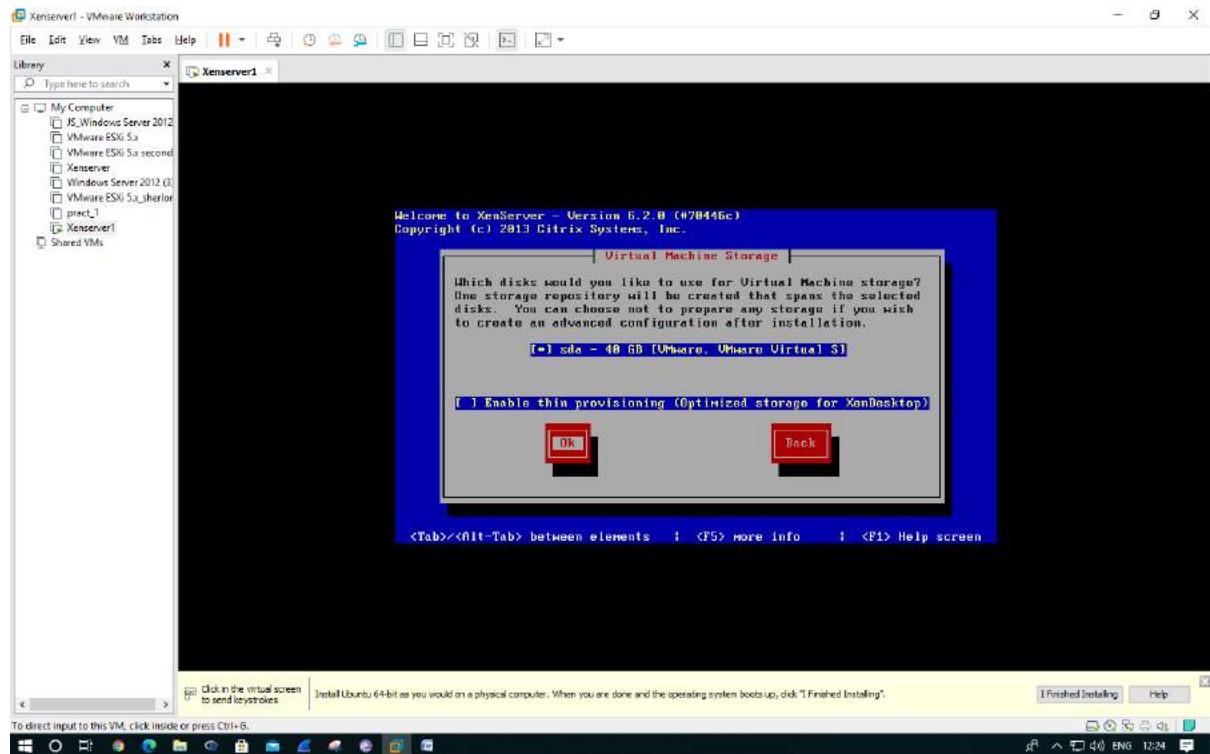


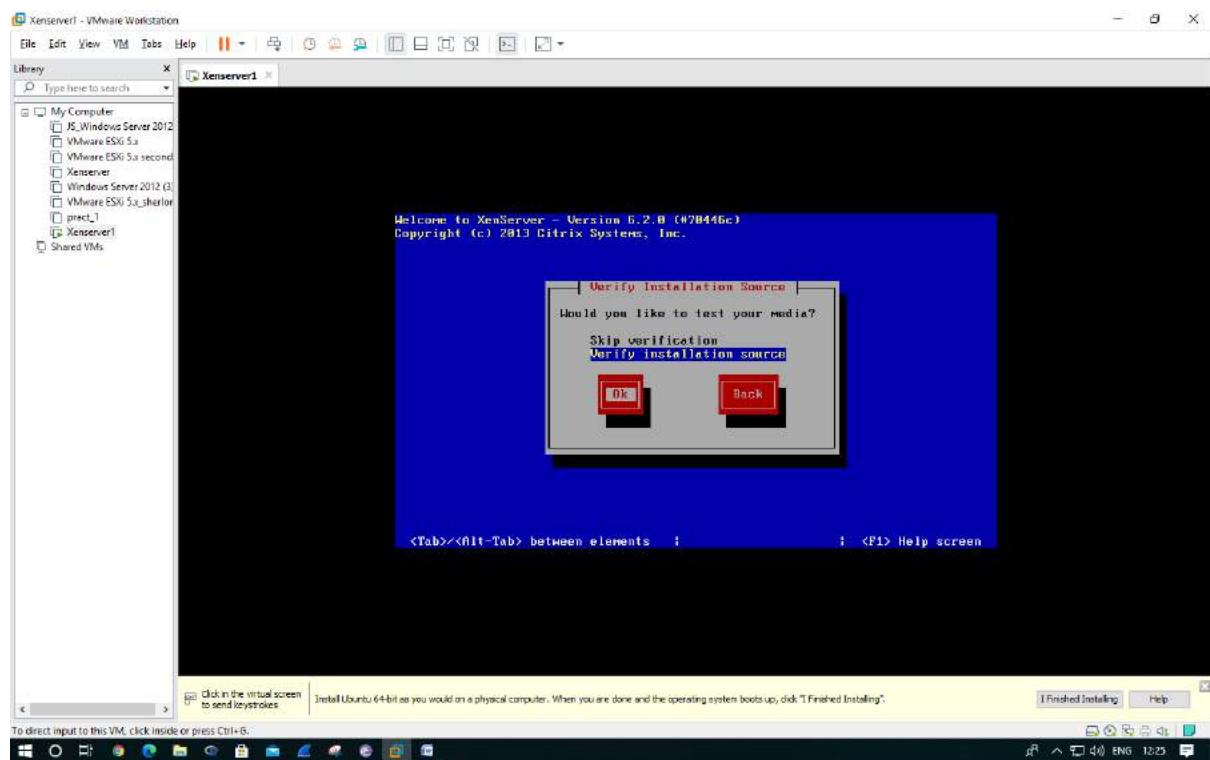
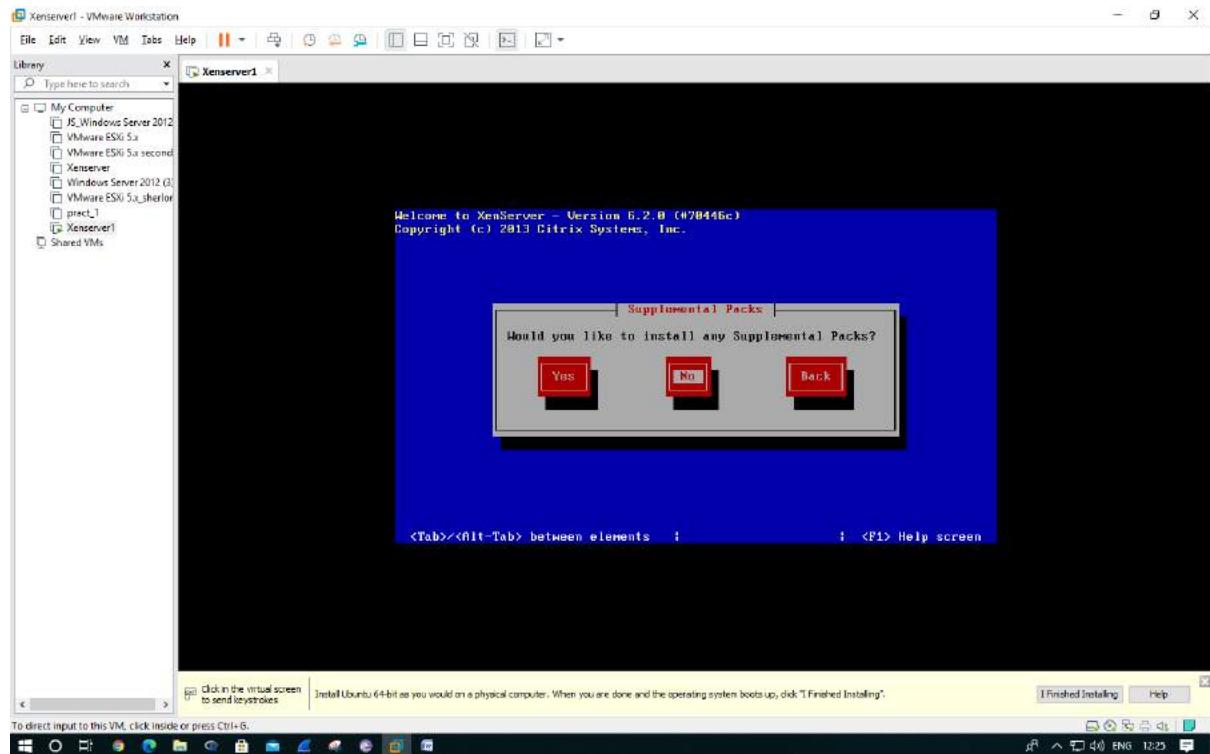
Follow these steps as per the screens.

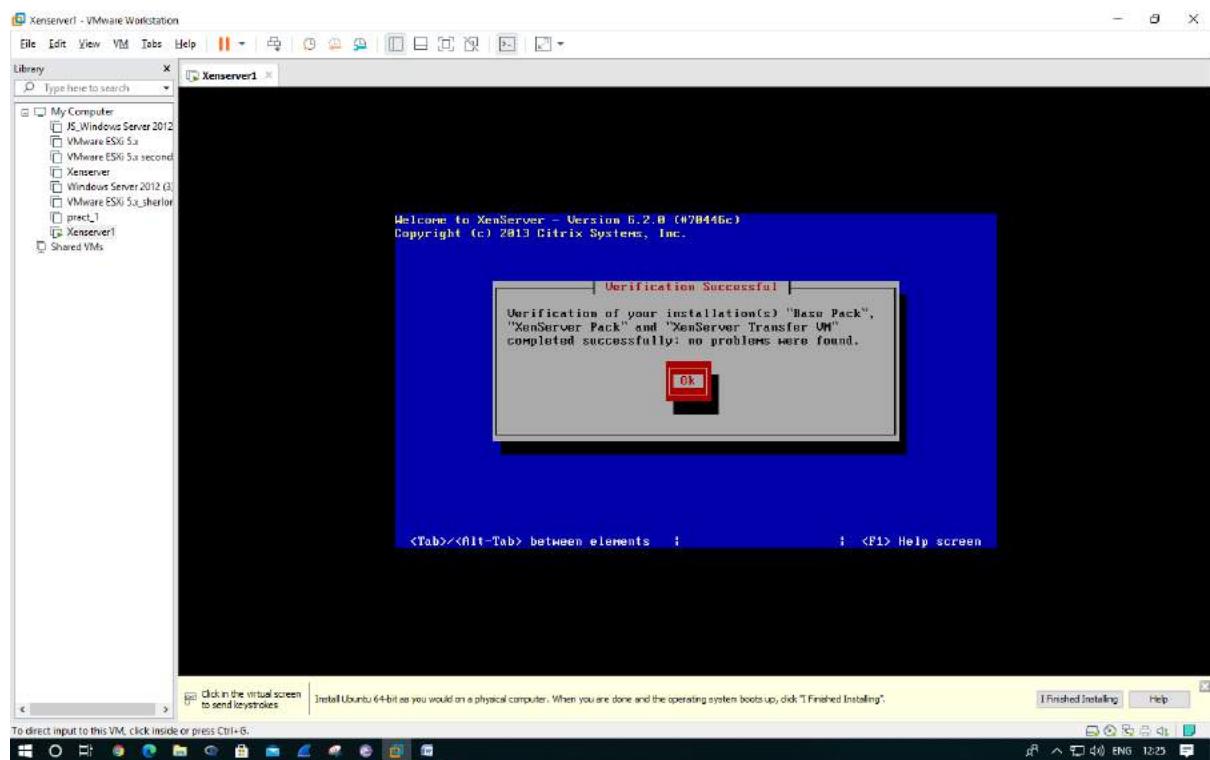
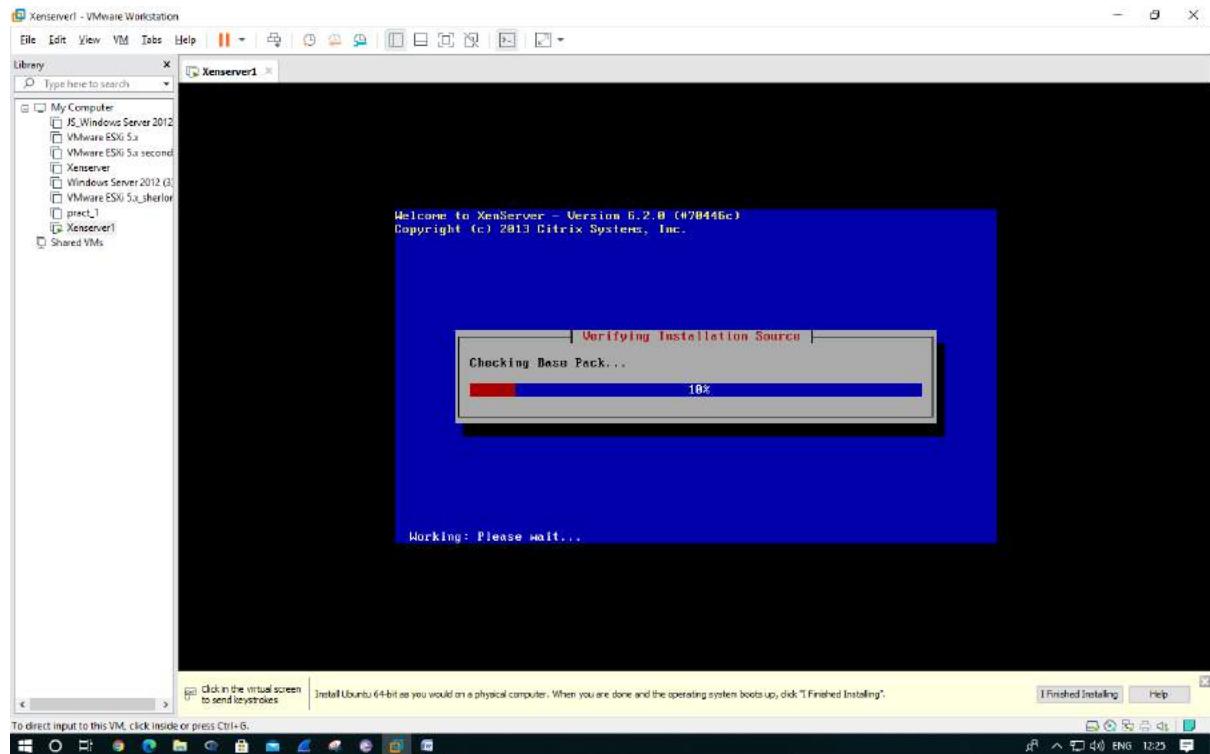
NOTE: Be careful with tab and enter option while using.

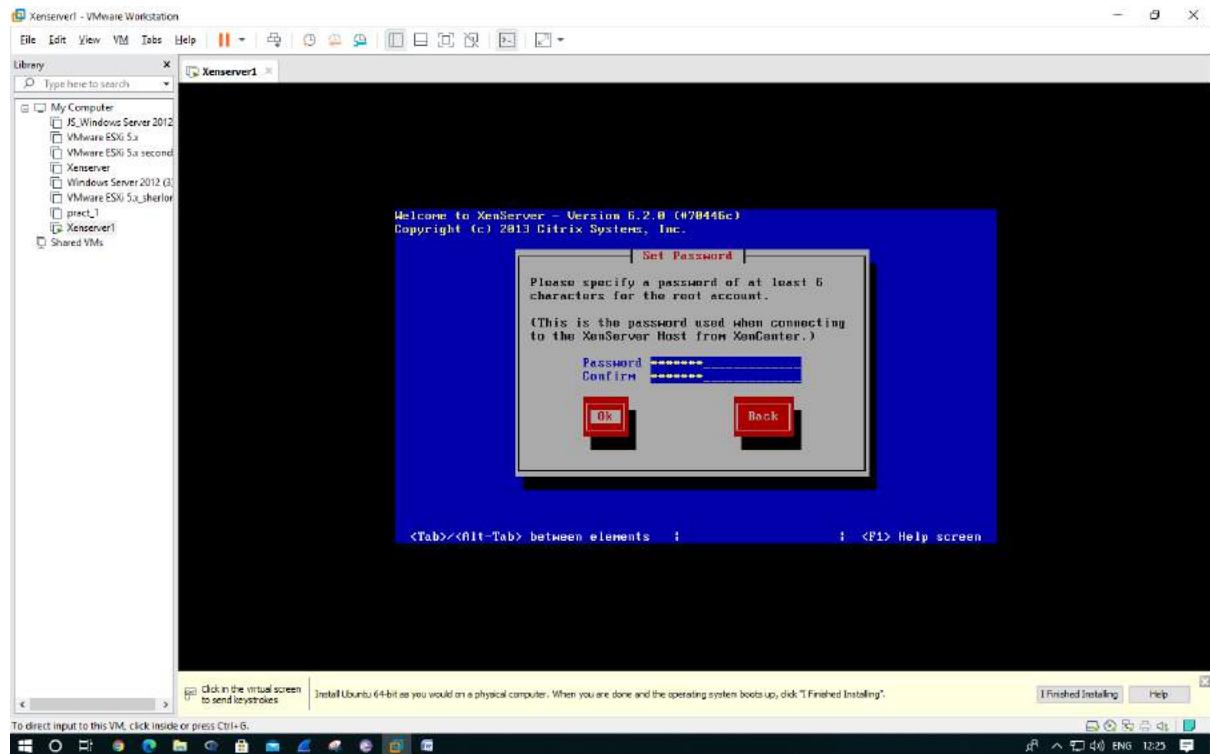




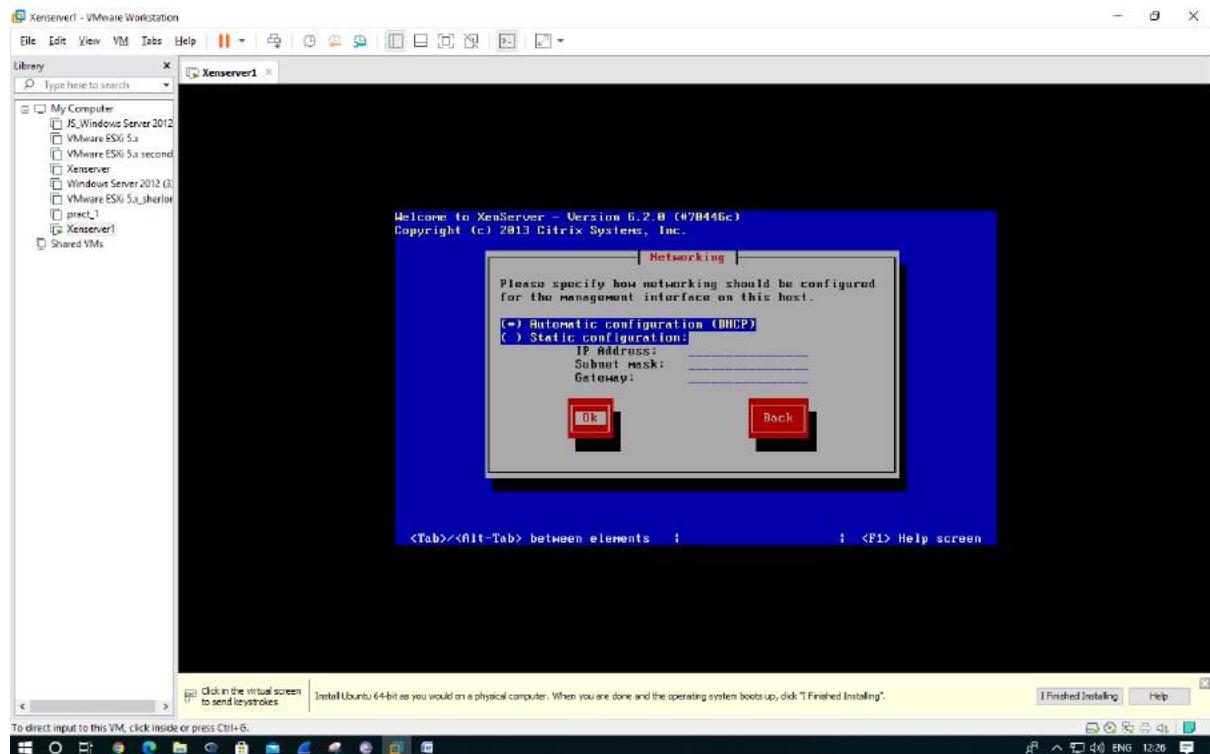


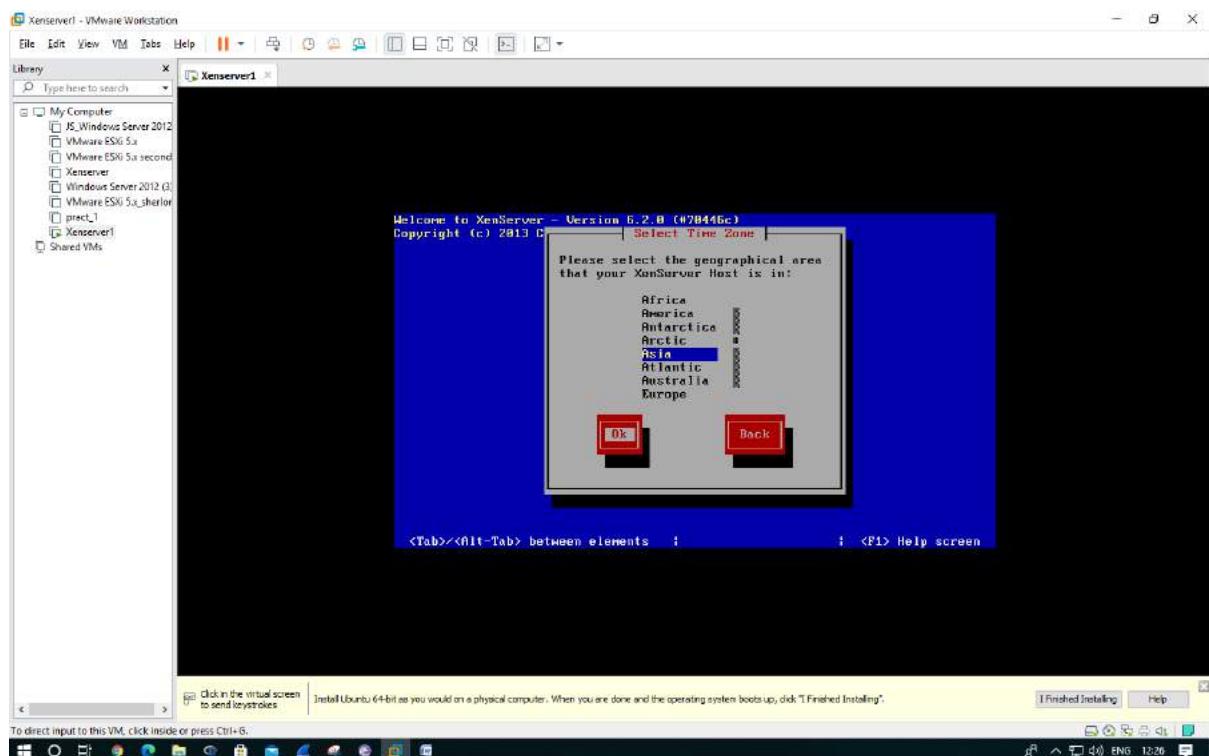
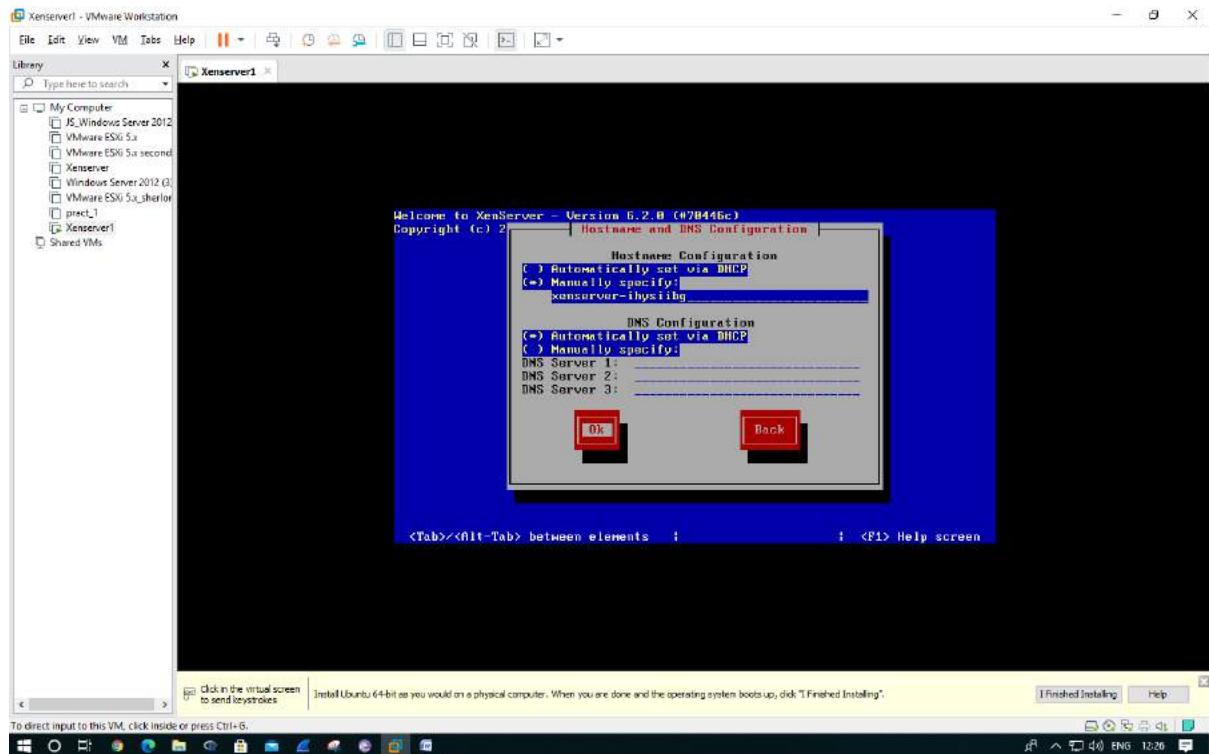


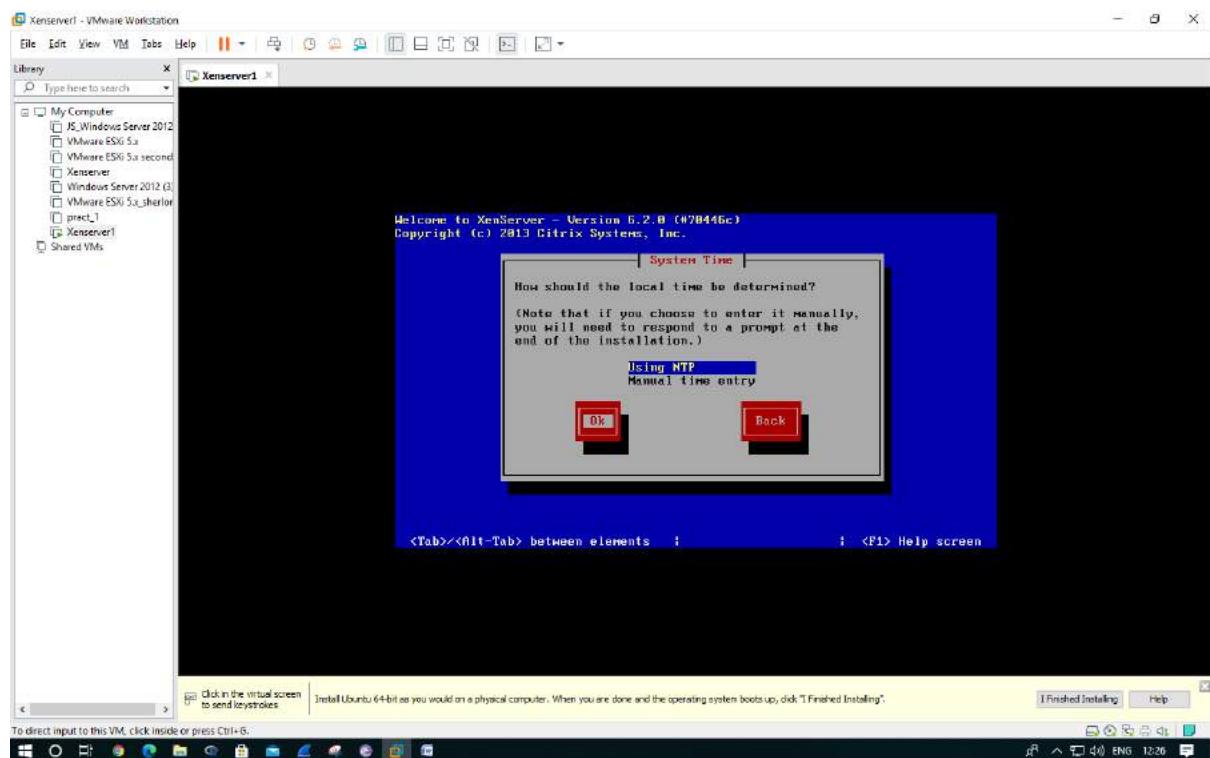
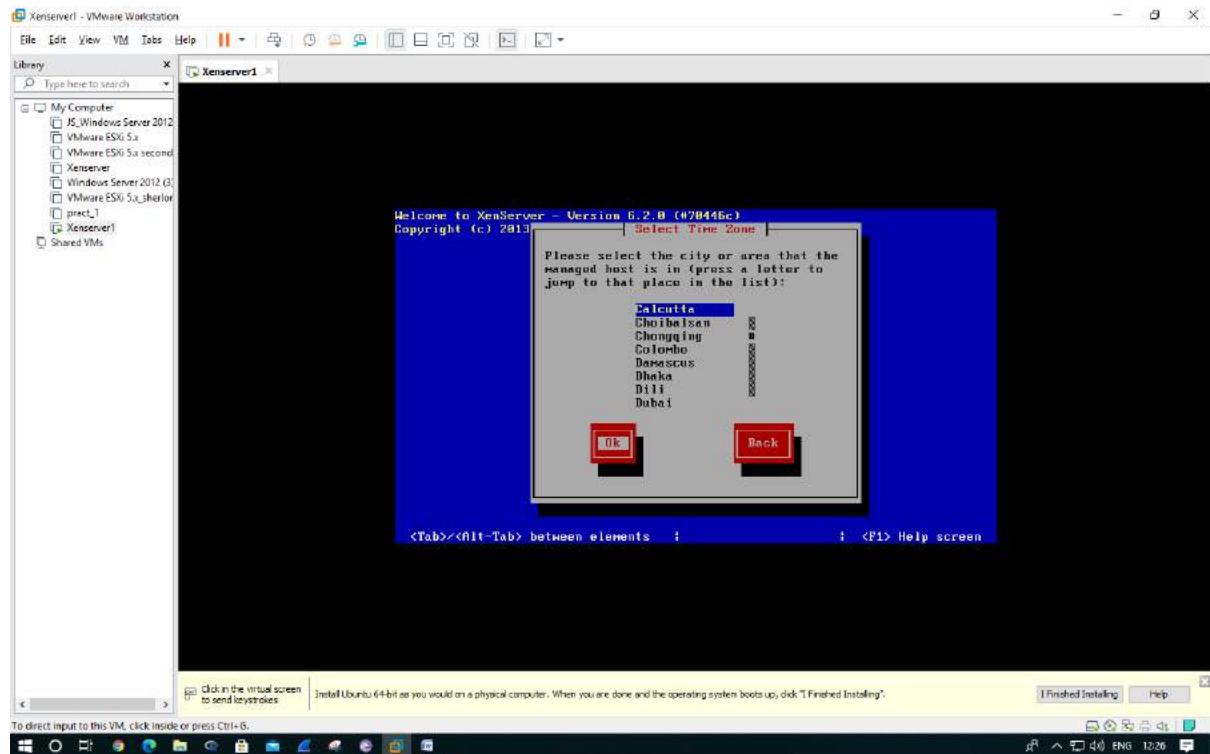


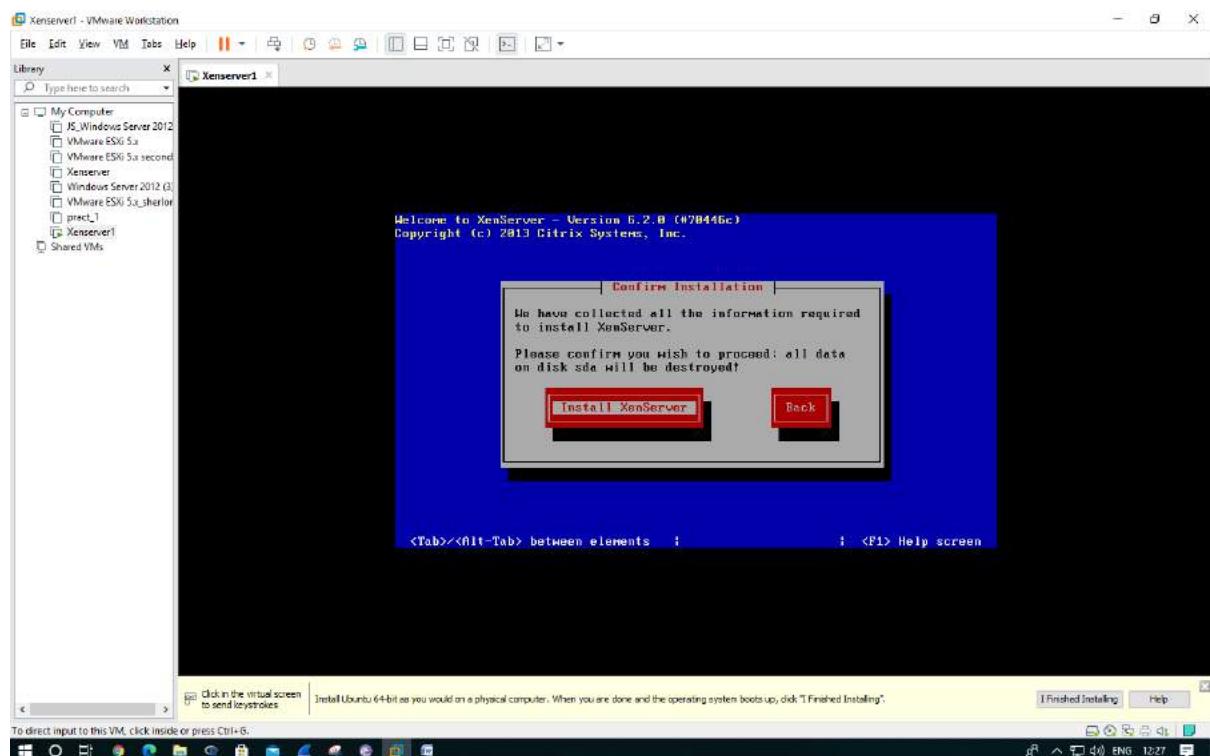
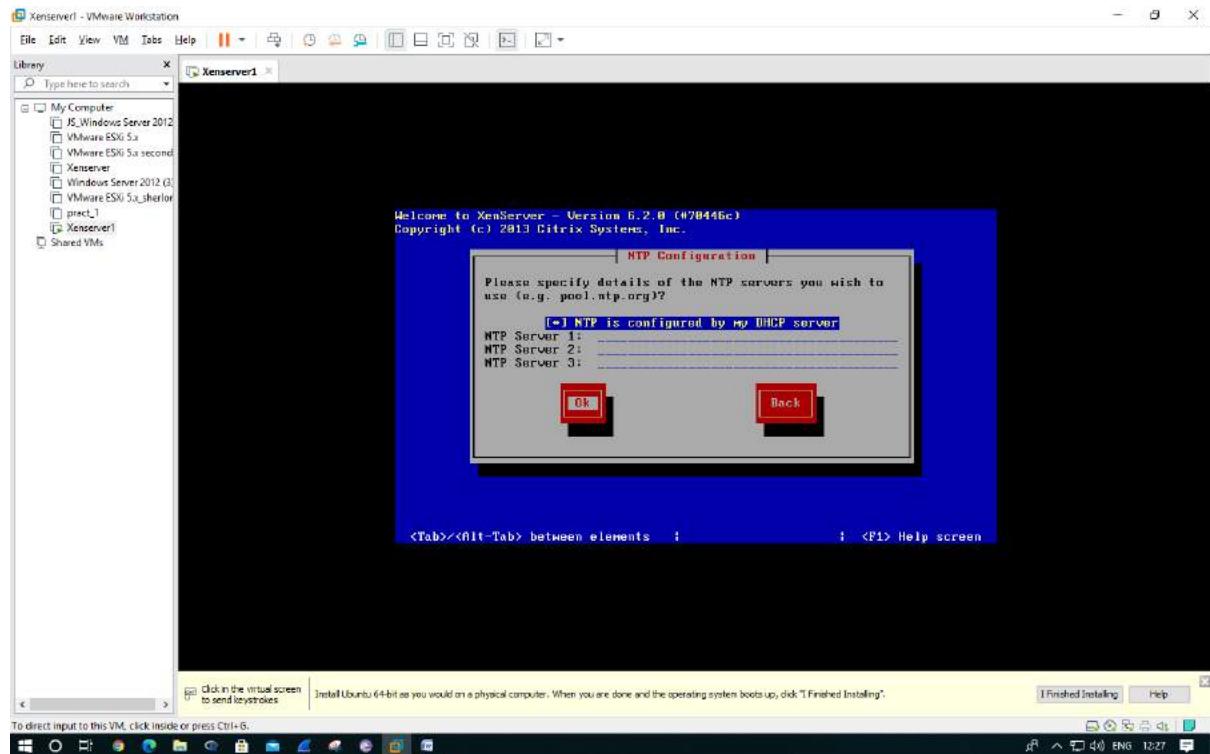


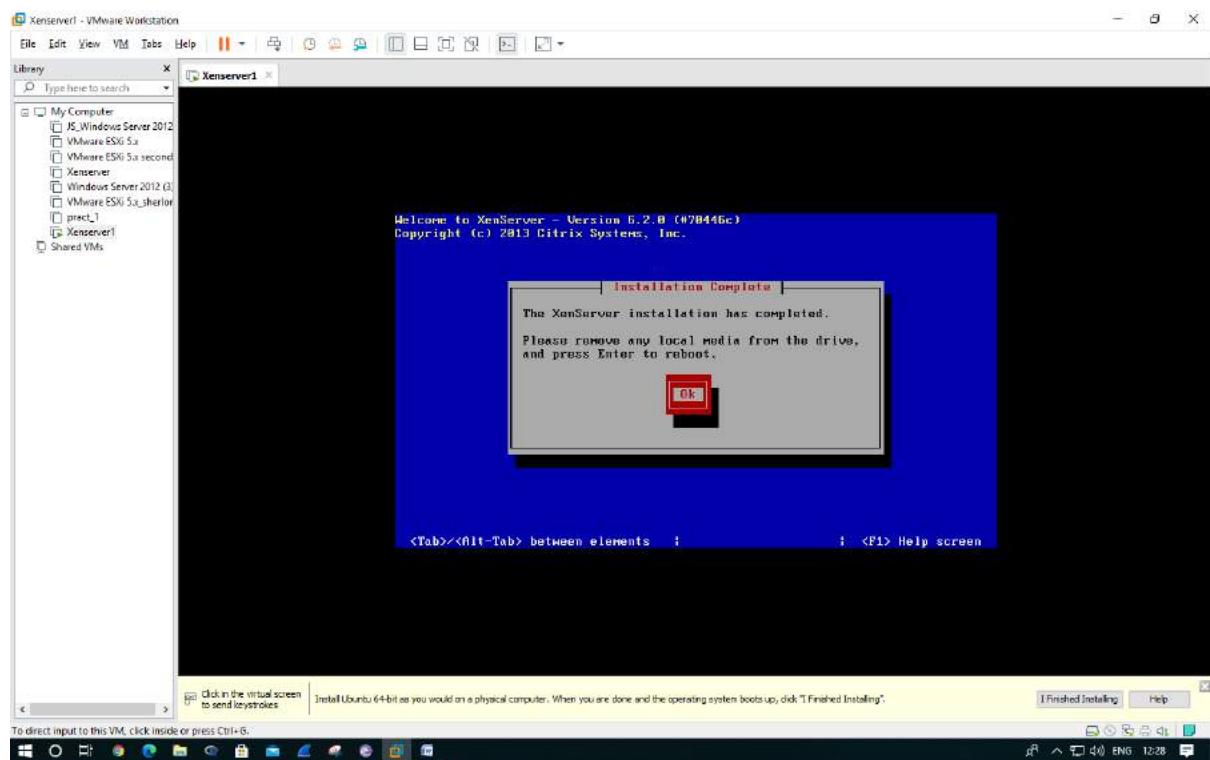
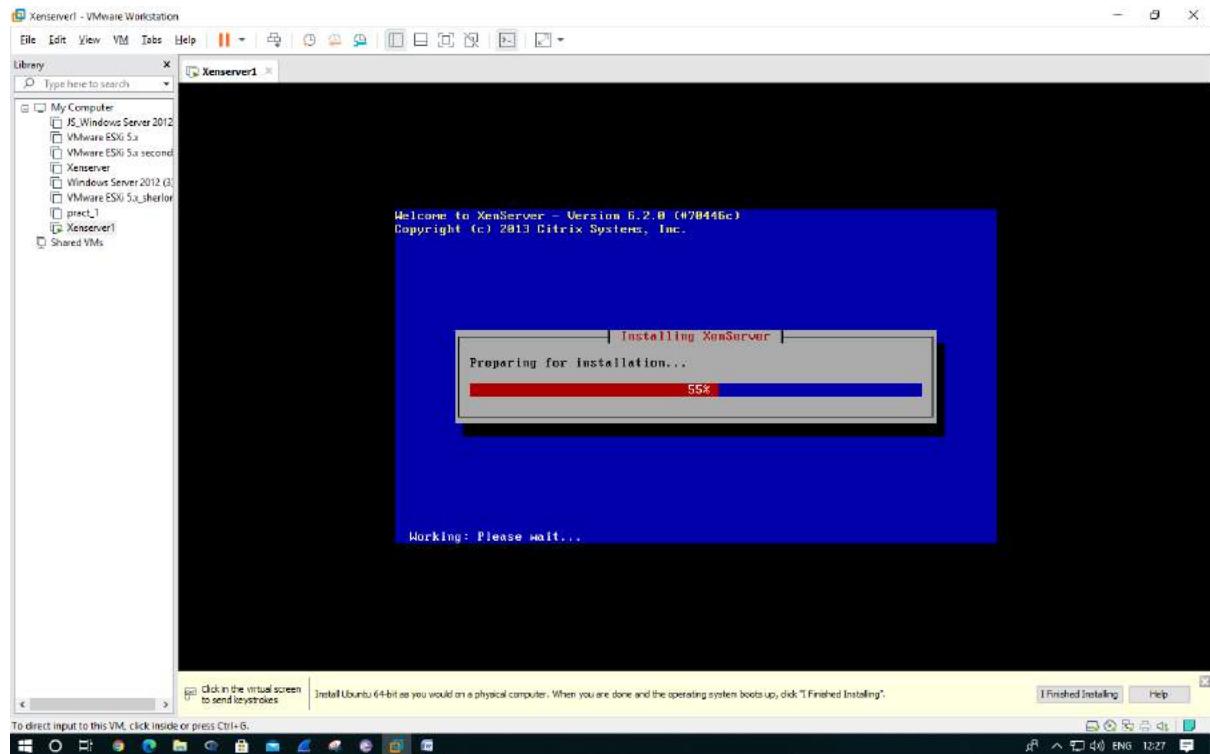
Password will be 'root123'.

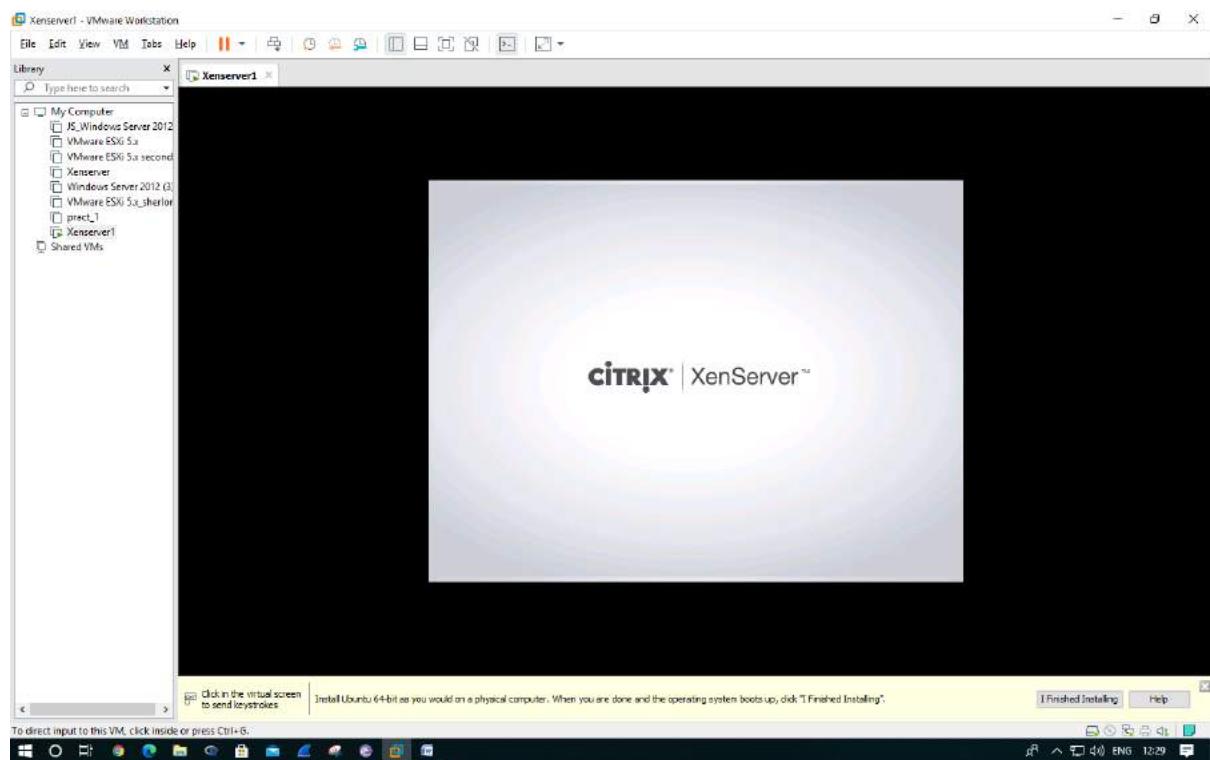
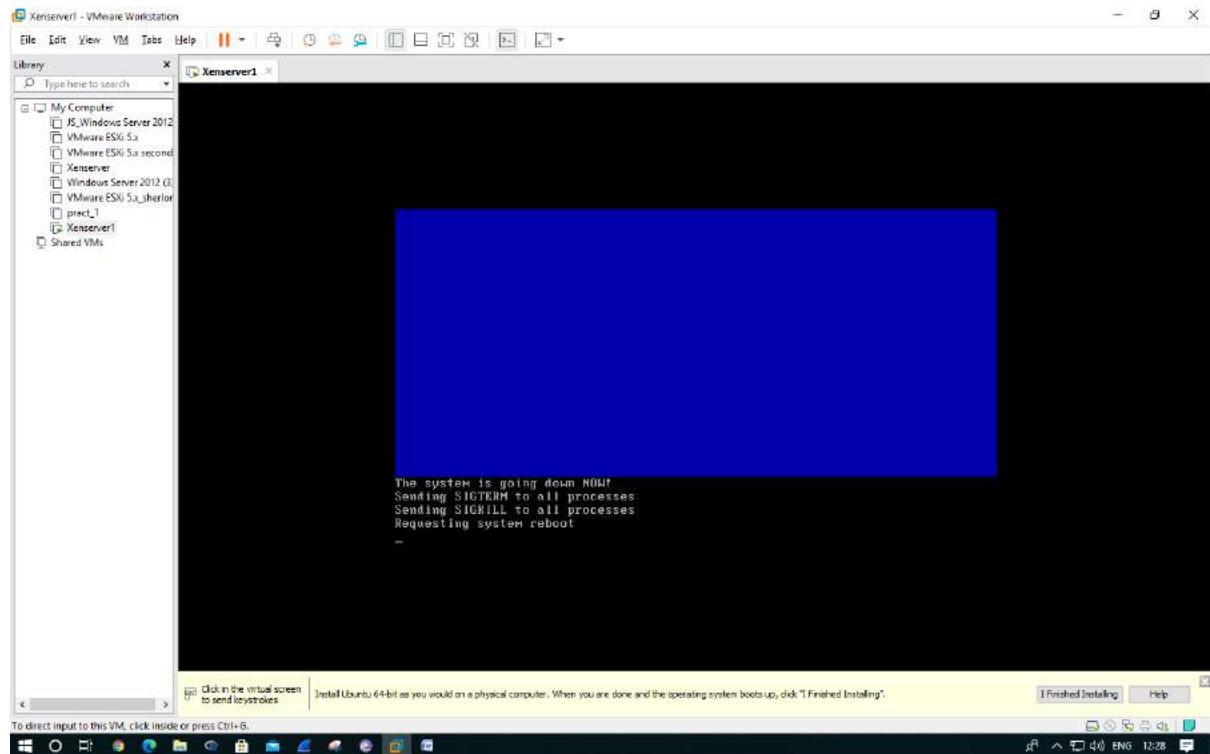


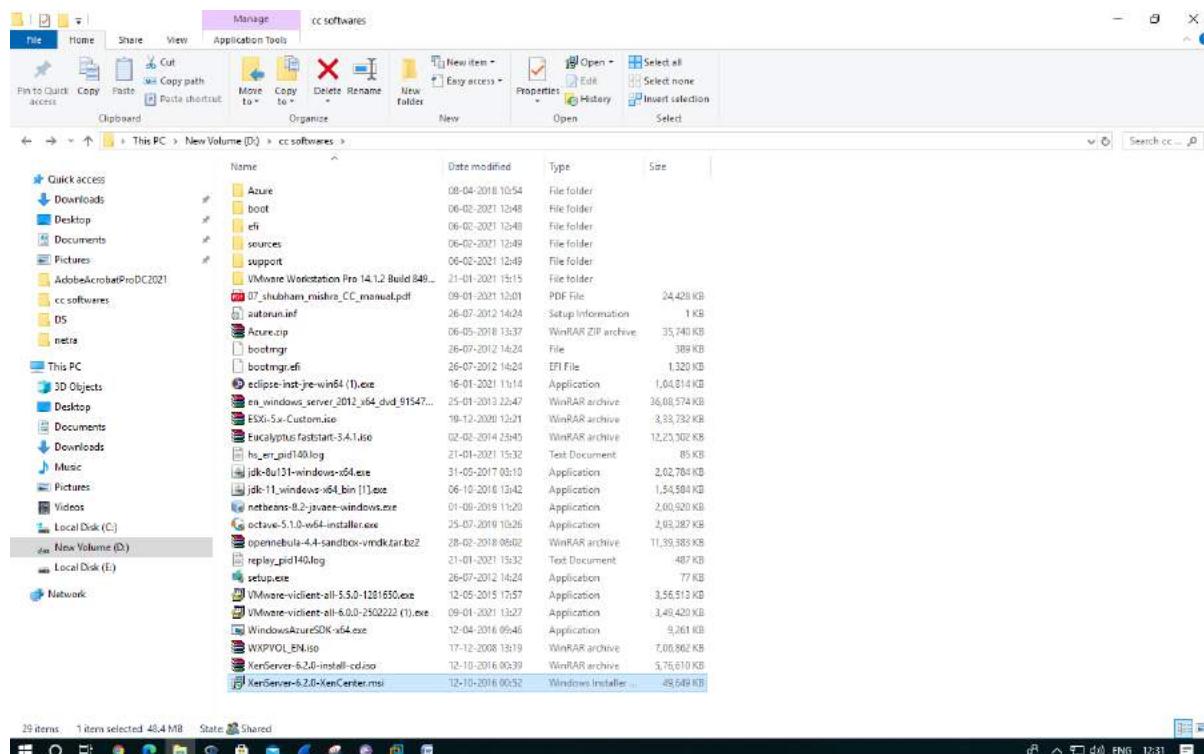
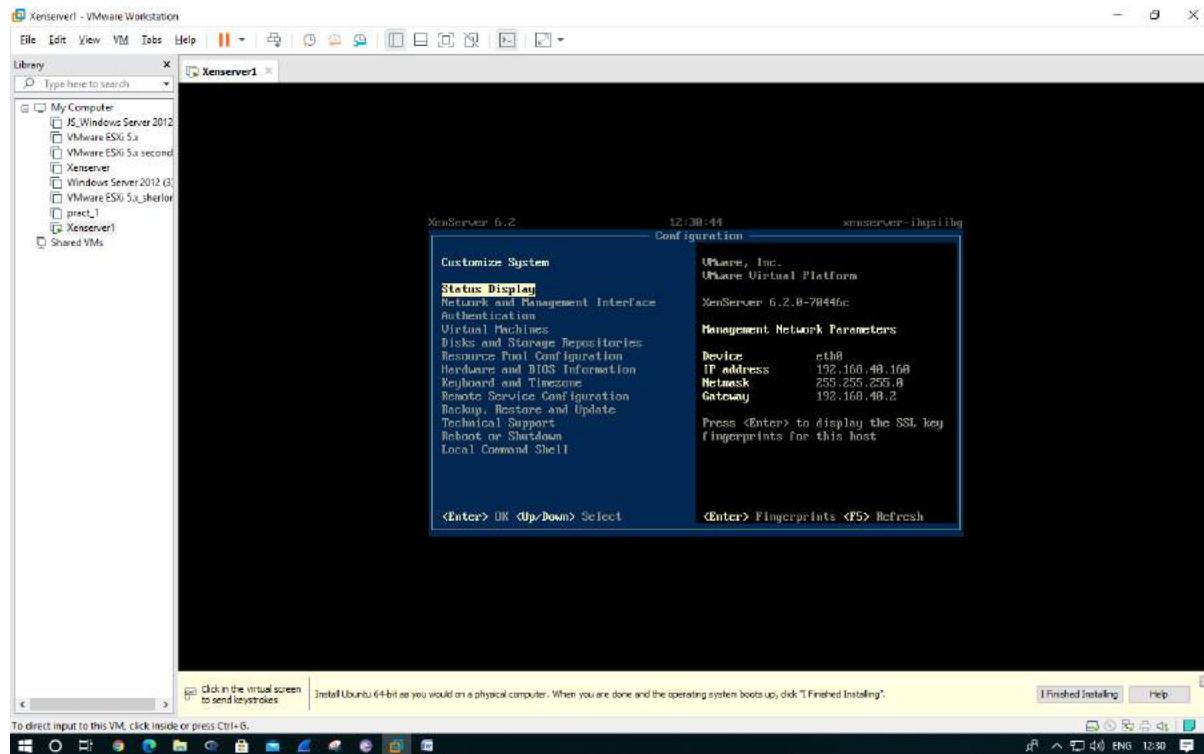




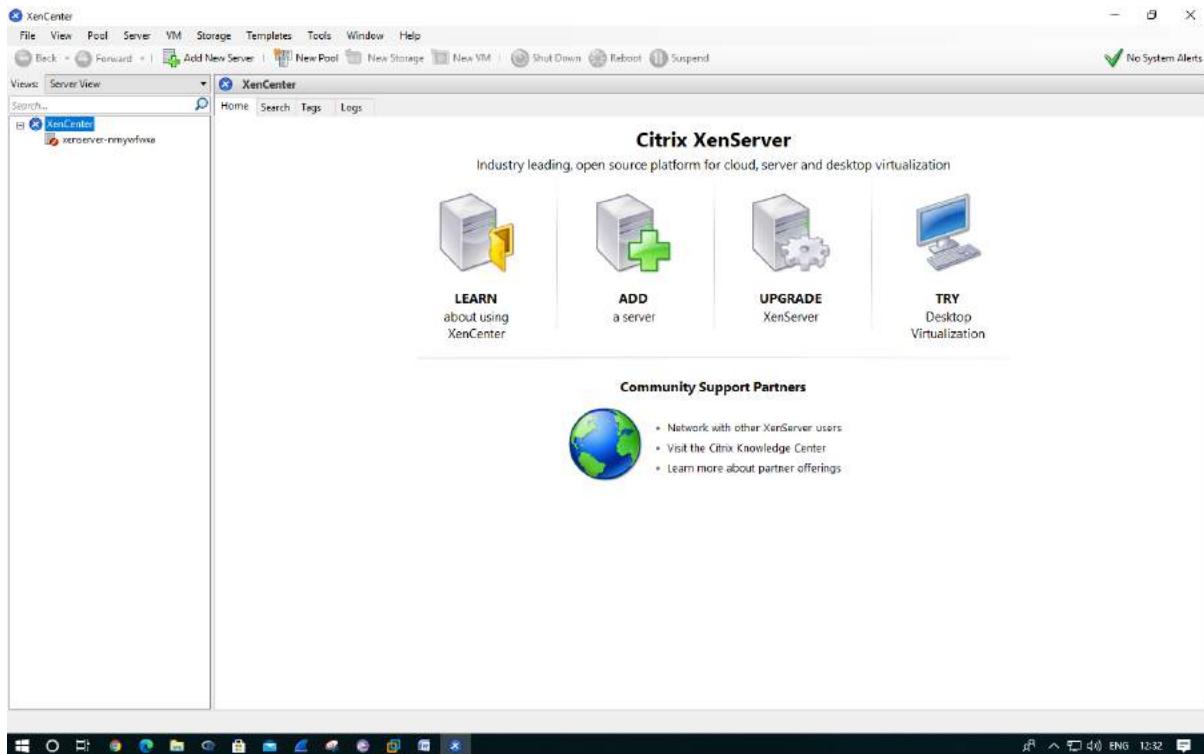




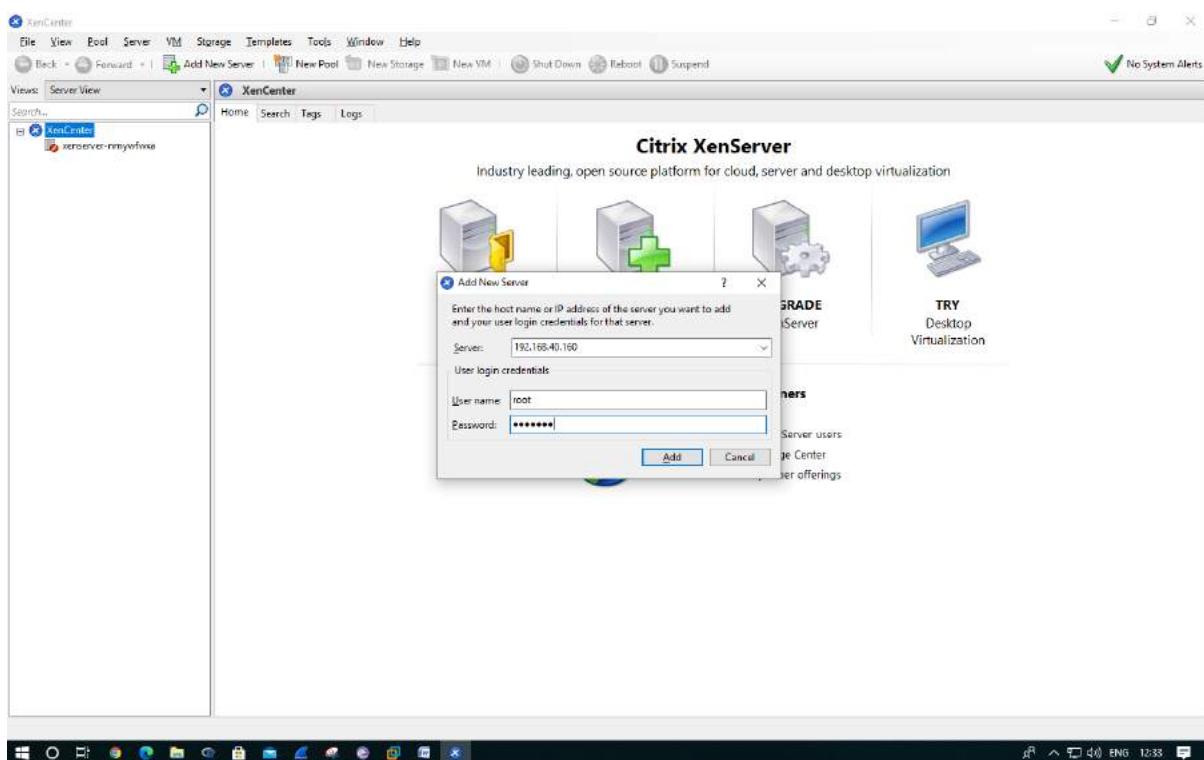




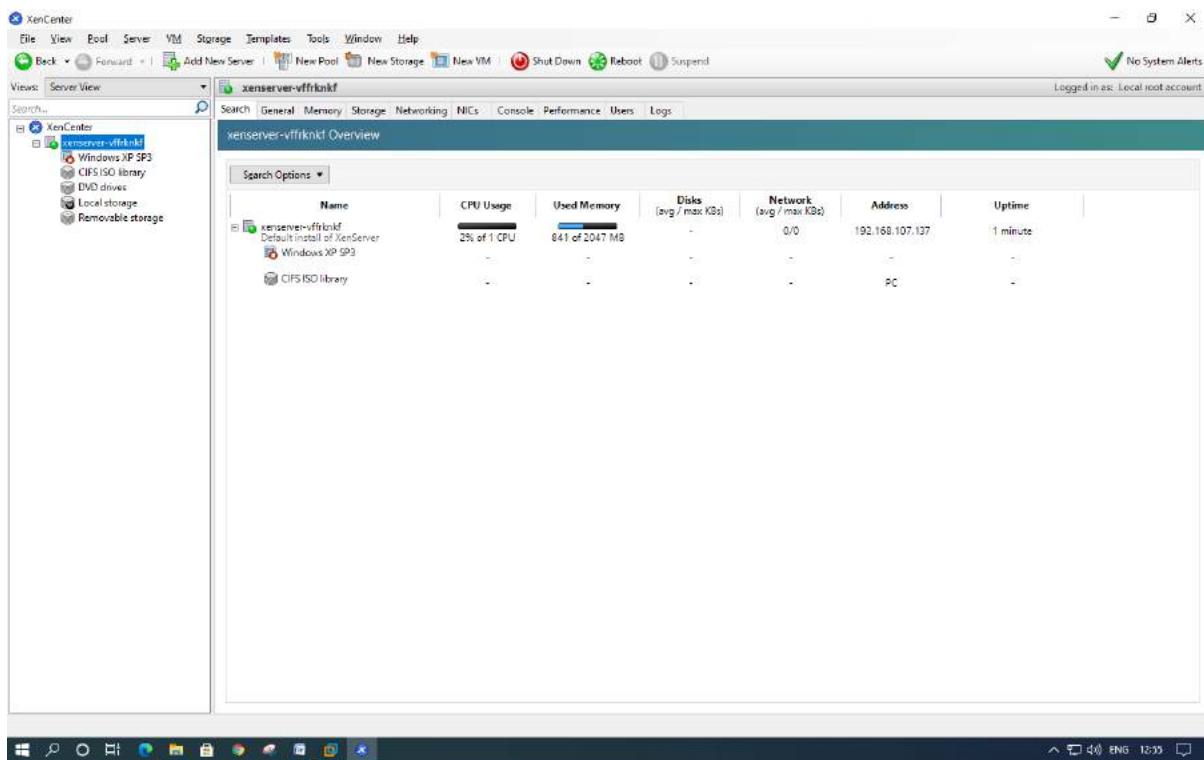
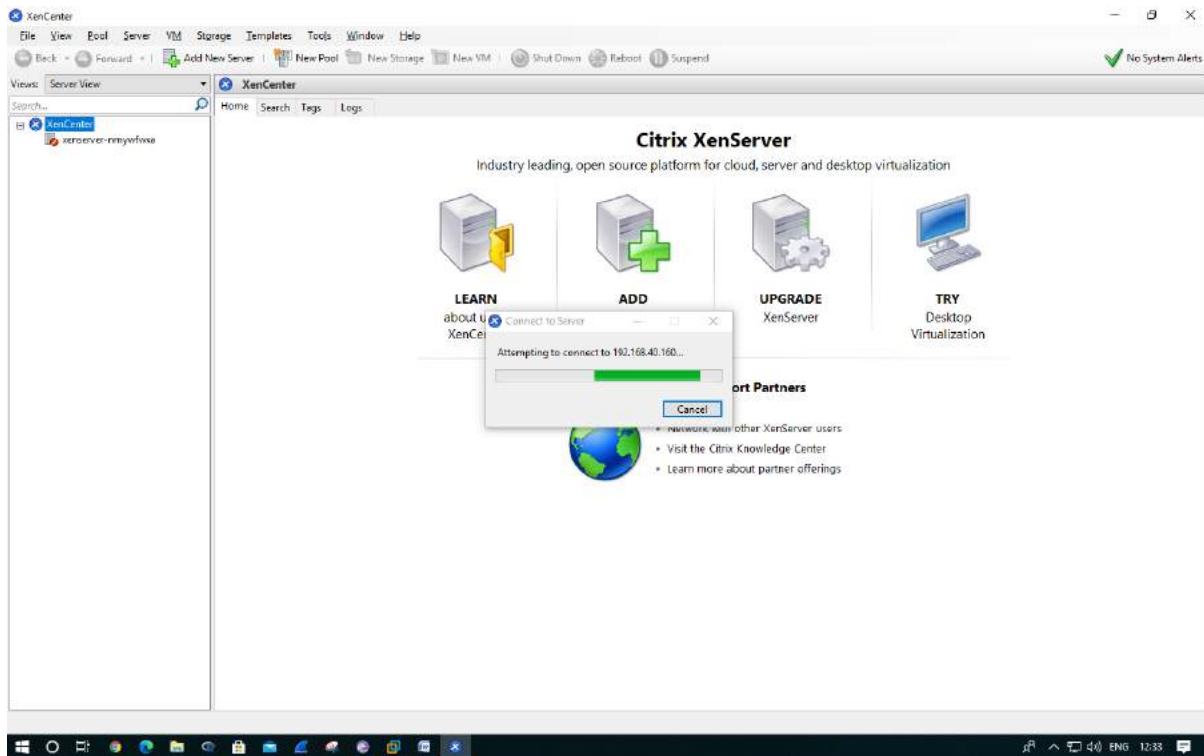
Install Xenserver if not installed.

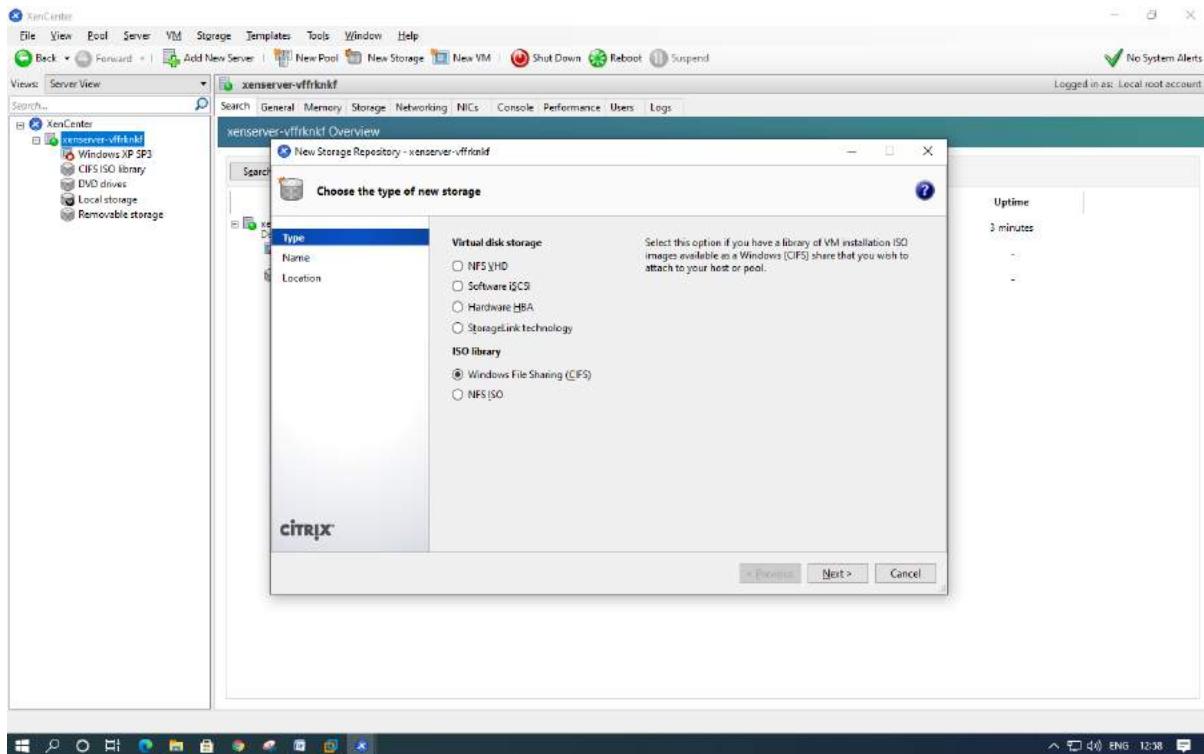


Open Citrix Xenserver

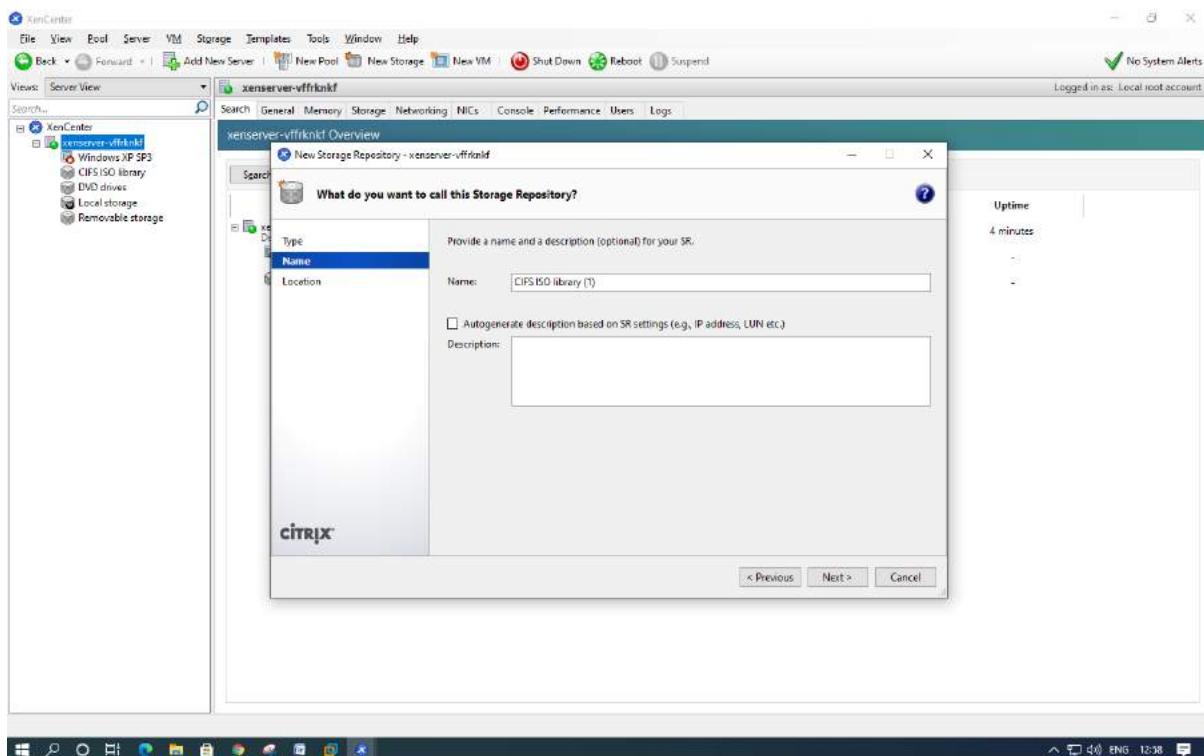


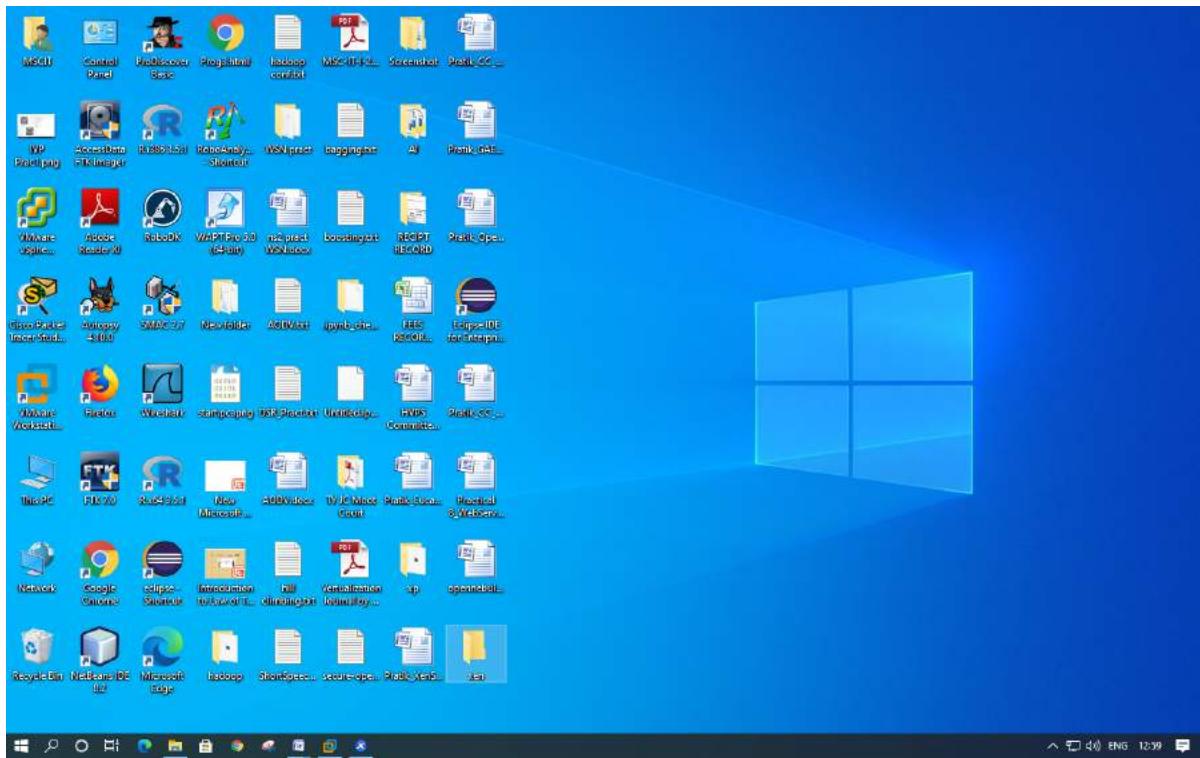
Connect it with the output we got in workstation select server as we got in the output with password as 'root123'.



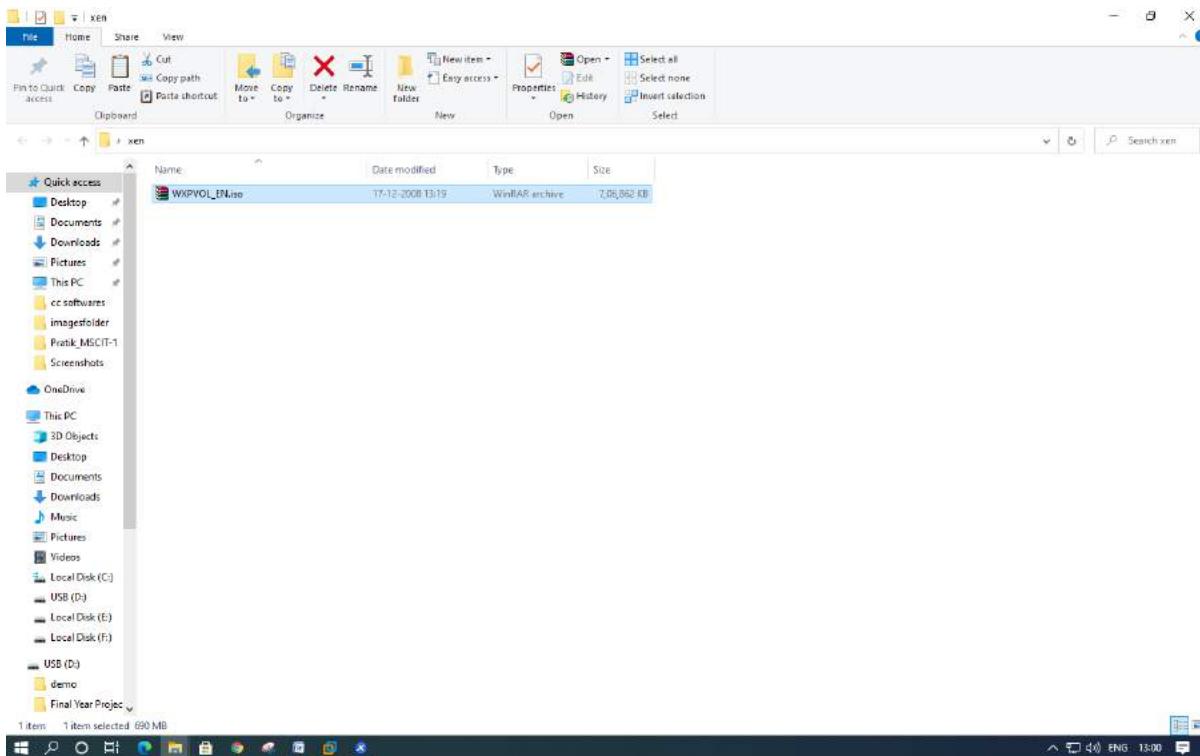


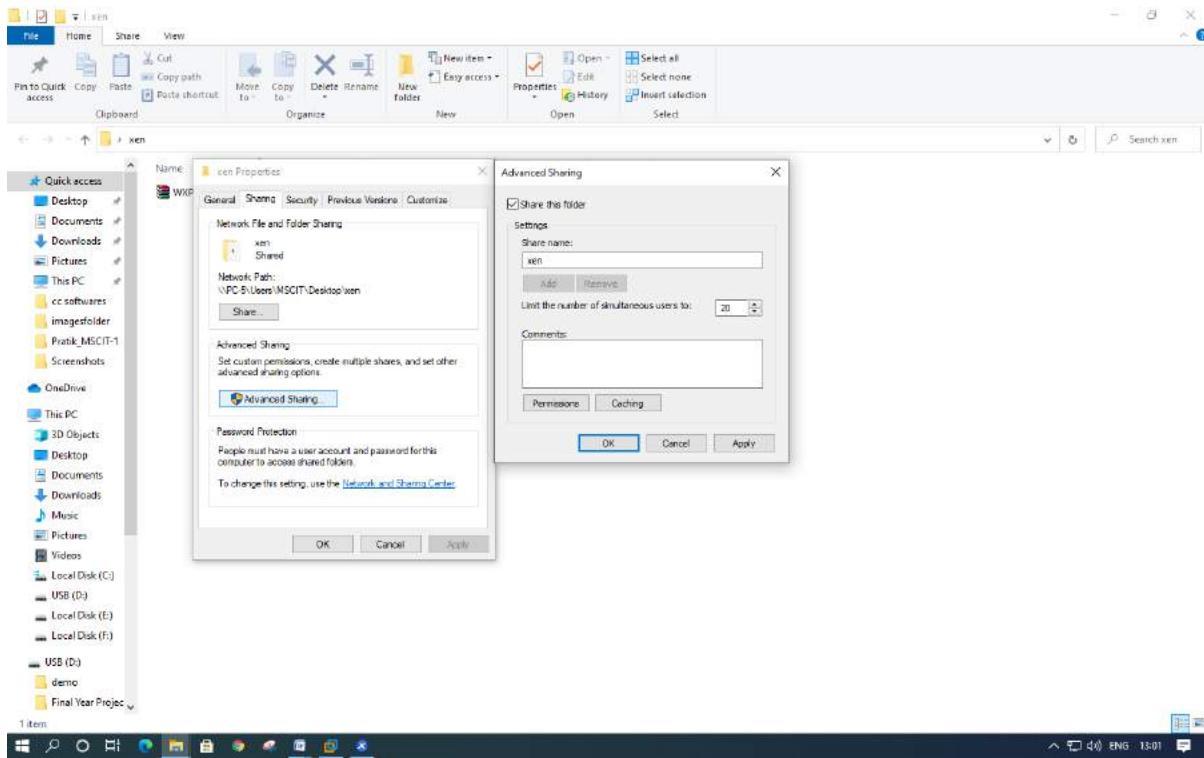
Select iso library option only.



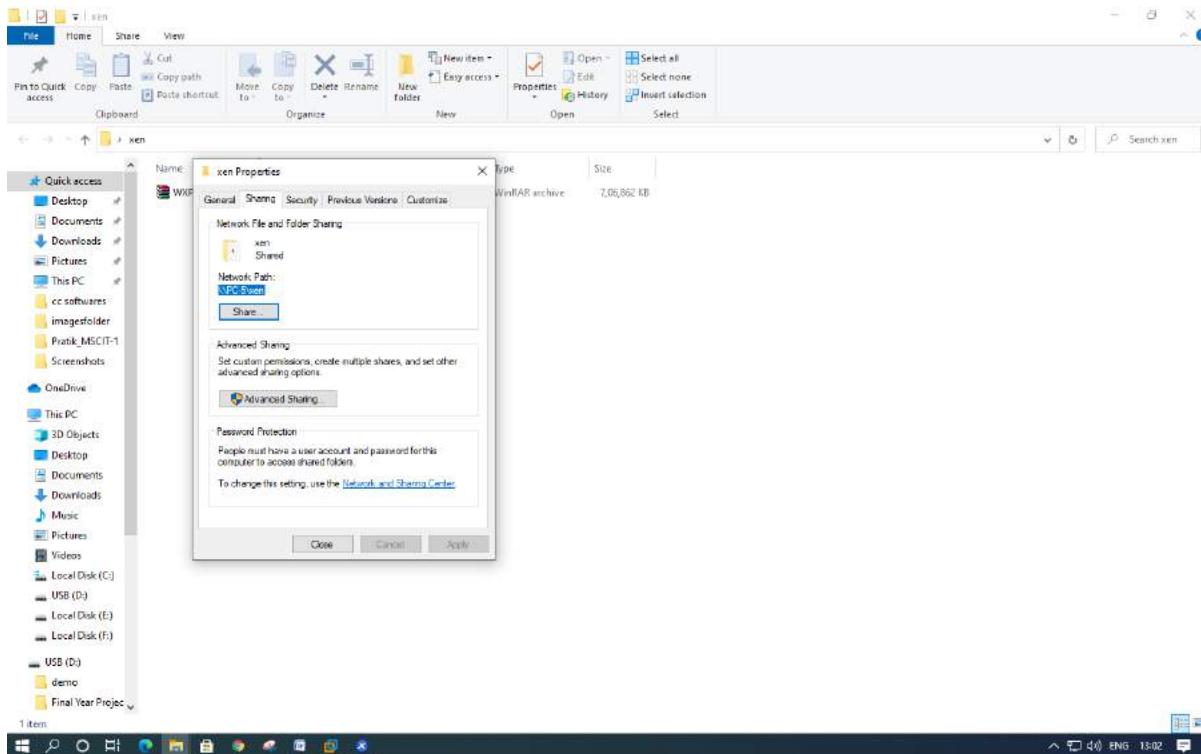


Create new folder named xen(anything you can name) add WXPVOL_EN.iso file

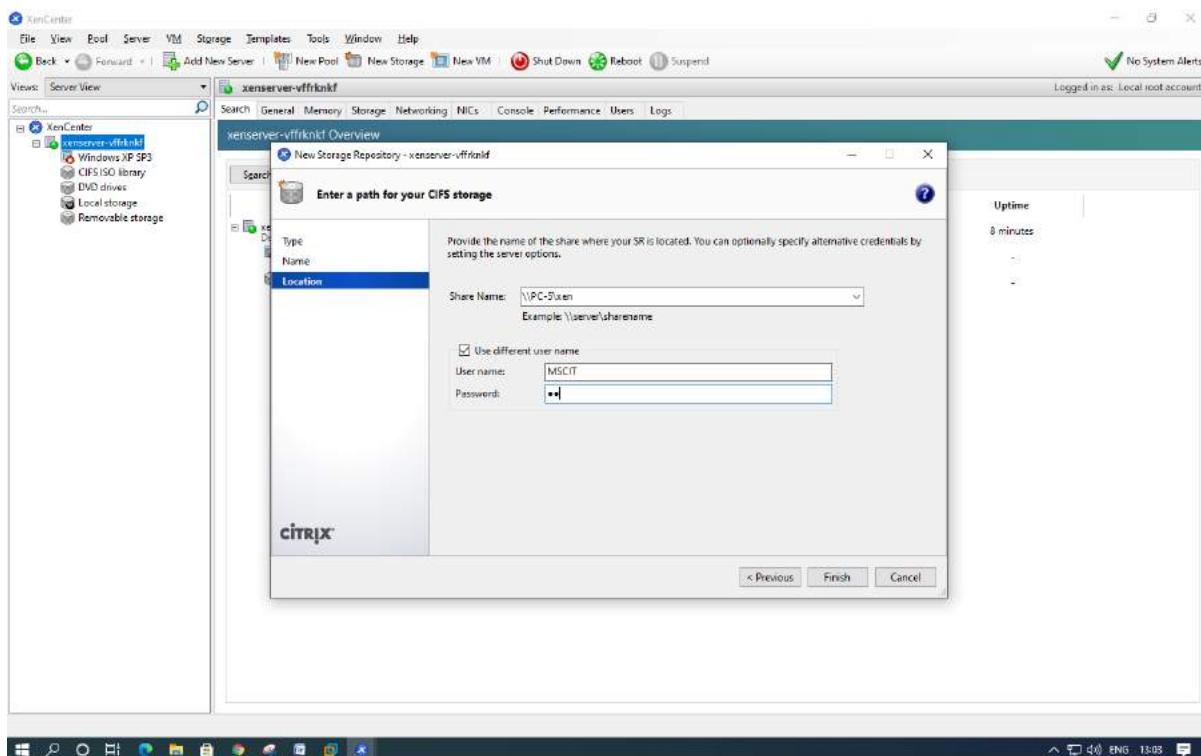




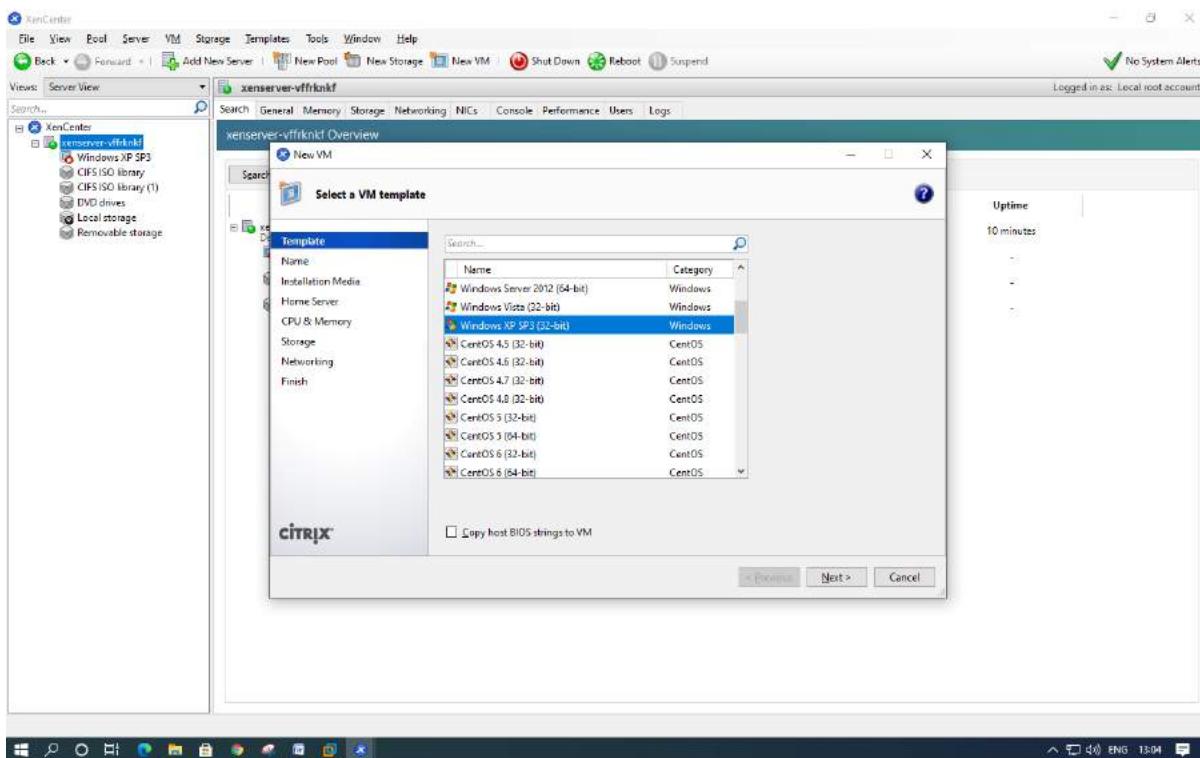
Now we have to create a share path so to do that open folder right click select properties go in sharing click on advanced sharing, select share this folder tick and OK.



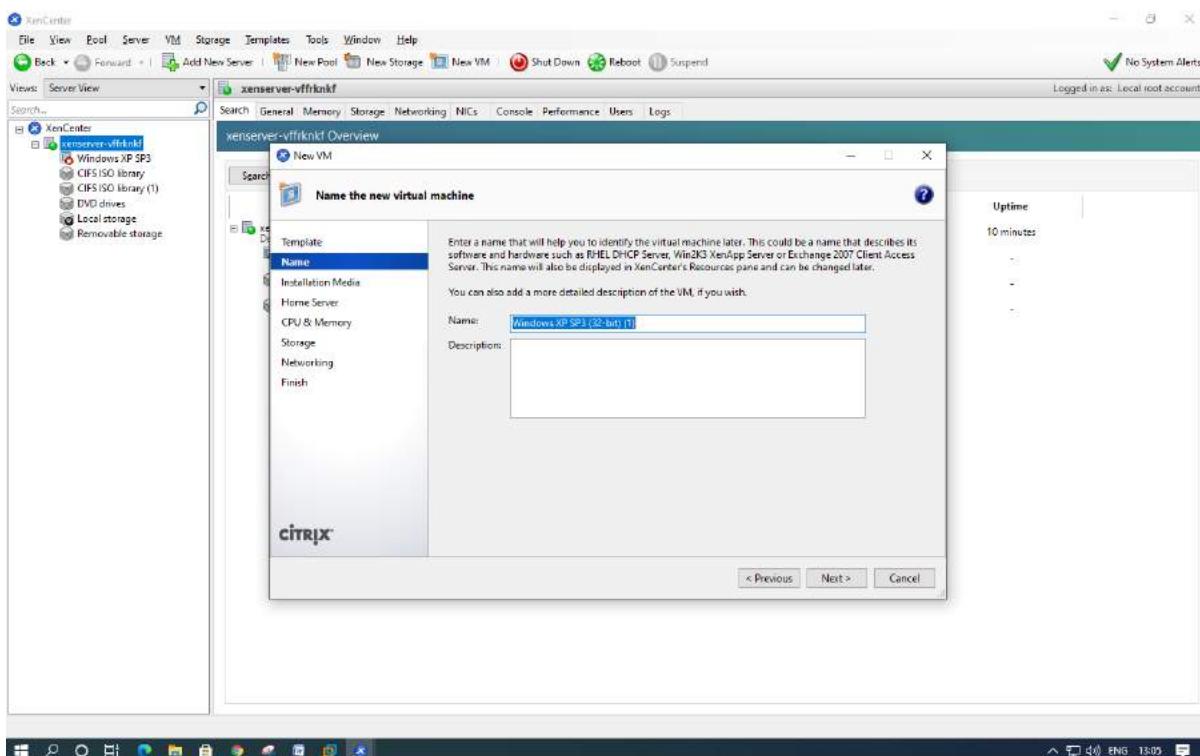
This path.

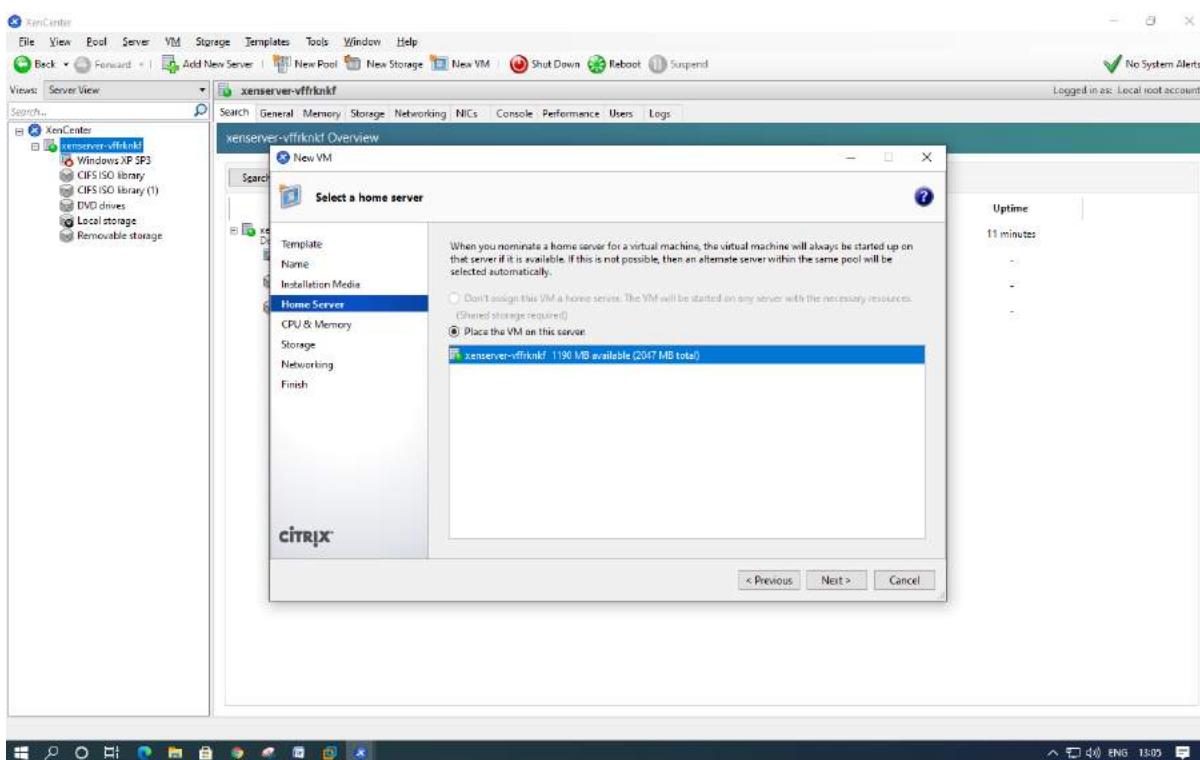
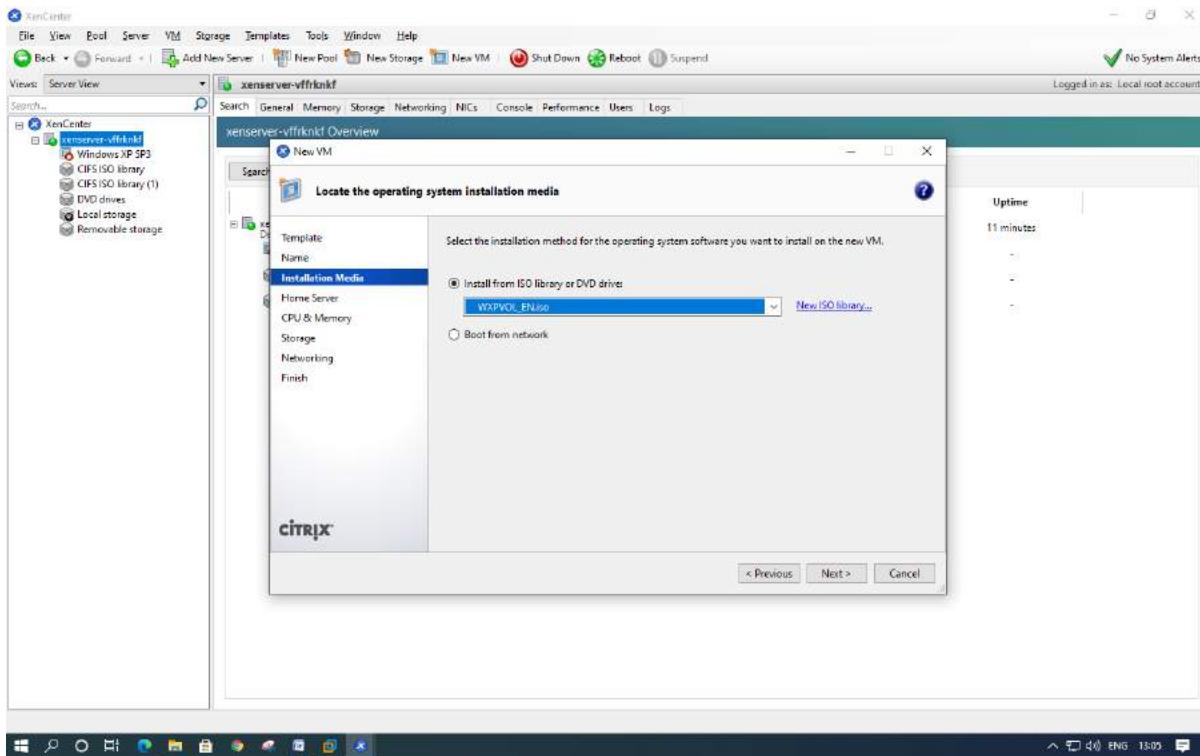


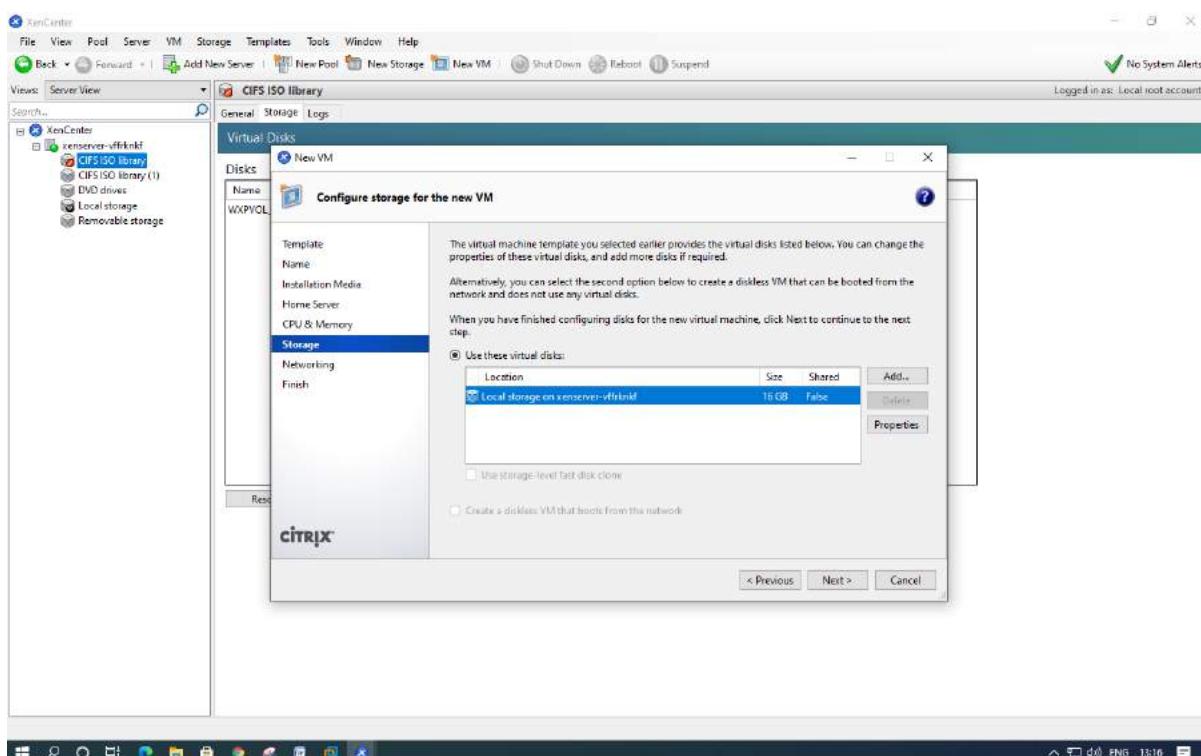
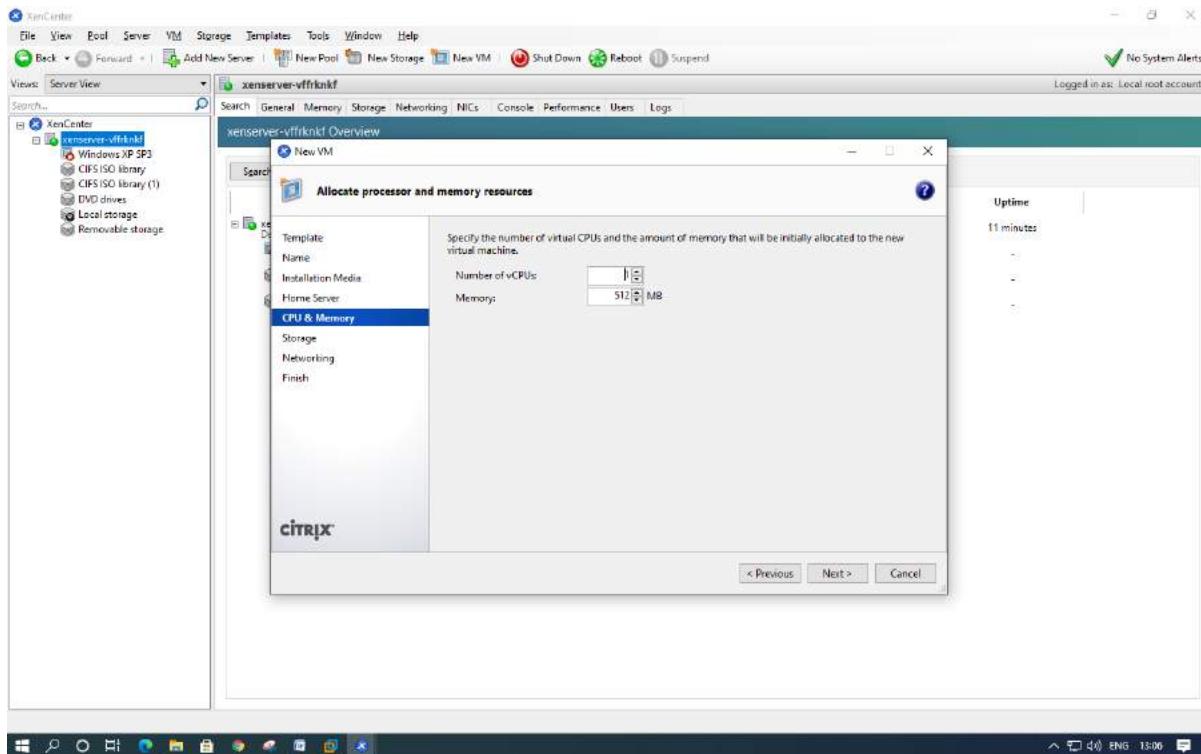
Paste that path here.

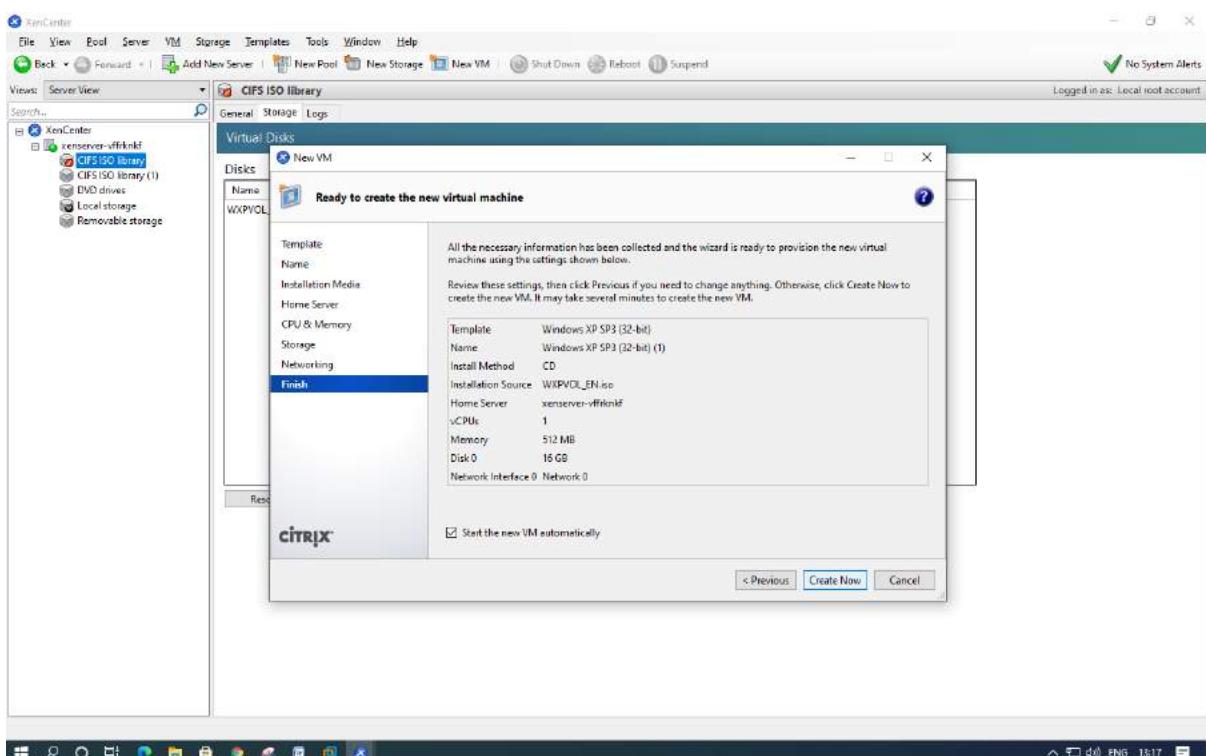
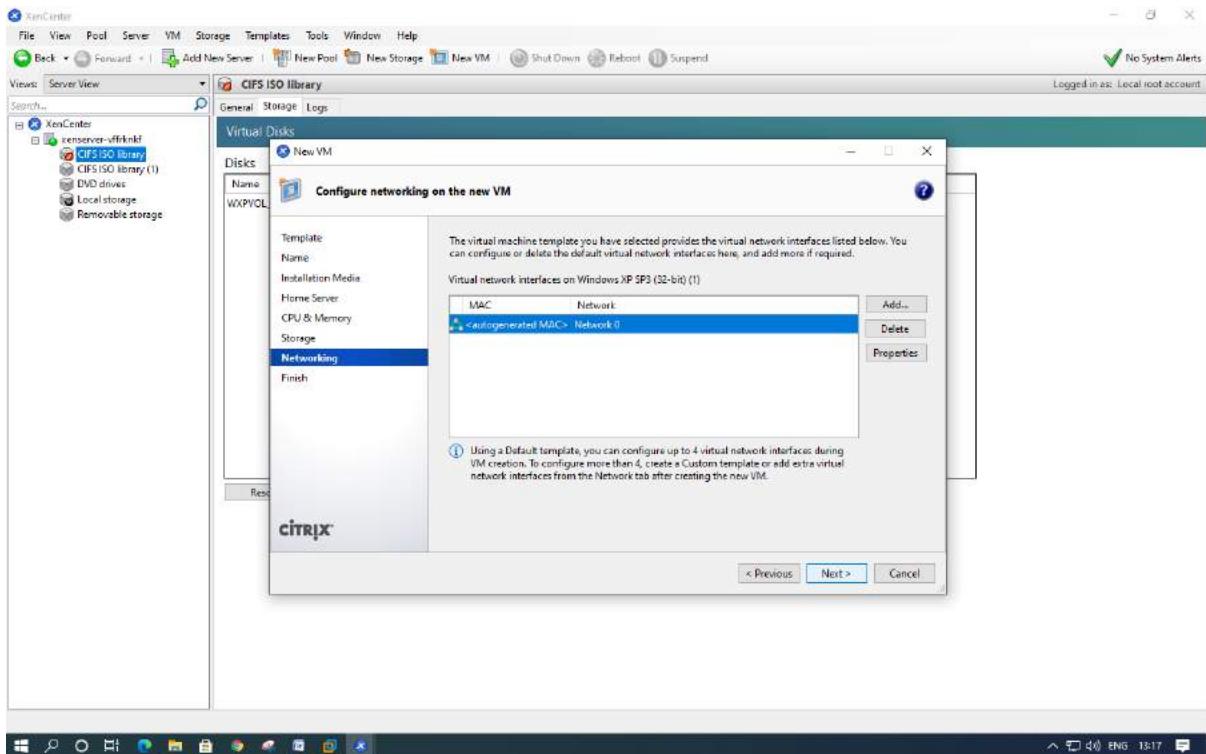


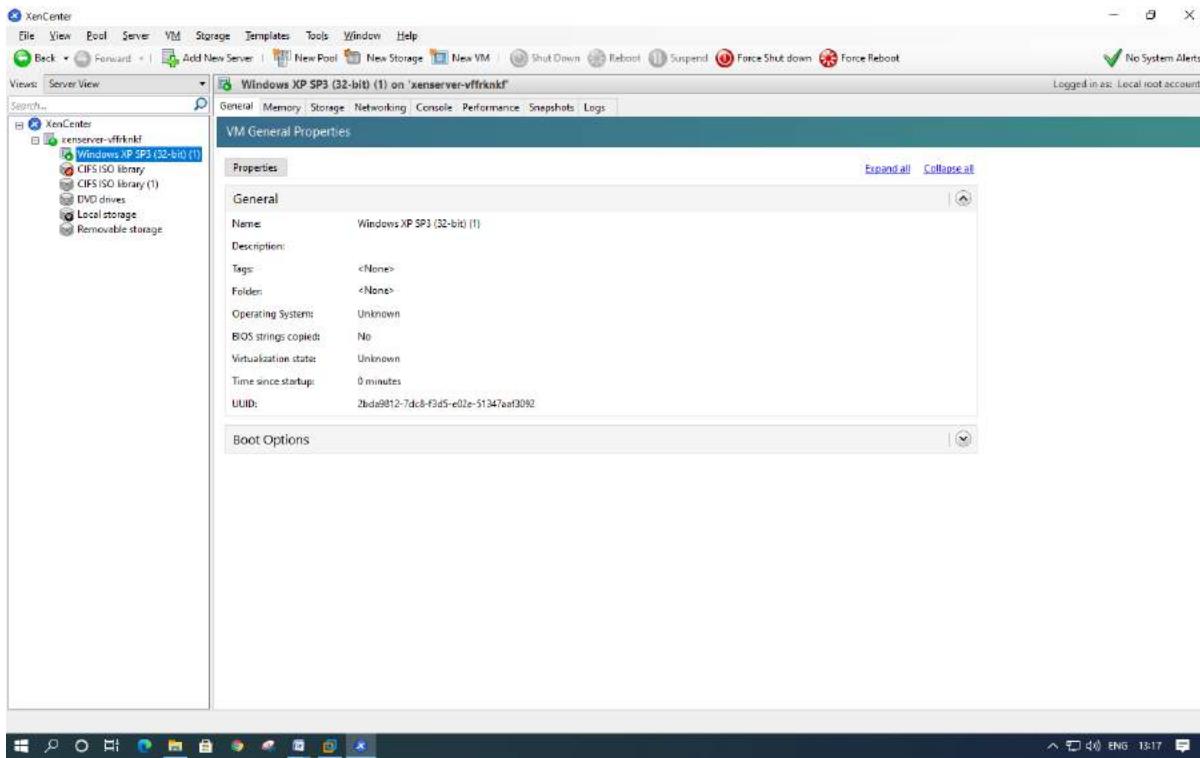
Open new VM option select Windows XP SP3(32-bit) option.



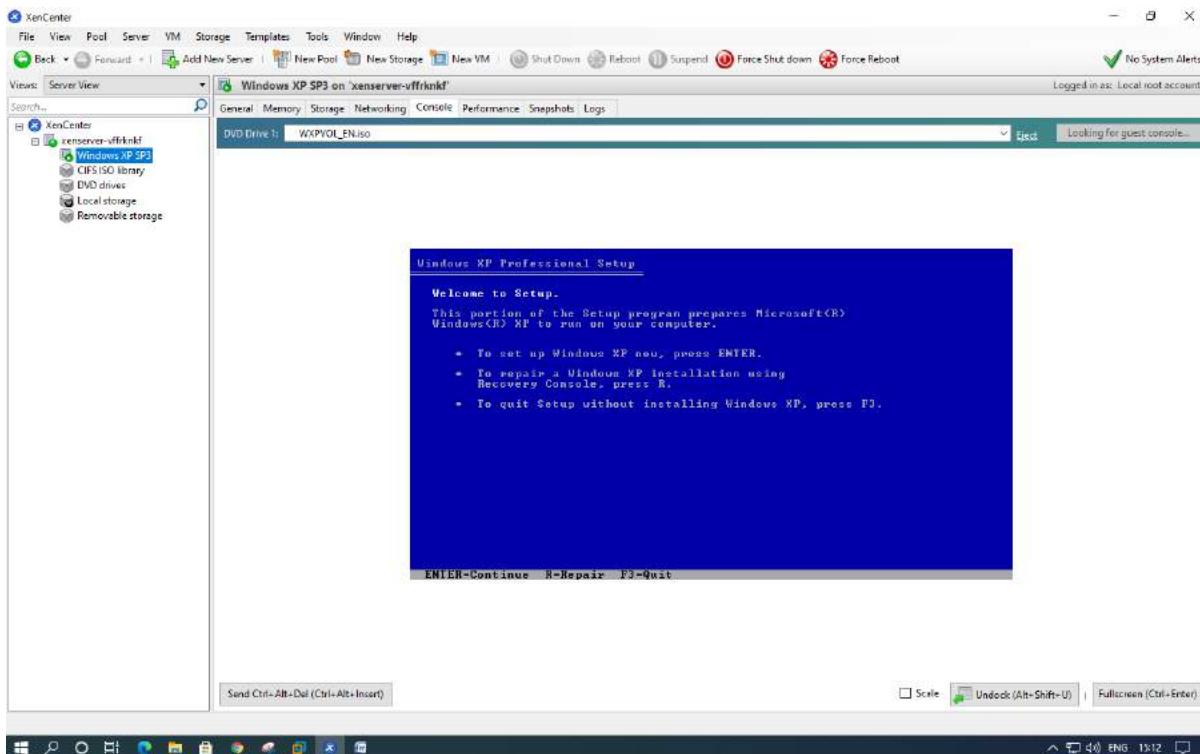








Created Windows xp sp3



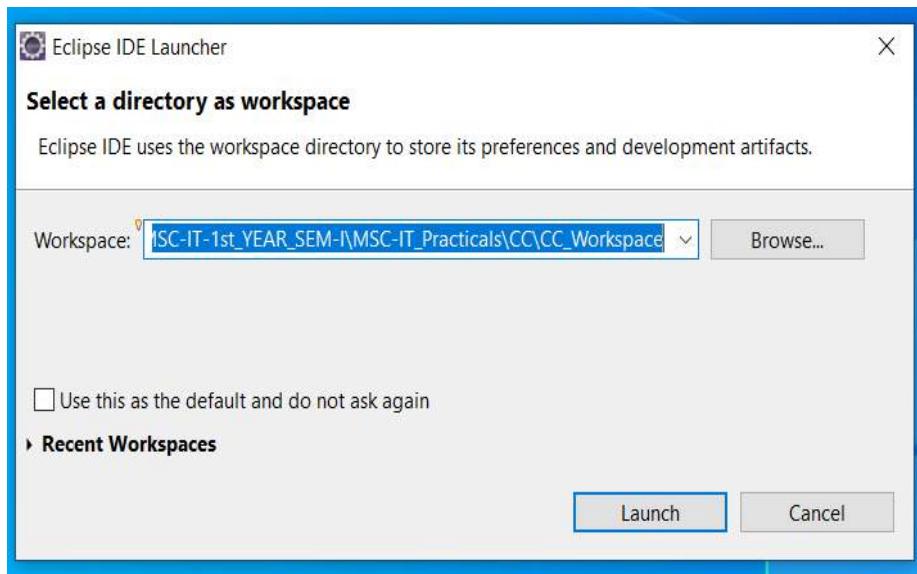
Practical 3

Implement Search Engine Google App Engine(GAE)

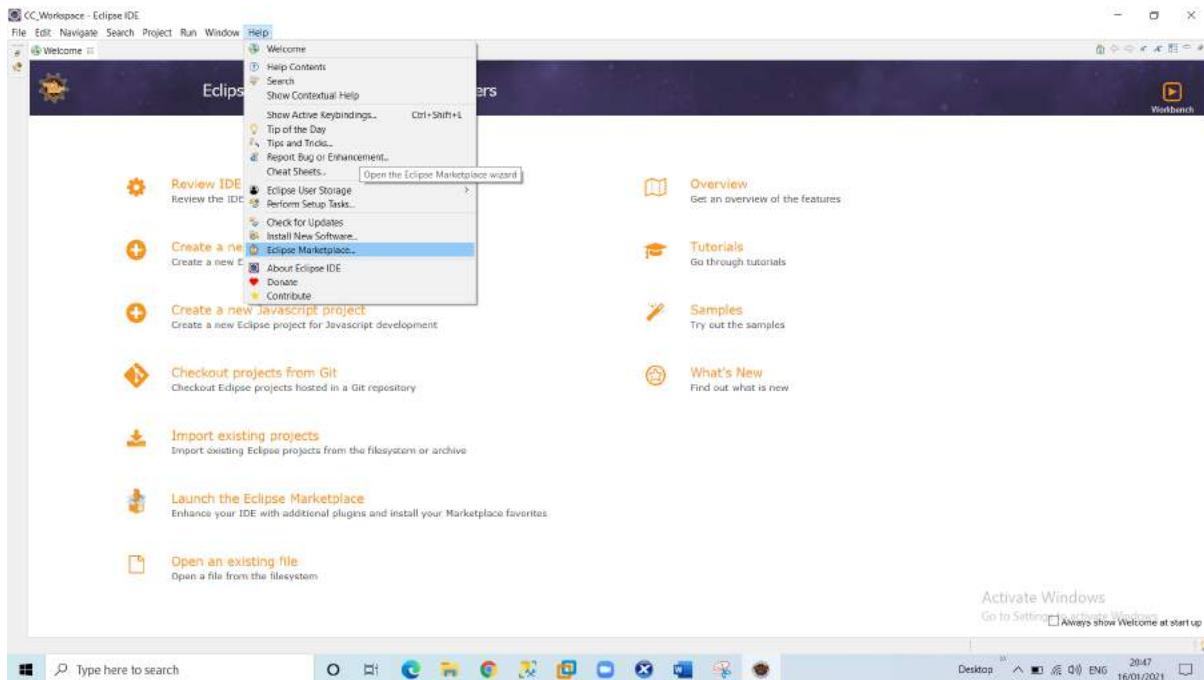
Steps:

1) Download Eclipse IDE for Enterprise Java Developers and Install.

Open Eclipse and Choose your workspace and click on it.



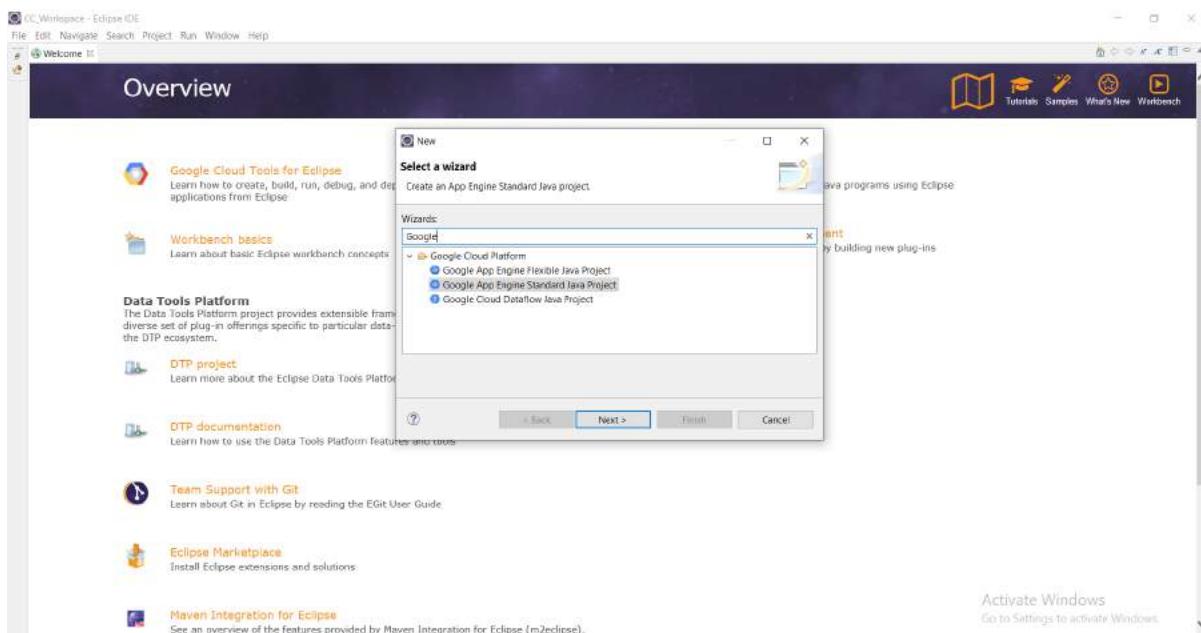
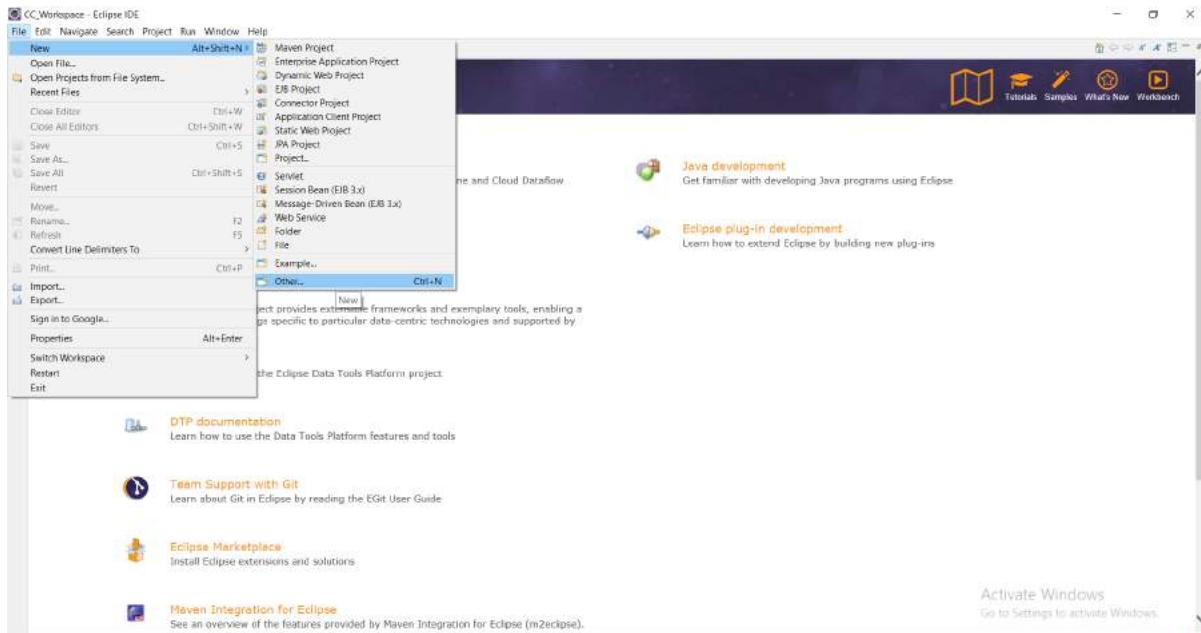
2) Click on >> Help >> Eclipse Marketplace



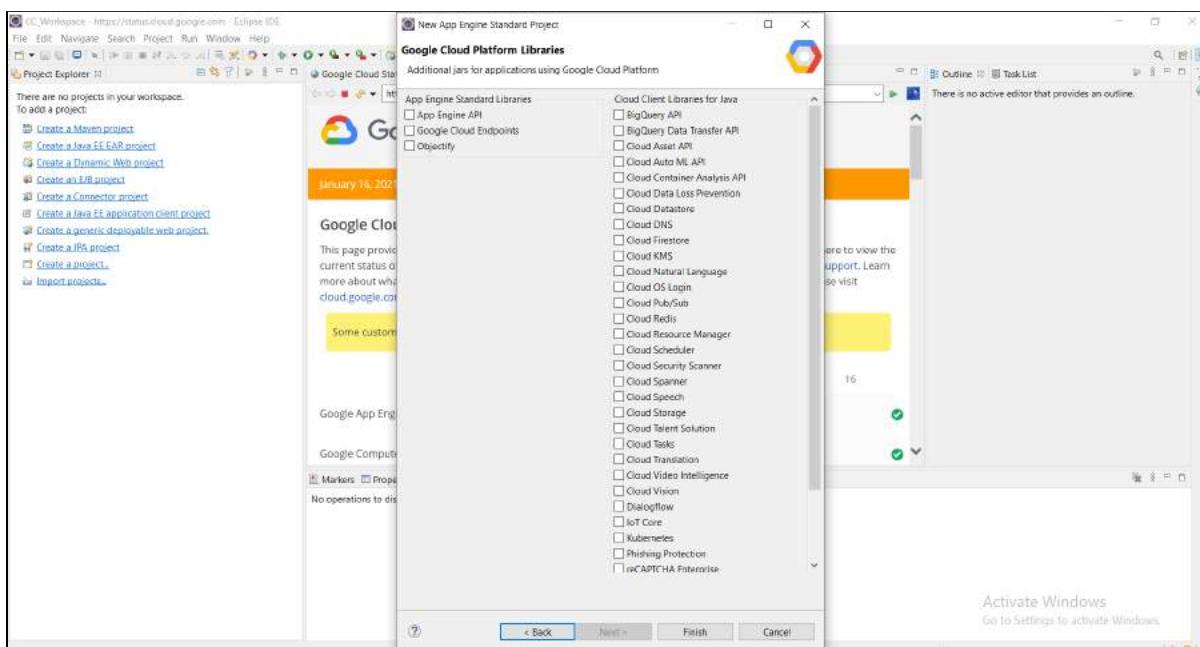
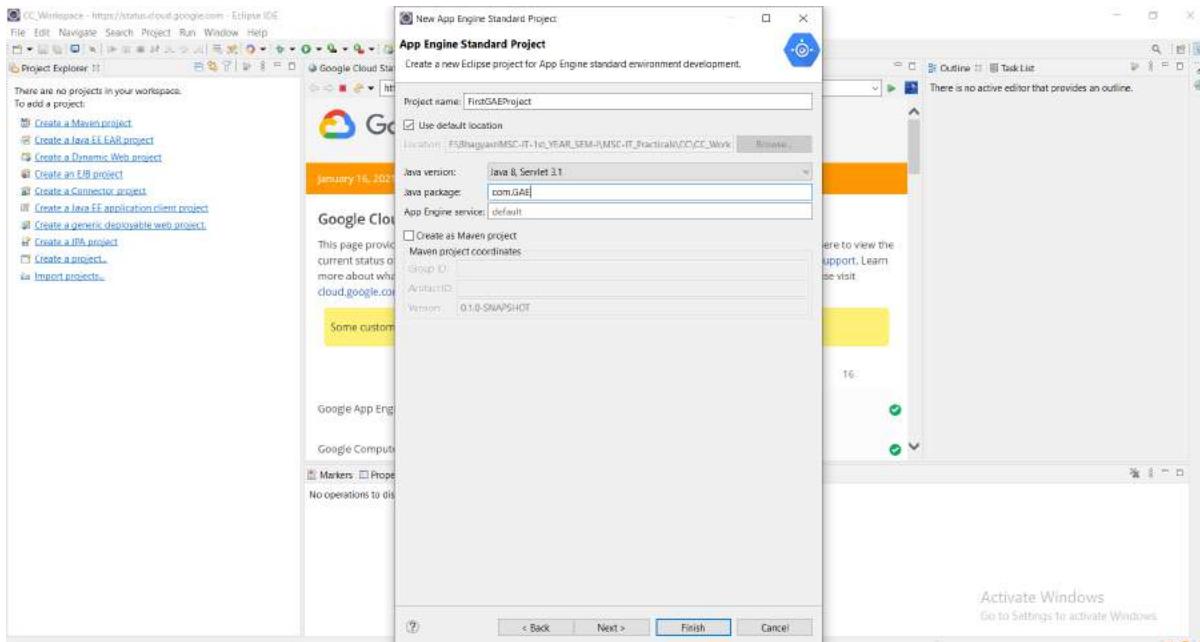
3) In Find Search Box: Search for “Google cloud tools for eclipse” and click on Install button. After complete installation of the plugin restart the Eclipse.



4) Click on ‘File’ menu and select >> New >> Other and search with “Google” keyword and select Google App Engine Standard Java Project under Google Cloud Platform and click on Next.



5) Enter Project Name “FirstGAEProject” and Package Name “com.GAE” and then Click on >> Next >> Finish.



6) Open project hierarchy.

Edit the file as required (Unedited file too can be used. Here the editing is done to “what should be displayed” on the browser). Save the file.

HelloAppEngine.java

```

1 package com.GAE;
2
3 import java.io.IOException;
4
5 @WebServlet(
6     name = "HelloAppEngine",
7     urlPatterns = {"/*google app engine"})
8 public class HelloAppEngine extends HttpServlet {
9
10    /**
11     *
12     */
13
14    private static final long serialVersionUID = 1L;
15
16    @Override
17    protected void doGet(HttpServletRequest request, HttpServletResponse response)
18        throws IOException {
19
20        response.setContentType("text/plain");
21        response.setCharacterEncoding("UTF-8");
22
23        response.getWriter().print("Hello App Engine!");
24        response.getWriter().print("\r\n");
25        response.getWriter().print("This is Mac IT Part 1 from 2020-2021 batch\r\n");
26    }
27
28 }
29
30
31
32

```

Activate Windows
Go to Settings to activate Windows.

index.html

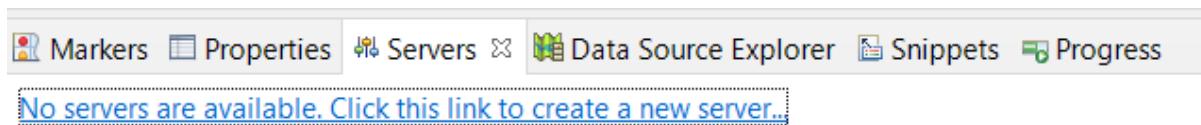
```

1 <!DOCTYPE html>
2 <html xmlns="http://www.w3.org/1999/xhtml" lang="en">
3   <head>
4     <meta http-equiv="content-type" content="application/xhtml+xml; charset=UTF-8" />
5     <title>Hello App Engine</title>
6   </head>
7
8   <body>
9     <h1>Hello App Engine!</h1>
10
11   <table>
12     <tr>
13       <td colspan="2" style="font-weight:bold;">Available Servlets:</td>
14     </tr>
15     <tr>
16       <td><a href='/*google app engine'>Google App Engine</a></td>
17     </tr>
18   </table>
19
20 </body>
21
22 </html>

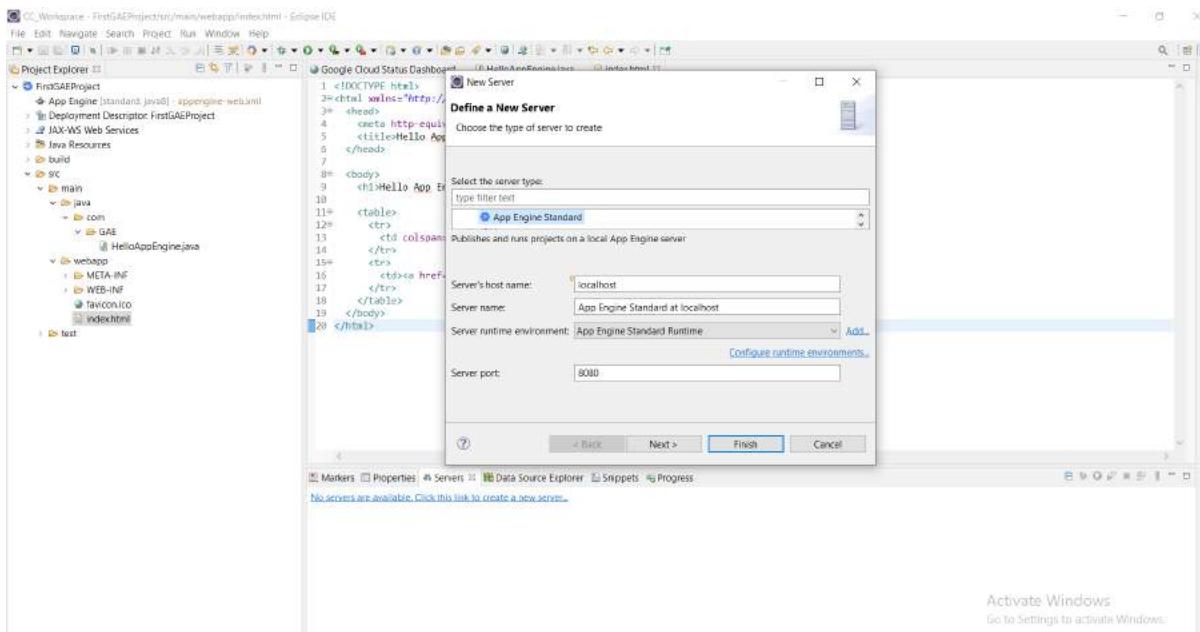
```

Activate Windows
Go to Settings to activate Windows.

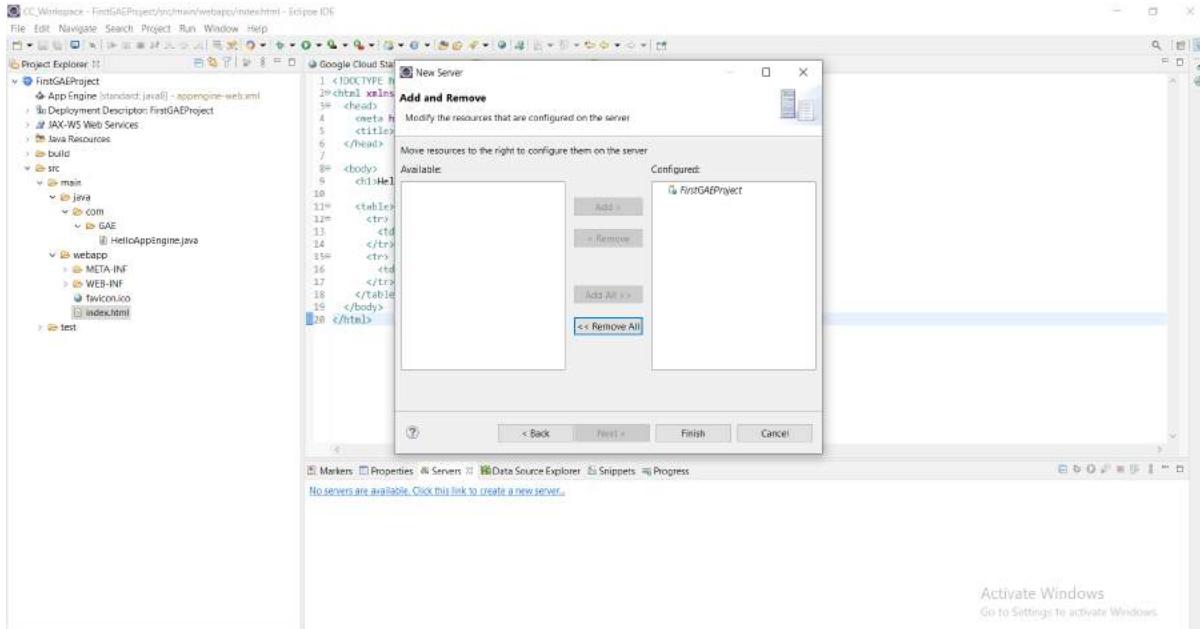
7)Configuring “App Engine Standard” Server. Click on the link to create a new server under **Server tab**.



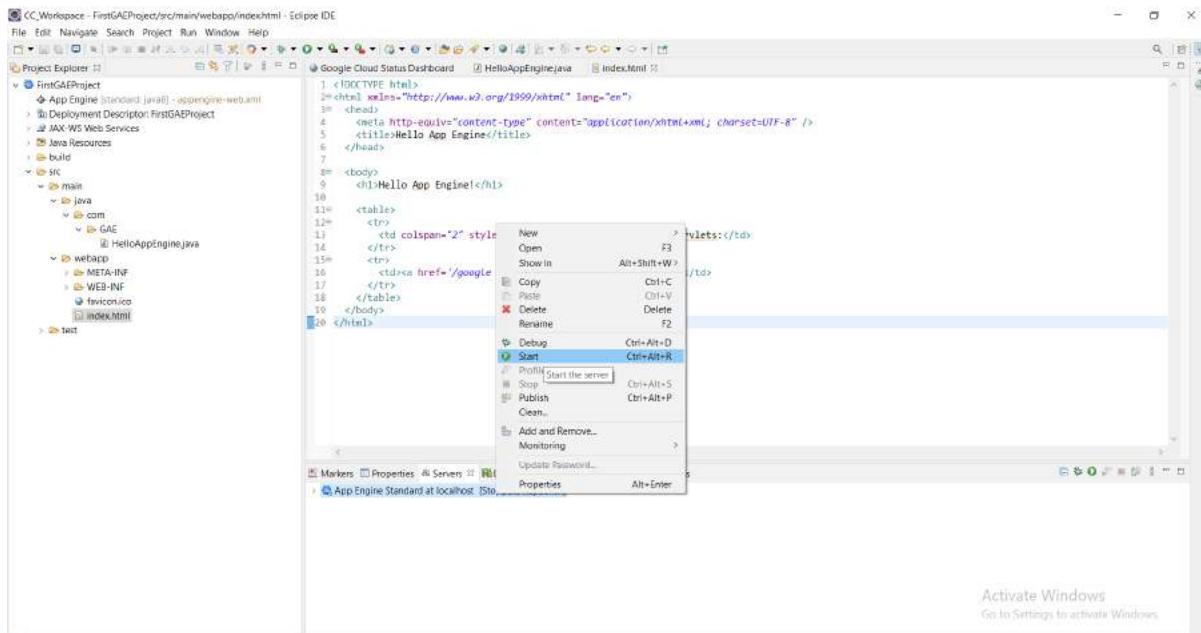
Click Next.



Add the “FirstGAEProject” and click on “Finish”.



8)Start the “App Engine Standard” server.



9) In the browser (Here, Google Chrome) type the address as “localhost:8080” which is "Default" for http protocol



Click on this link “Google App Engine”. It will redirect with the address “localhost:8080/google app engine”.



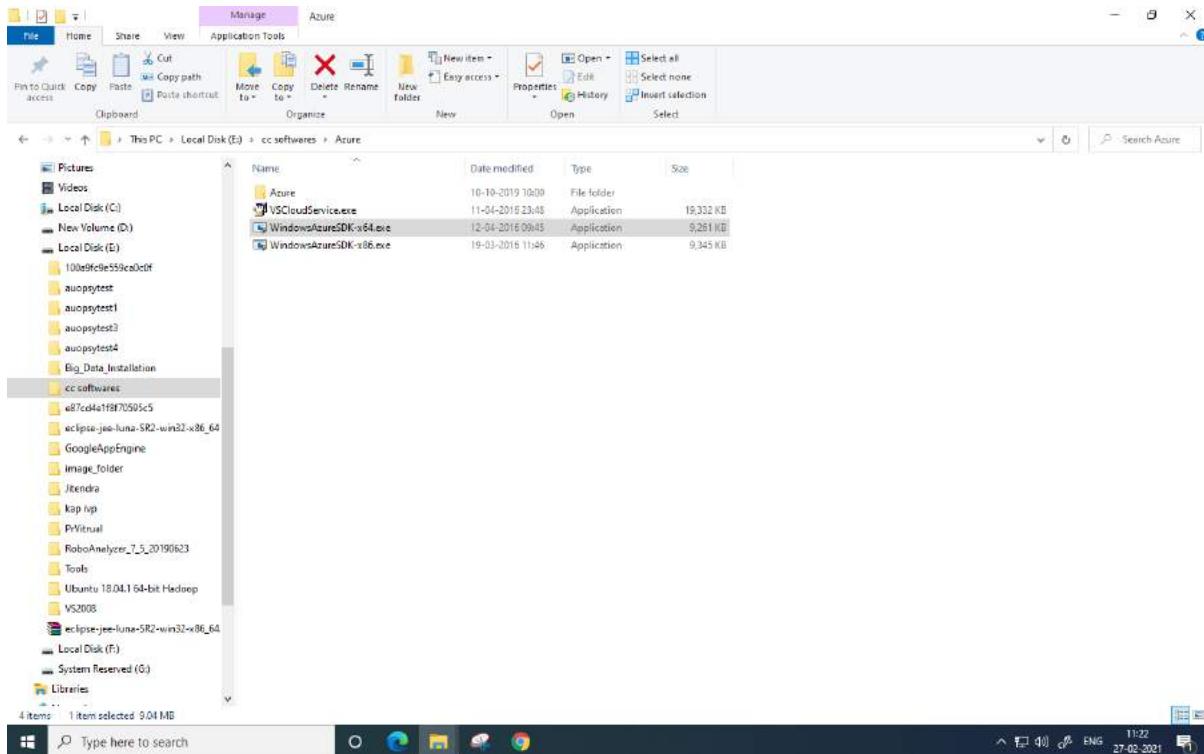
Activate Windows
Get to Settings to activate Windows.

Practical 4

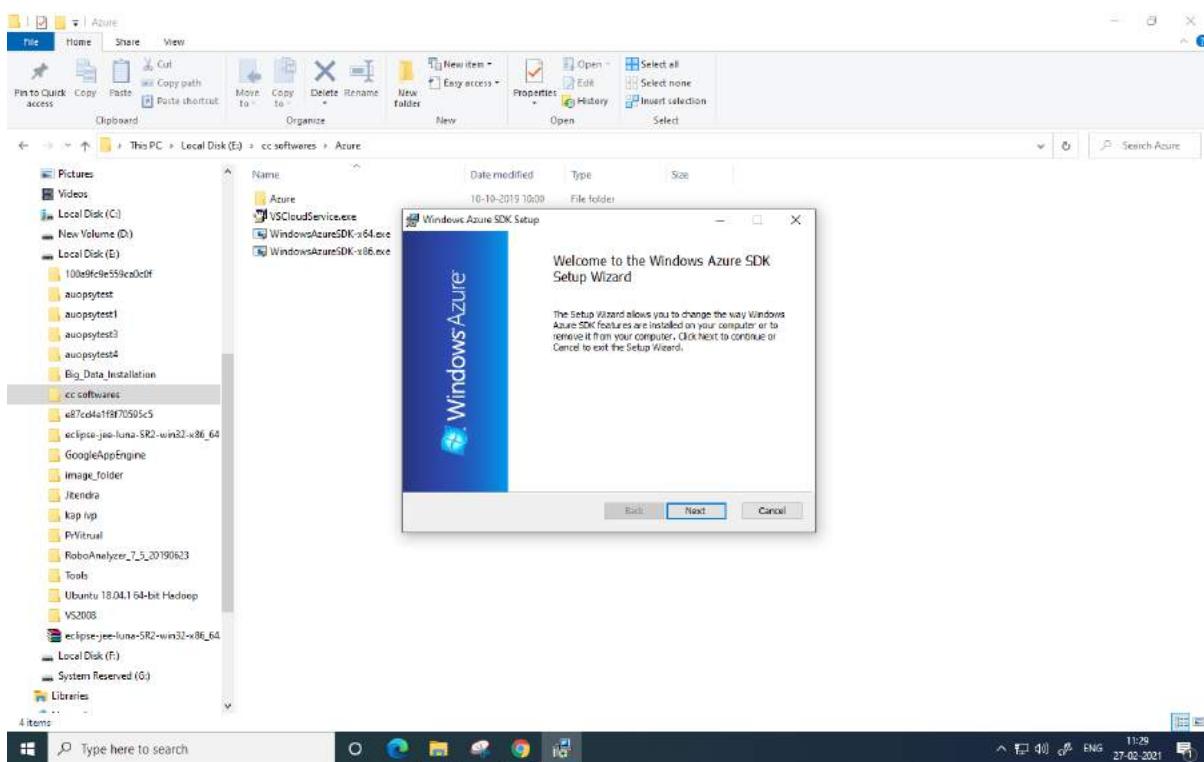
Developing application for Windows Azure

Step 1:

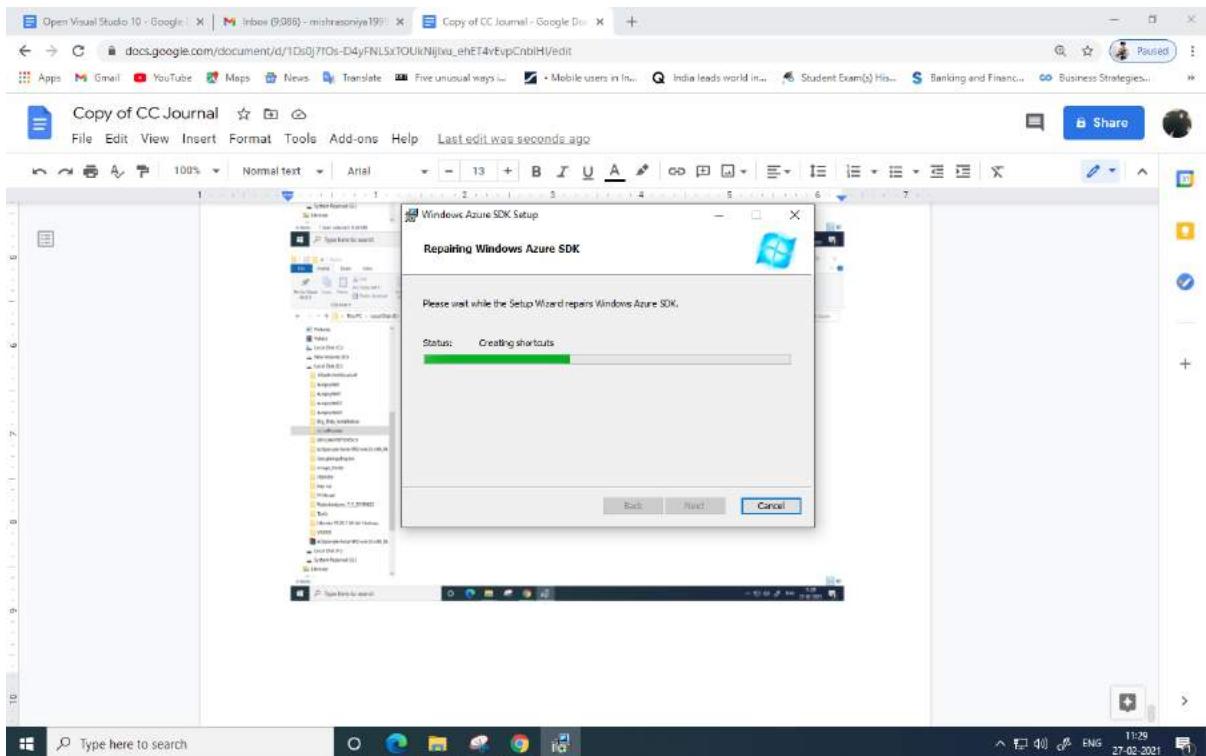
To develop an application of Azure on Visual Studio install the “Microsoft Azure SDK for .Net (VS 2010)



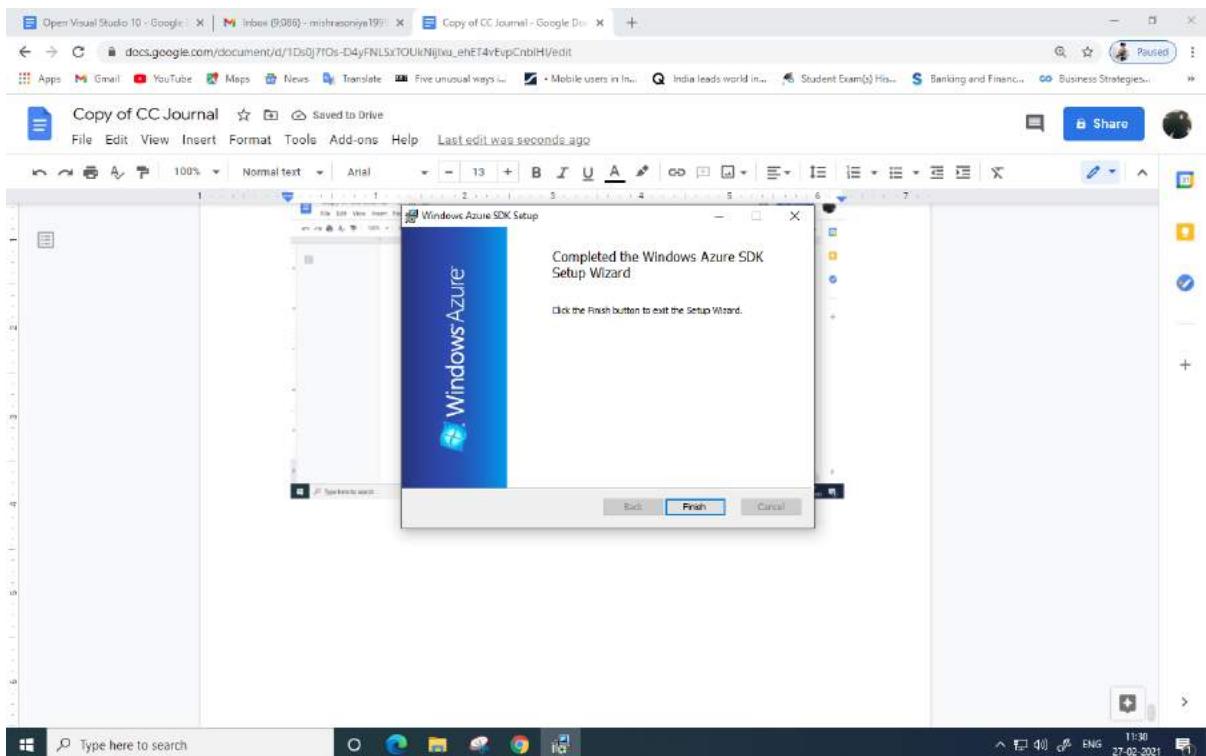
Click on Next



After installation

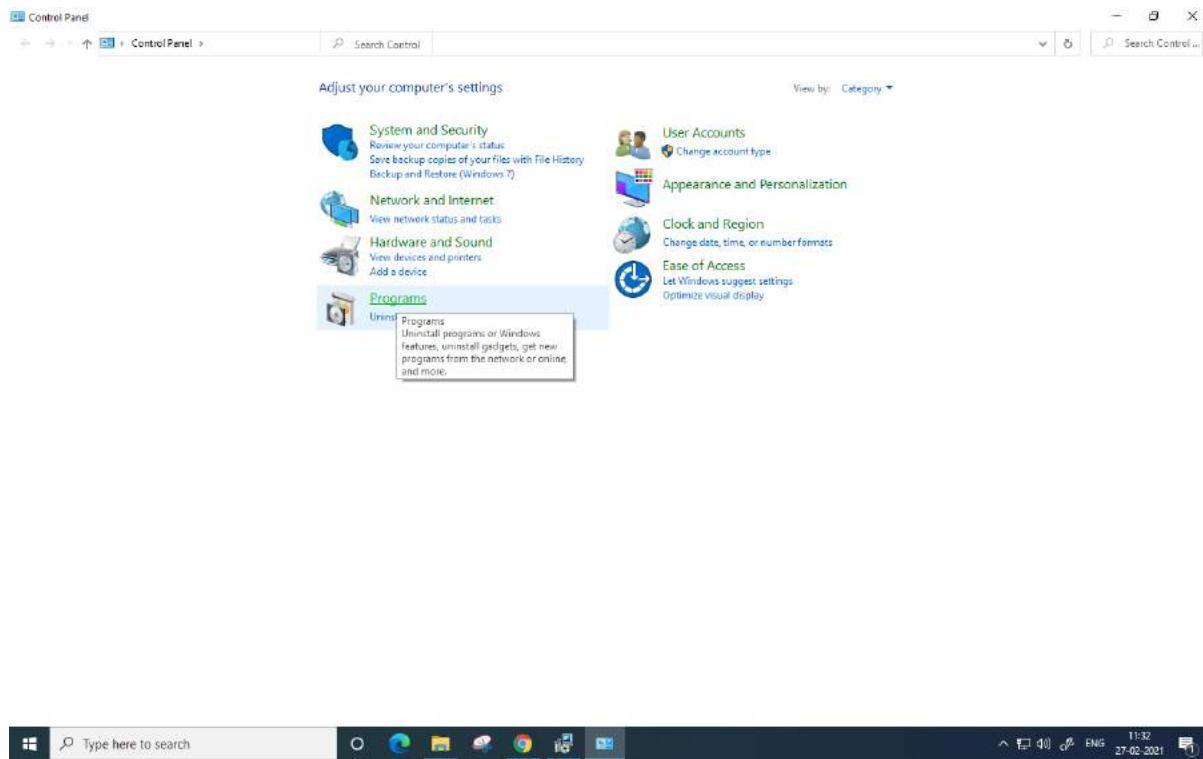


Click On Finish

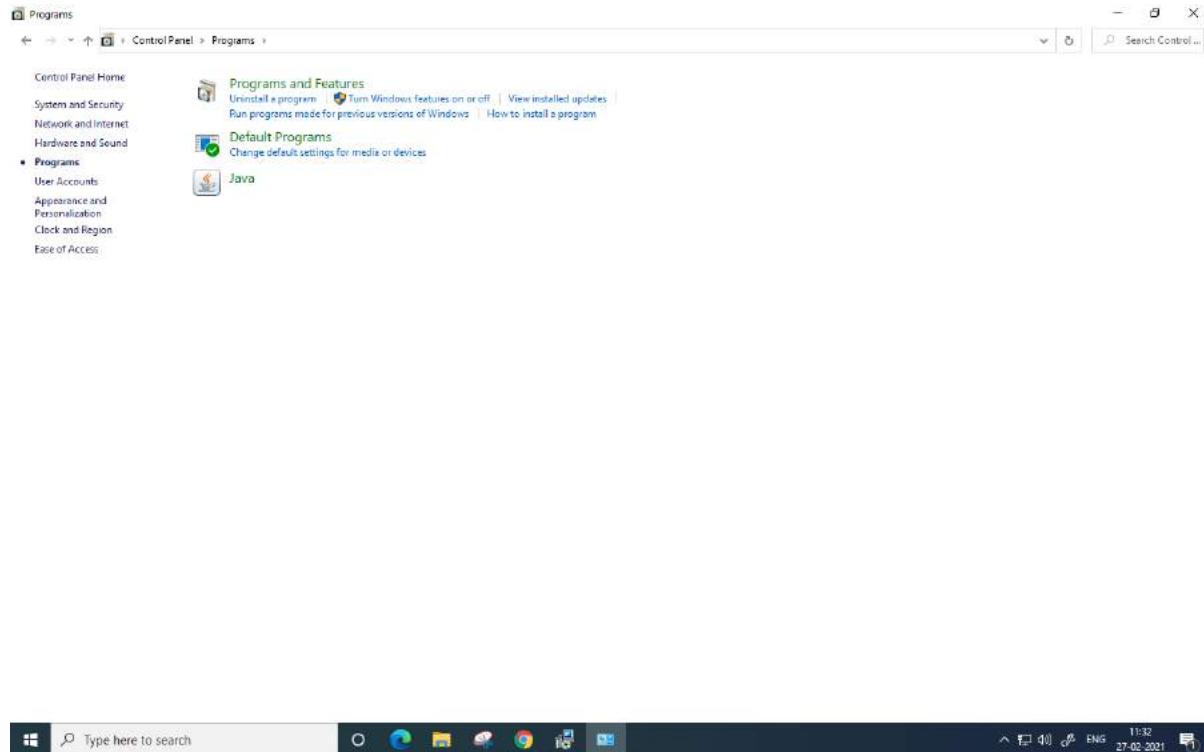


Step 2:

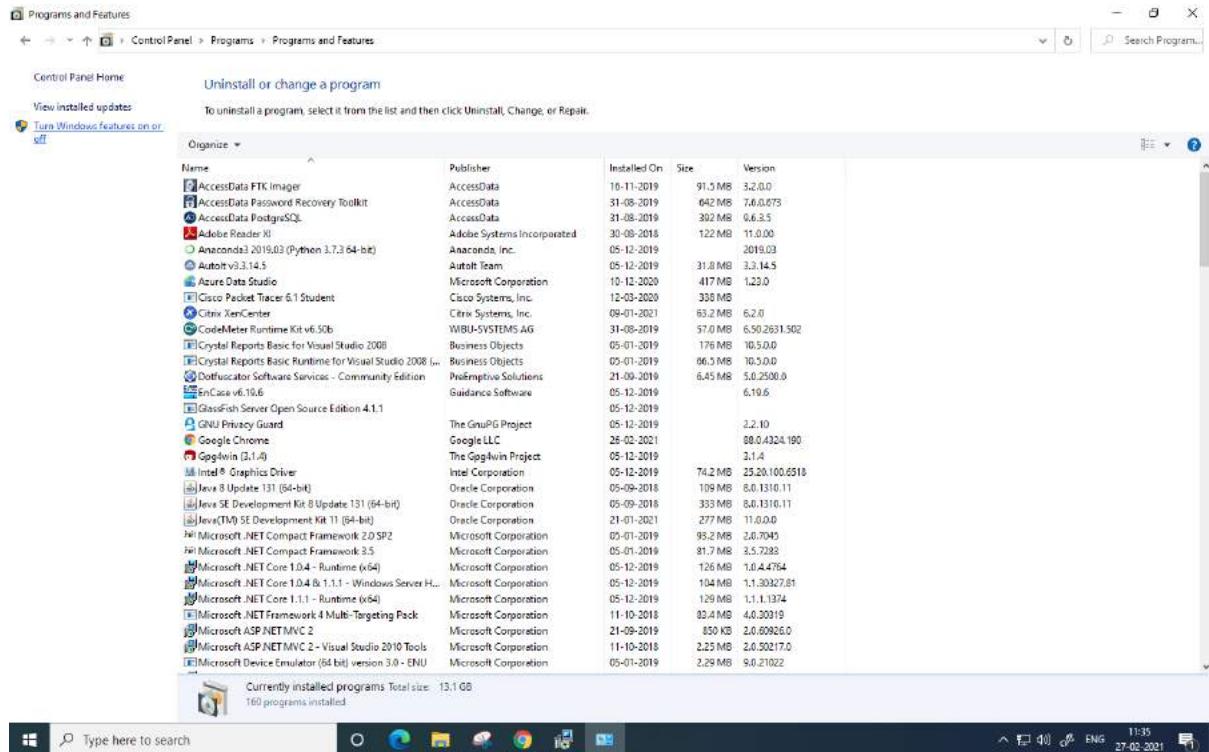
Turn on windows features ON or OFF
Go to control panel and click on programs



Click on Programs and Features



On left side bar
Go to Turn Windows features on or of



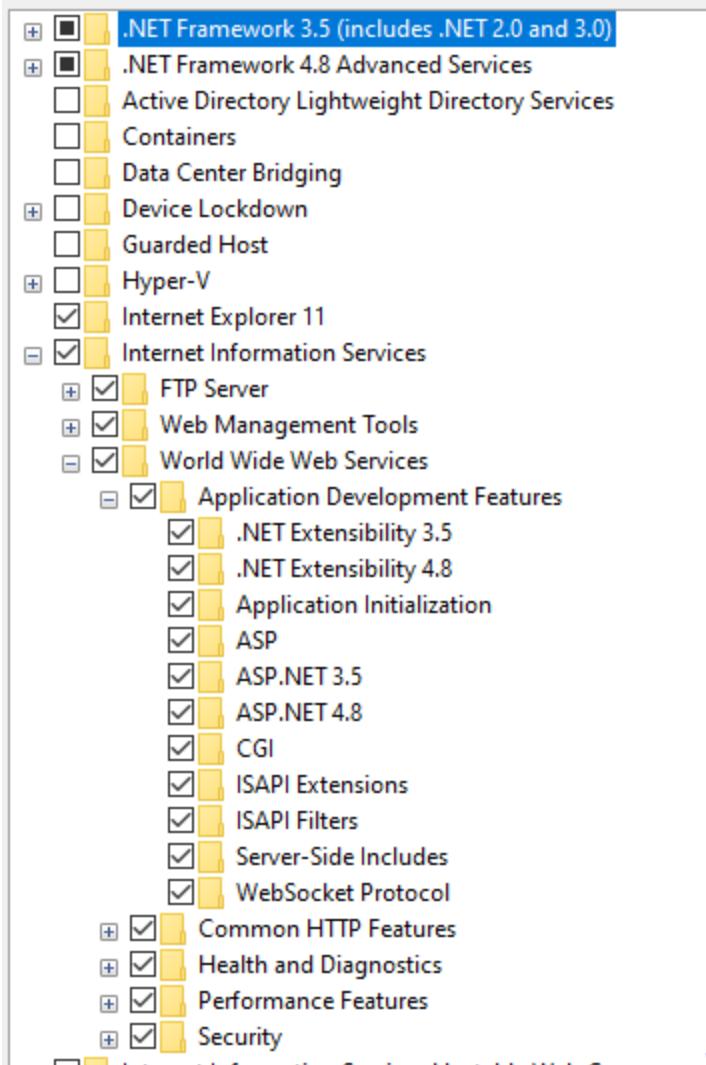
A window will open

Under internet information services select the Asp.Net related checkbox and then click on ok.

And Restart the Desktop/Laptop

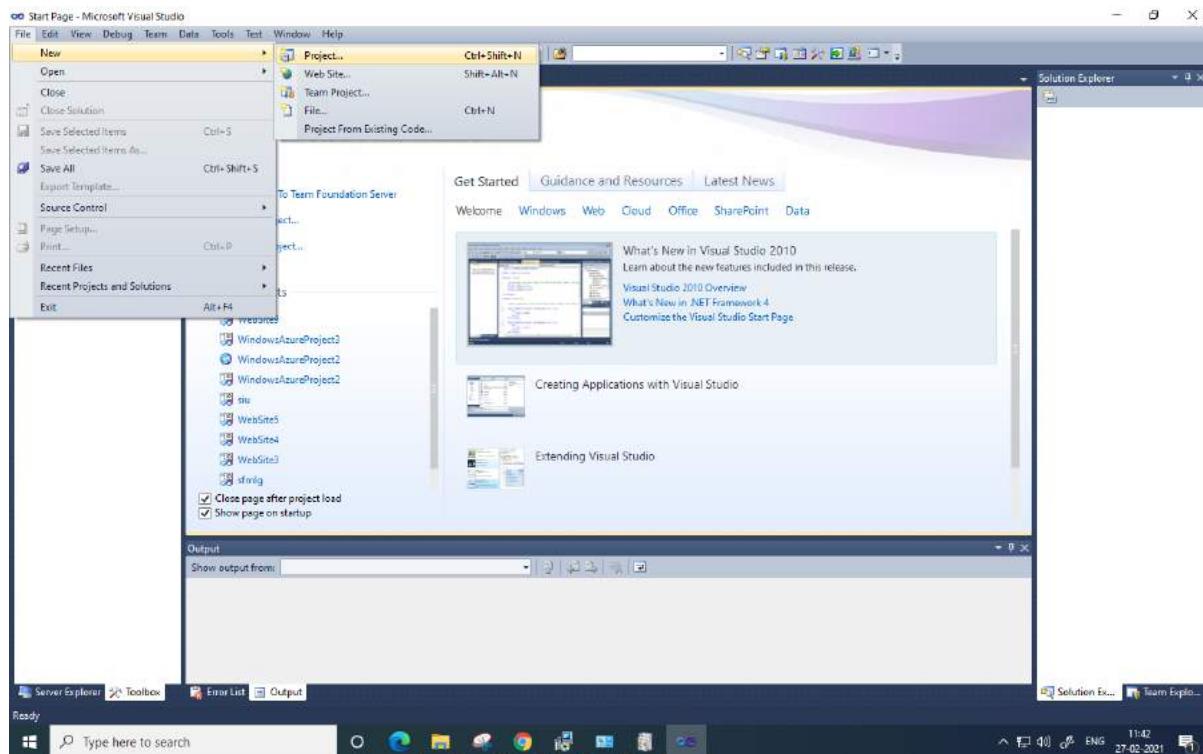
Turn Windows features on or off

To turn a feature on, select its check box. To turn a feature off, clear its

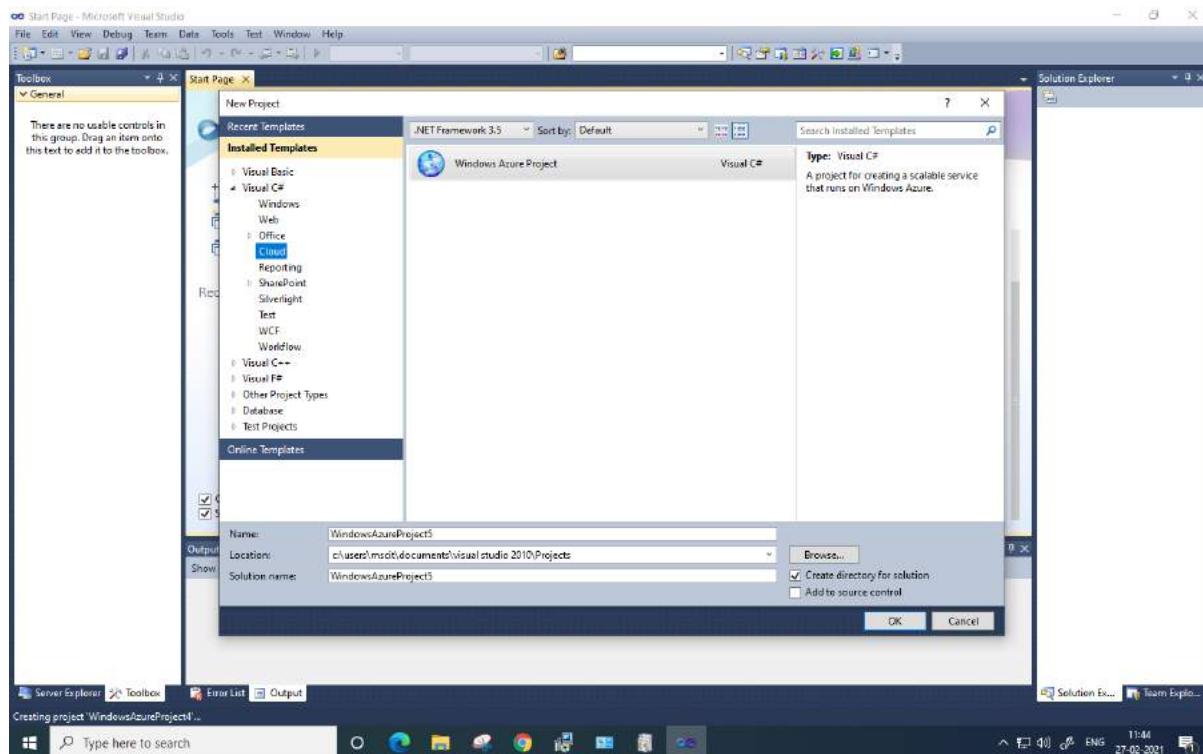


Step 3:

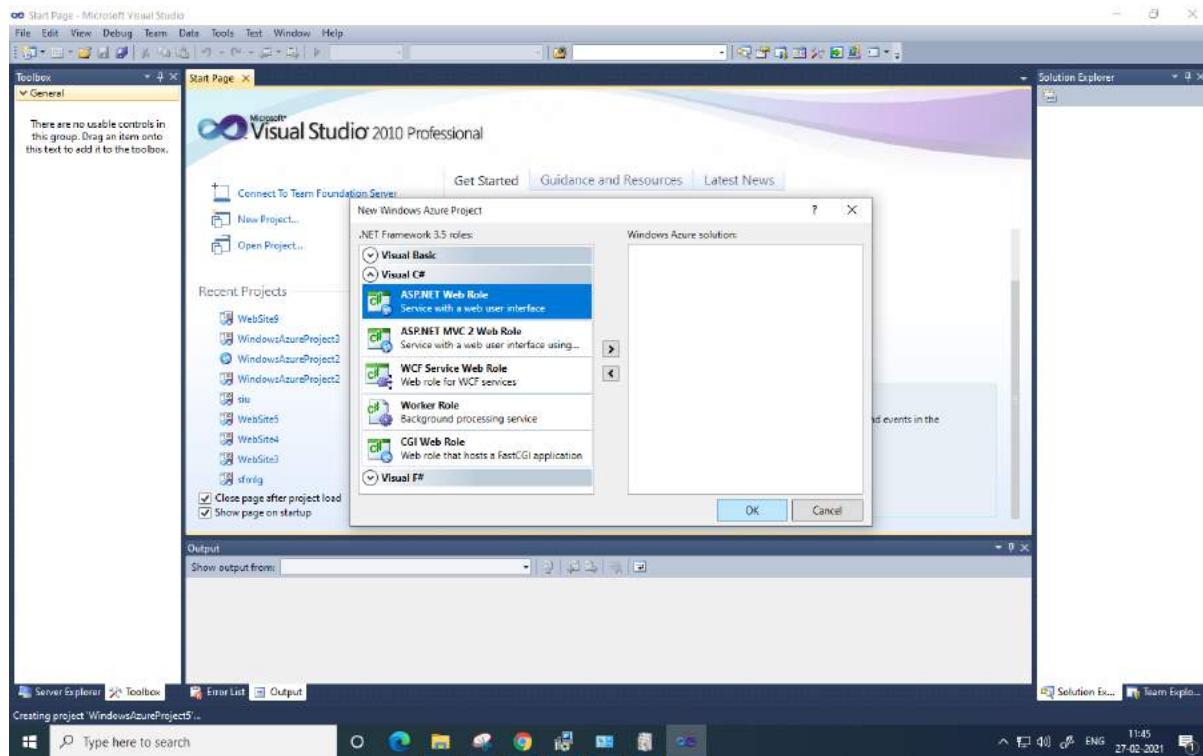
Now , Start the visual Studio 2010 and Go to File -> New Project



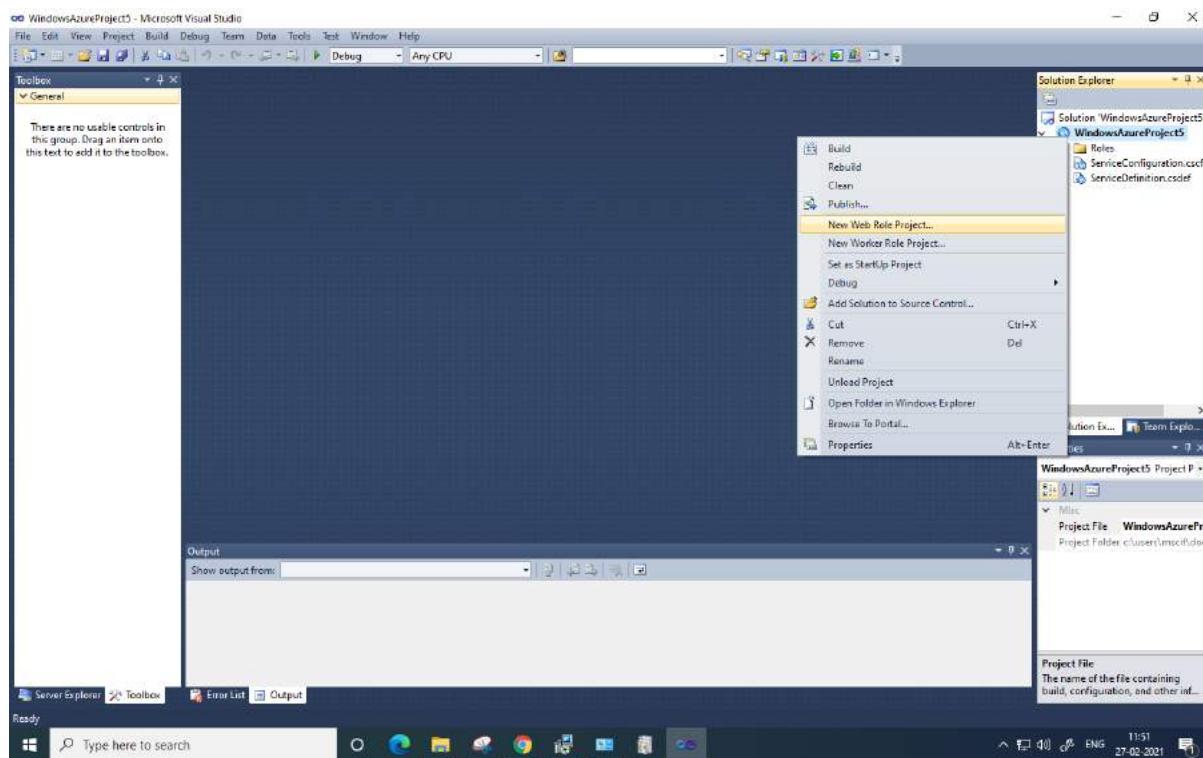
]Click on Windows Azure Project and Click Ok



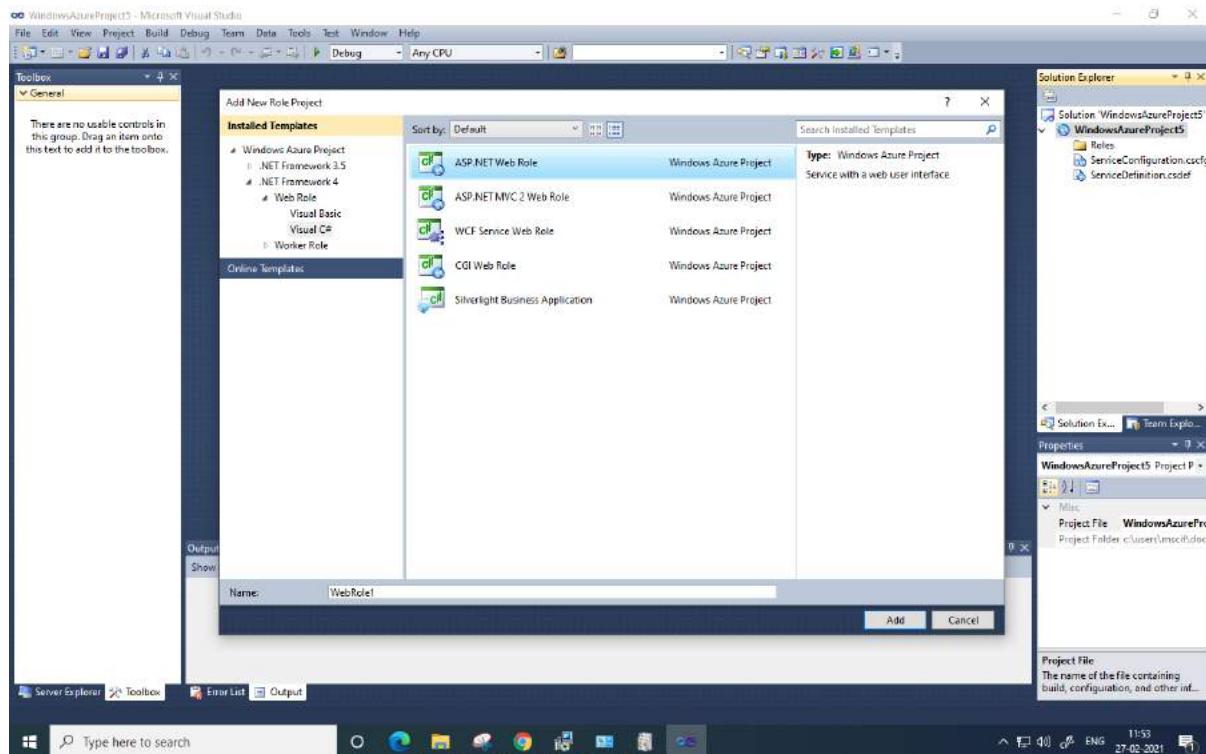
Click On ASP.Net Web Role and Click Ok



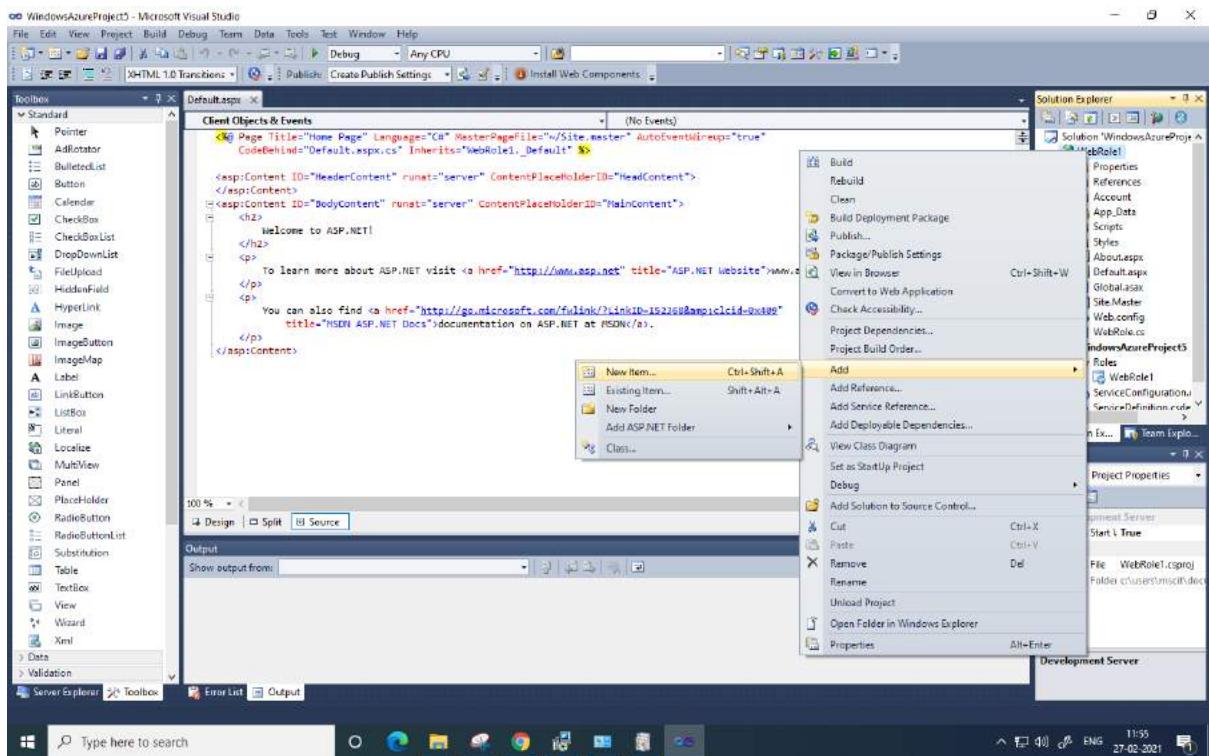
Go to New Web Role Project



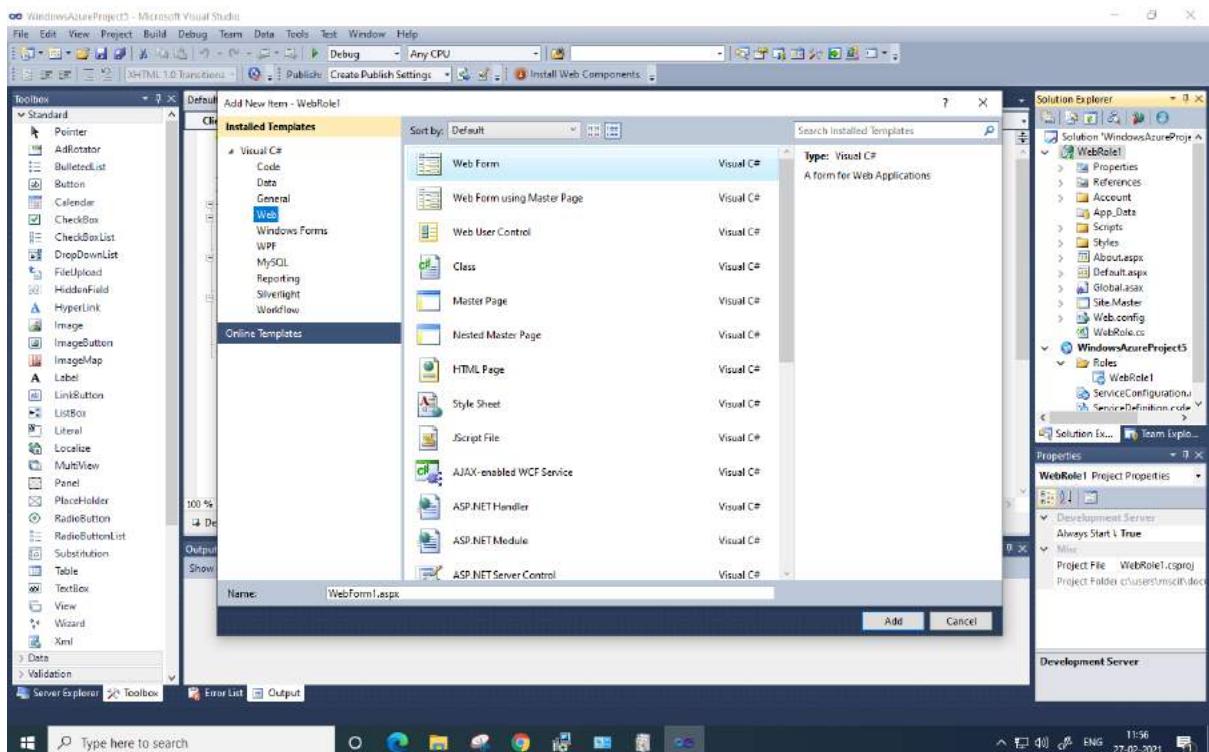
Step 4:
Select ASP.Net Web Role and Click Ok



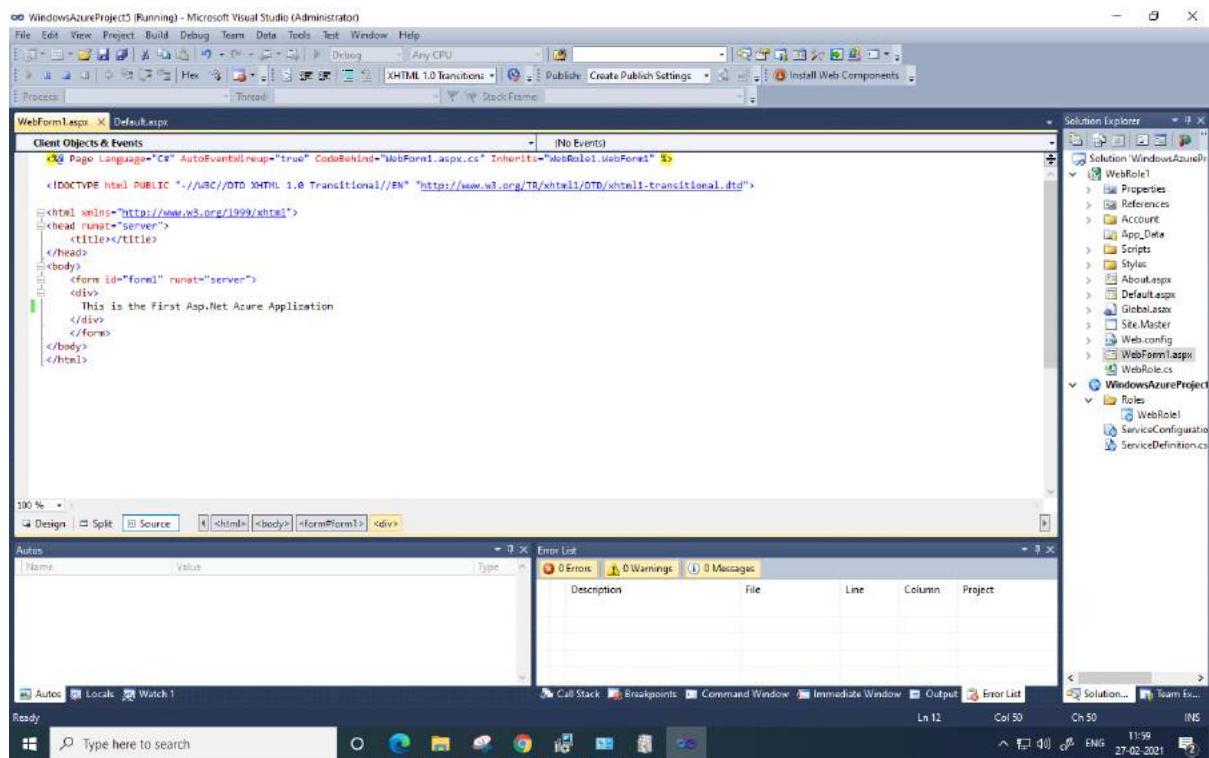
Step 5
Click On WebRole1->Add->New Item



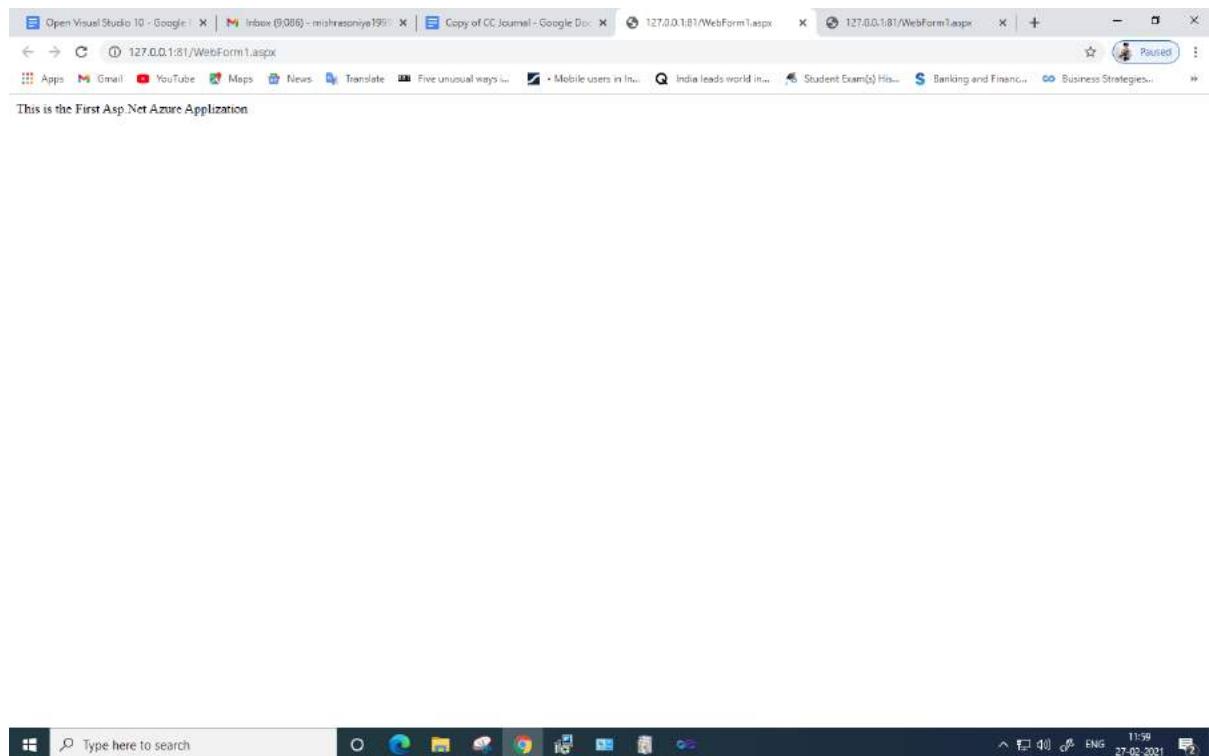
Select Web Form -> Click Add



Step 6: Write you text in WebForm created



Step 7: Go to Debug Menu -> Start Debugging

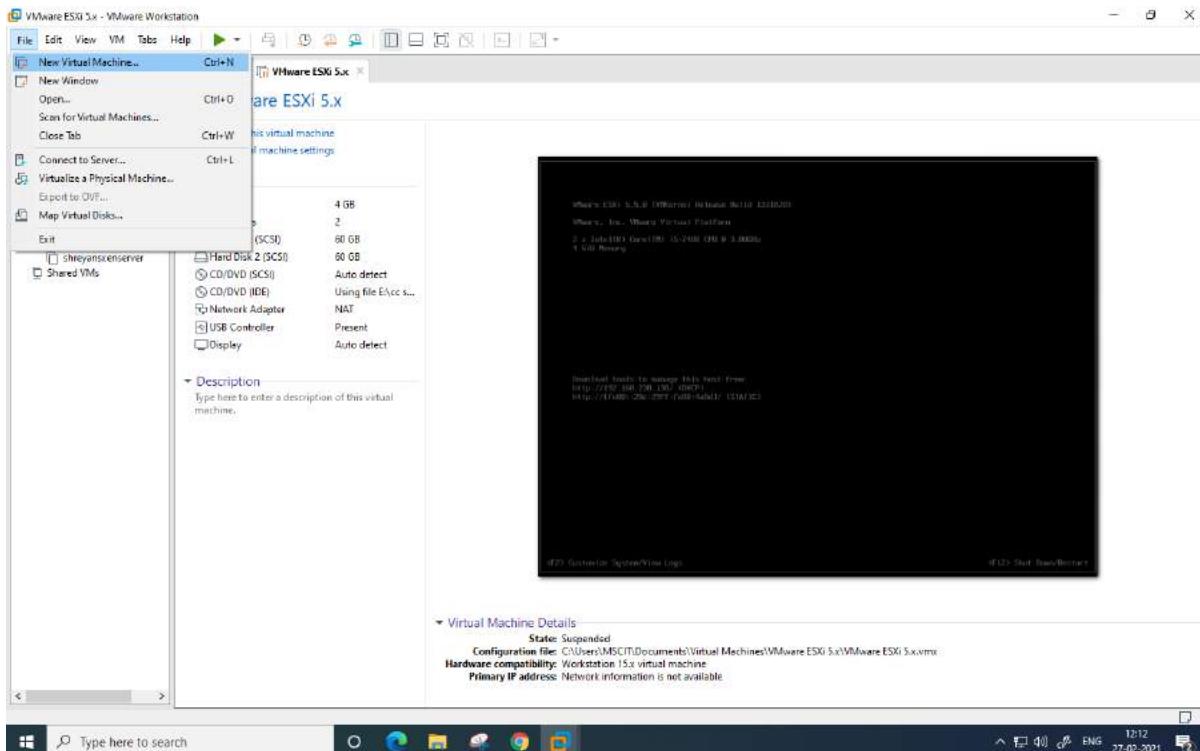


Practical 5

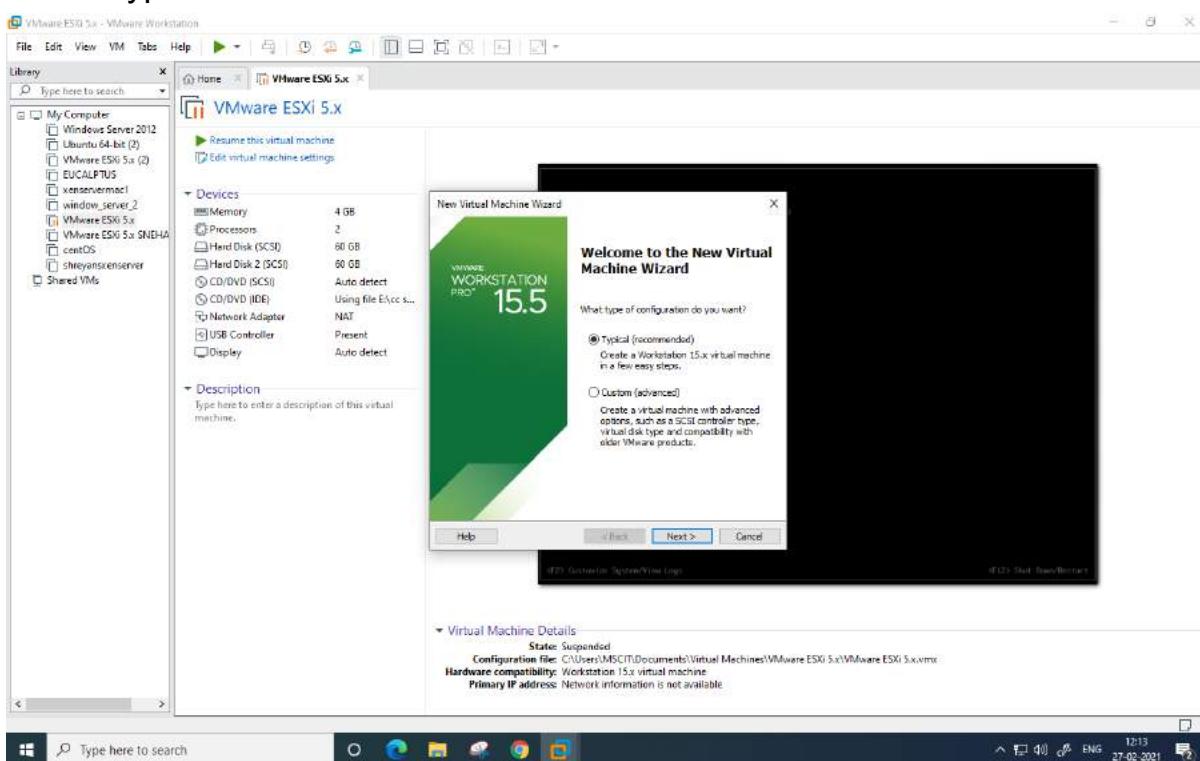
IMPLEMENT ESXi SERVER

Step 1:

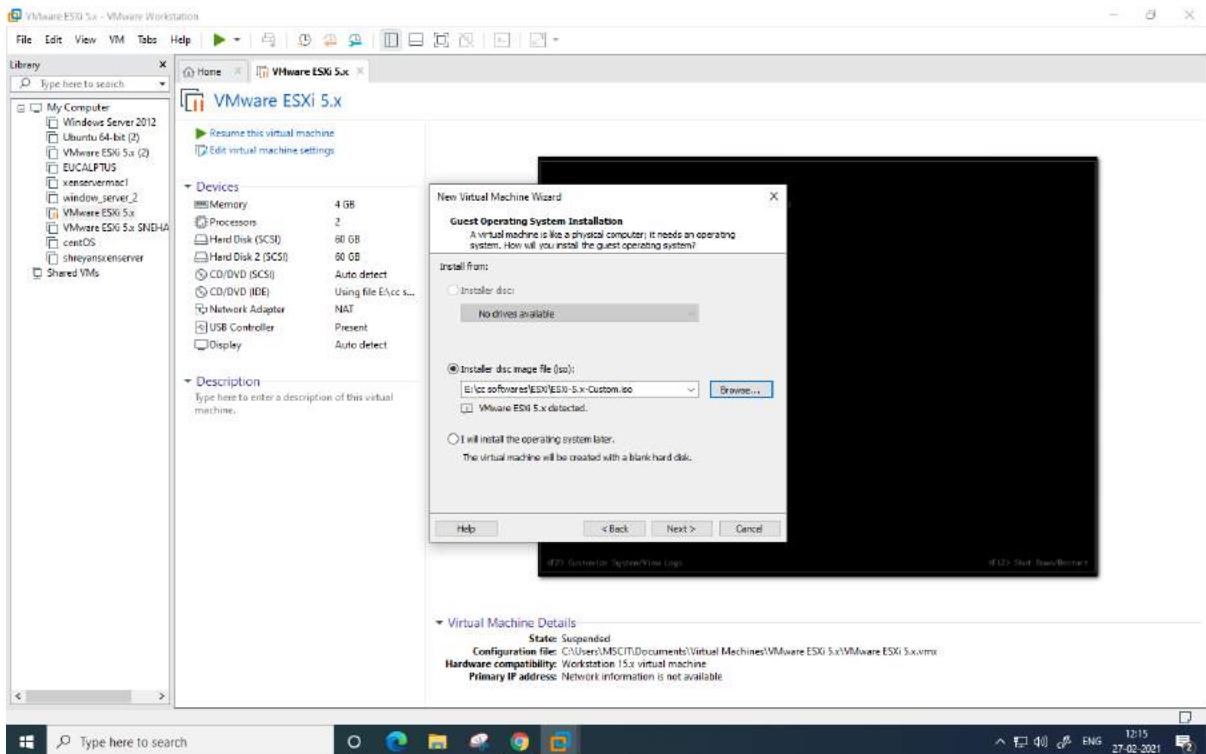
Open VMware Workstation -> And Select Create New Virtual Machine



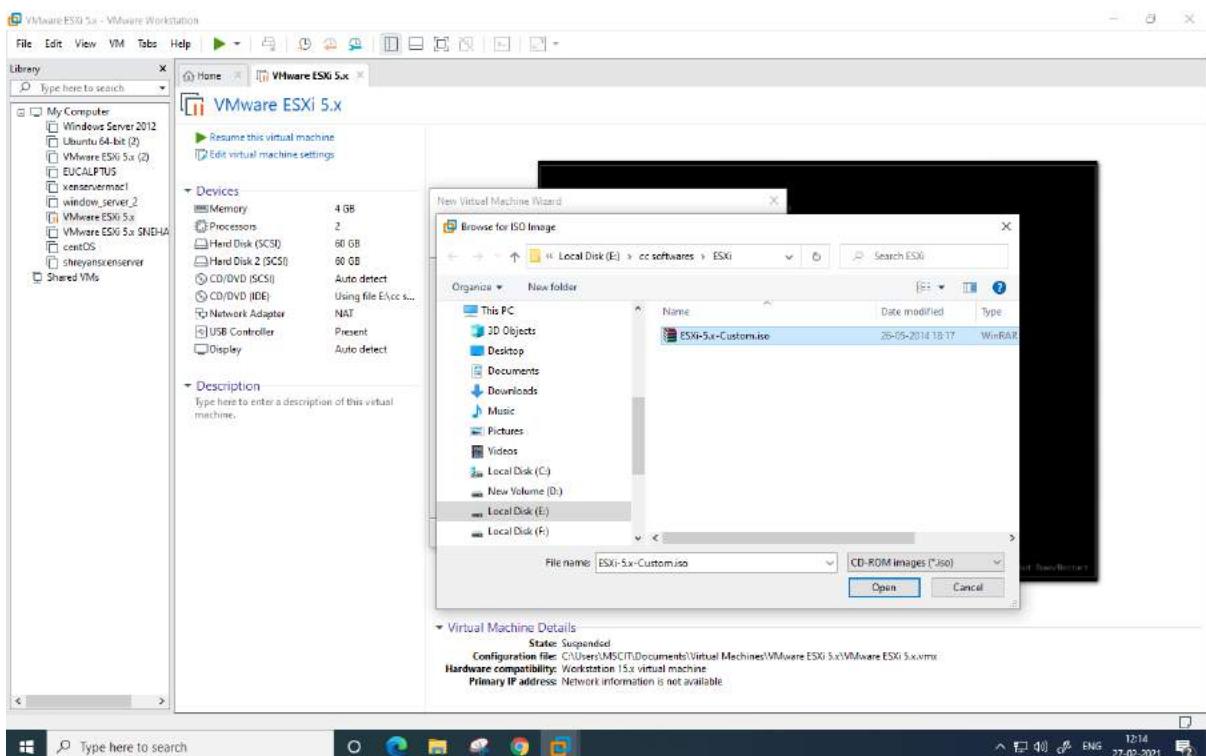
Select Typical and Click Next



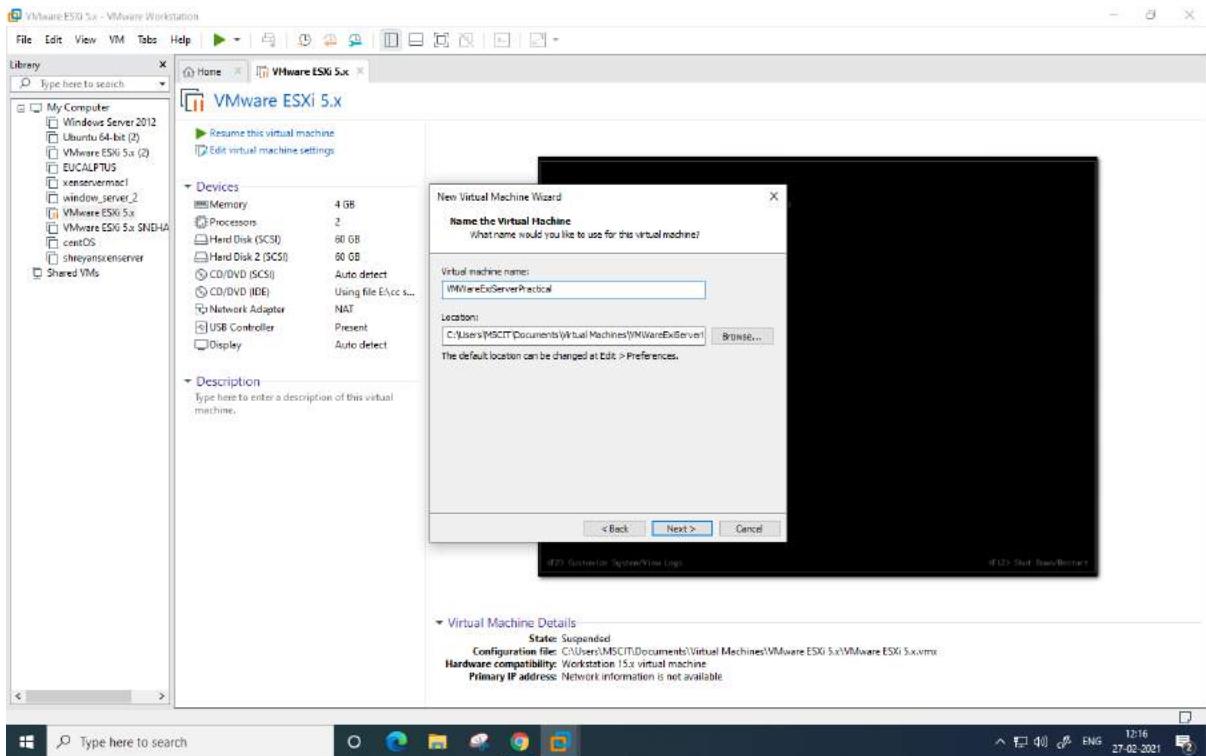
Select Installer disc image file



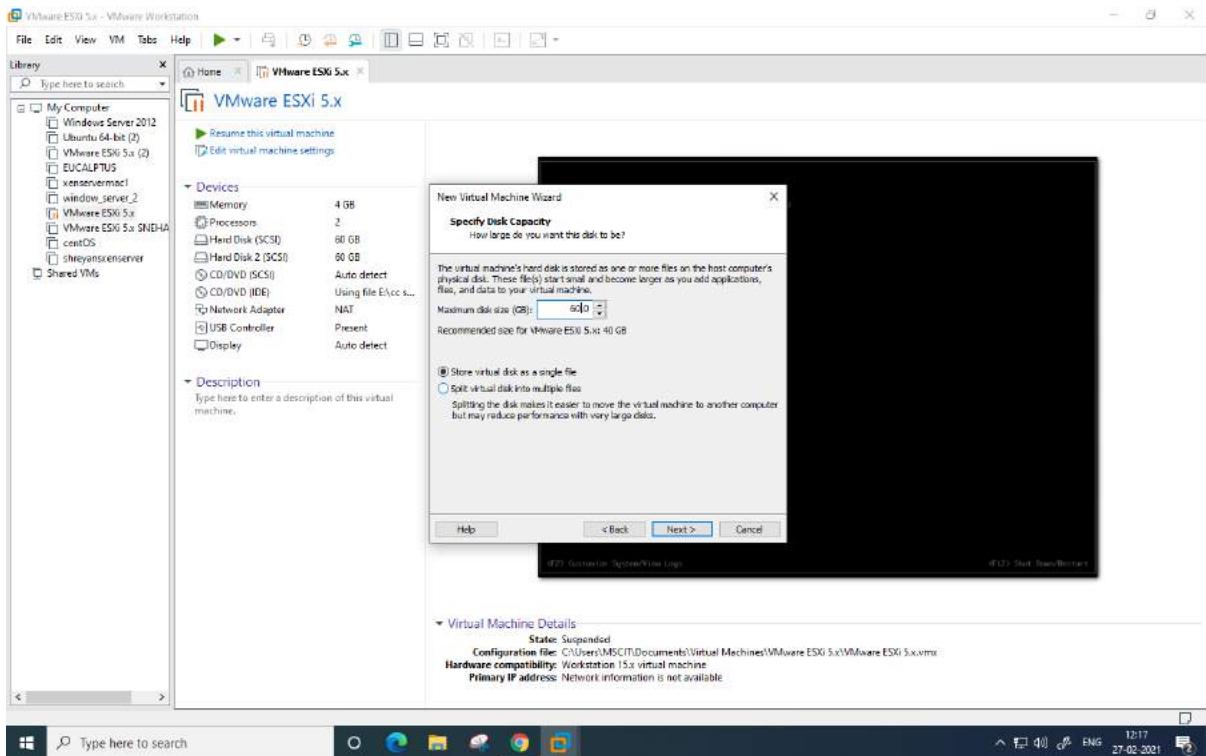
Browse Exsi5x Custom.iso and click Next



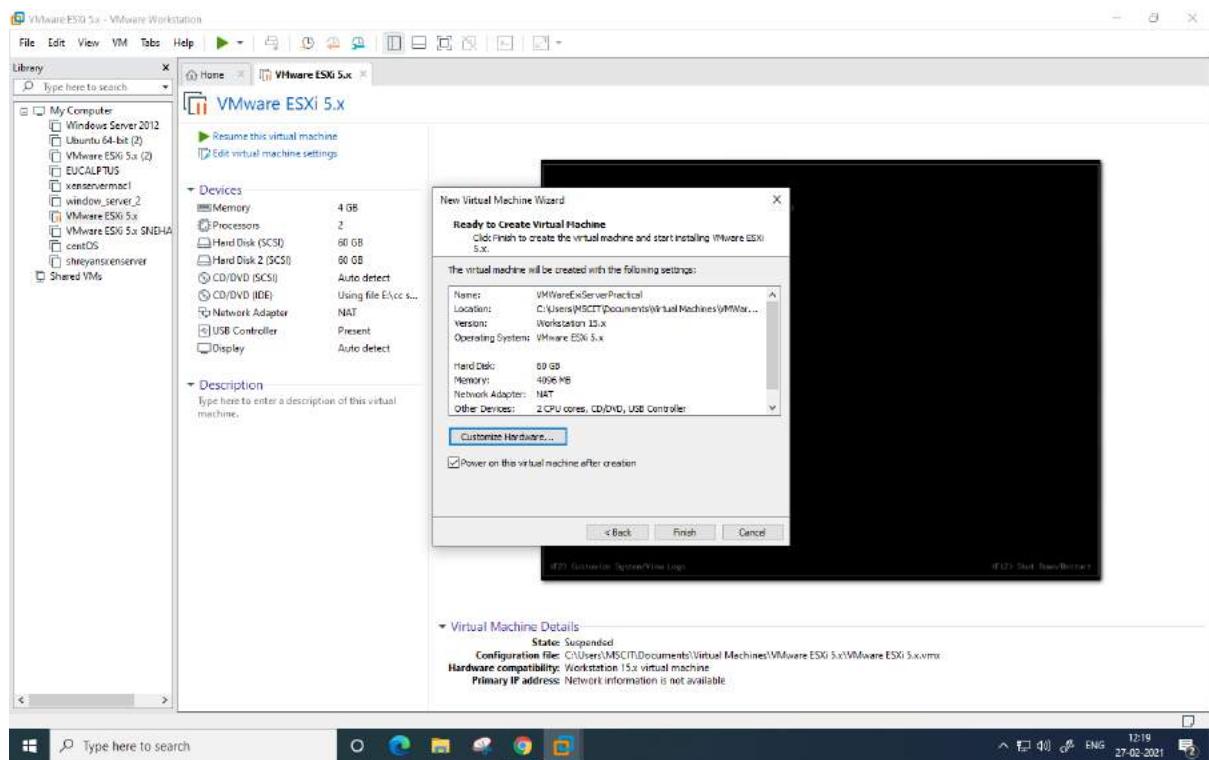
Give your name of VMWare Server and Click Next



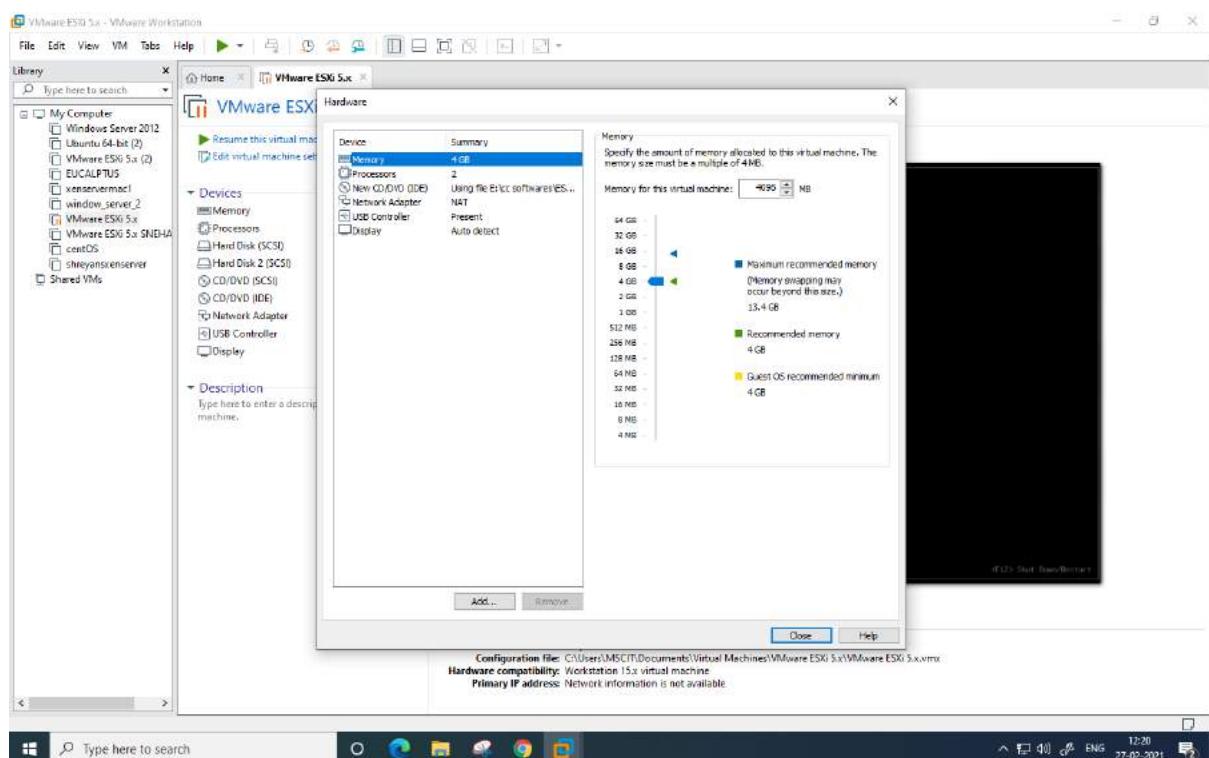
Change maximum disk size file to 60GB and check -> Store disk as single file
And click on next



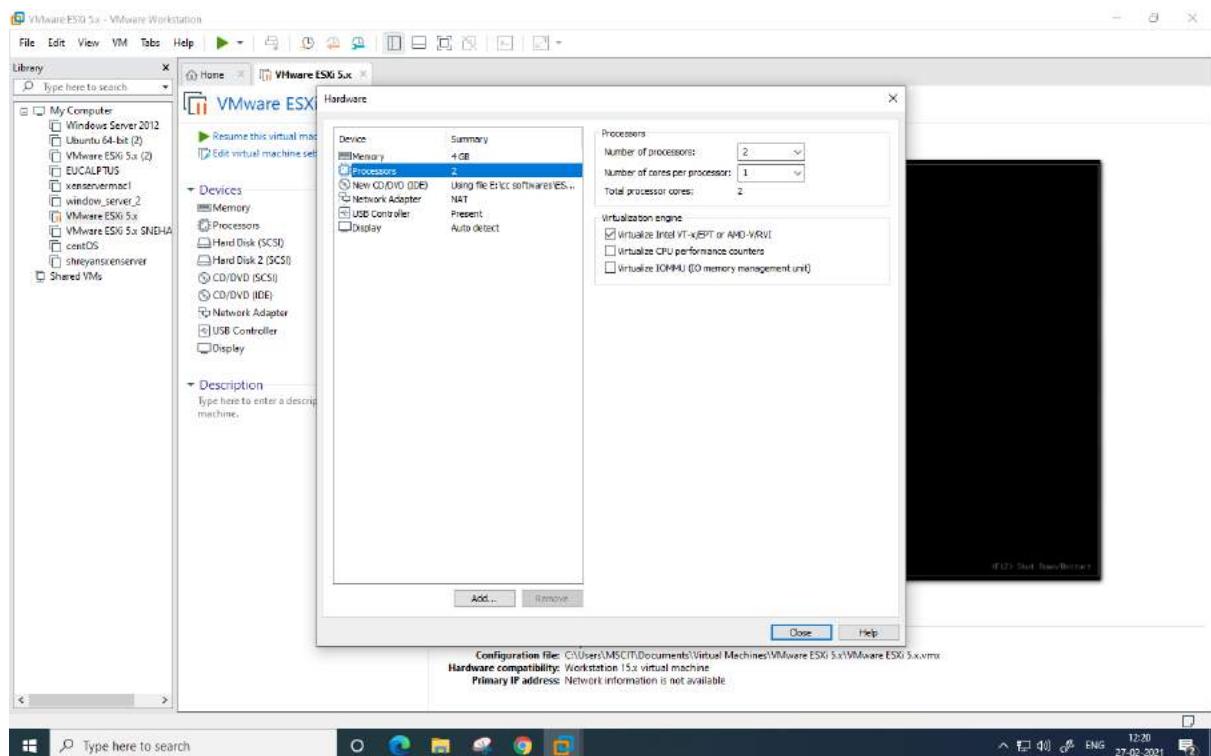
Click On Customize Hardware



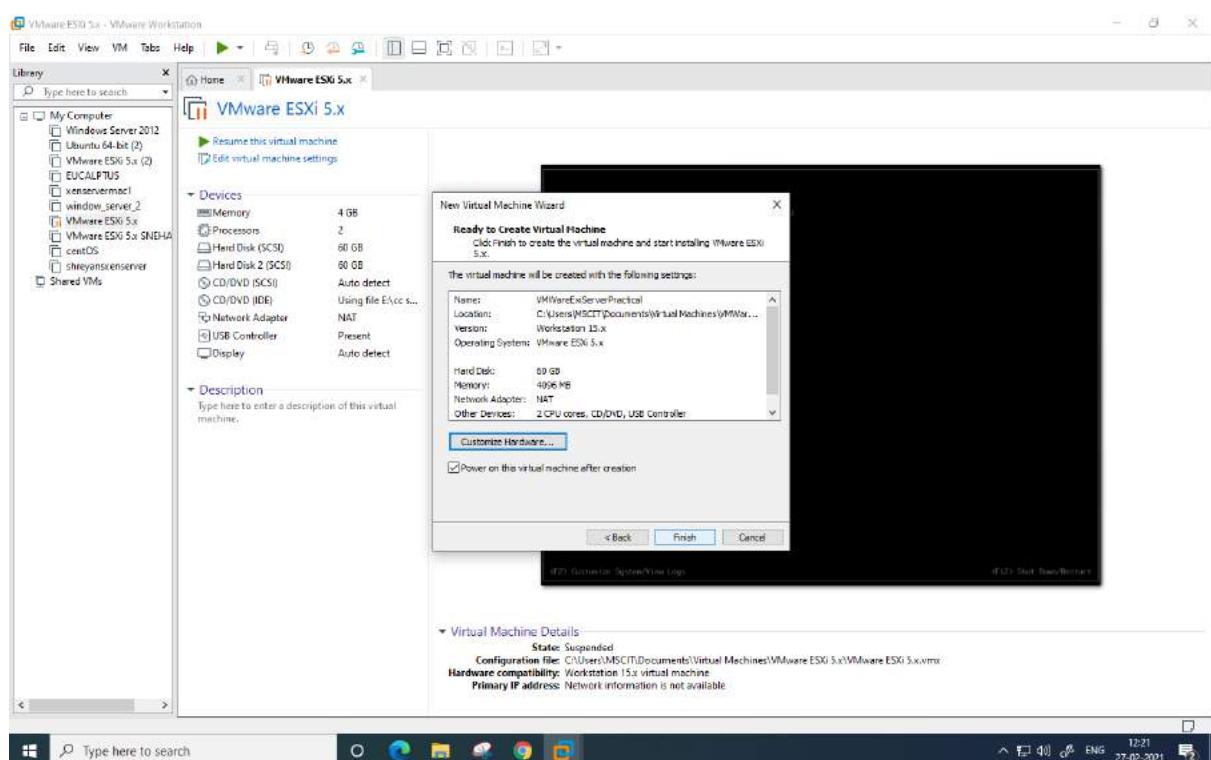
Change the Memory of the virtual machine to 4 GB



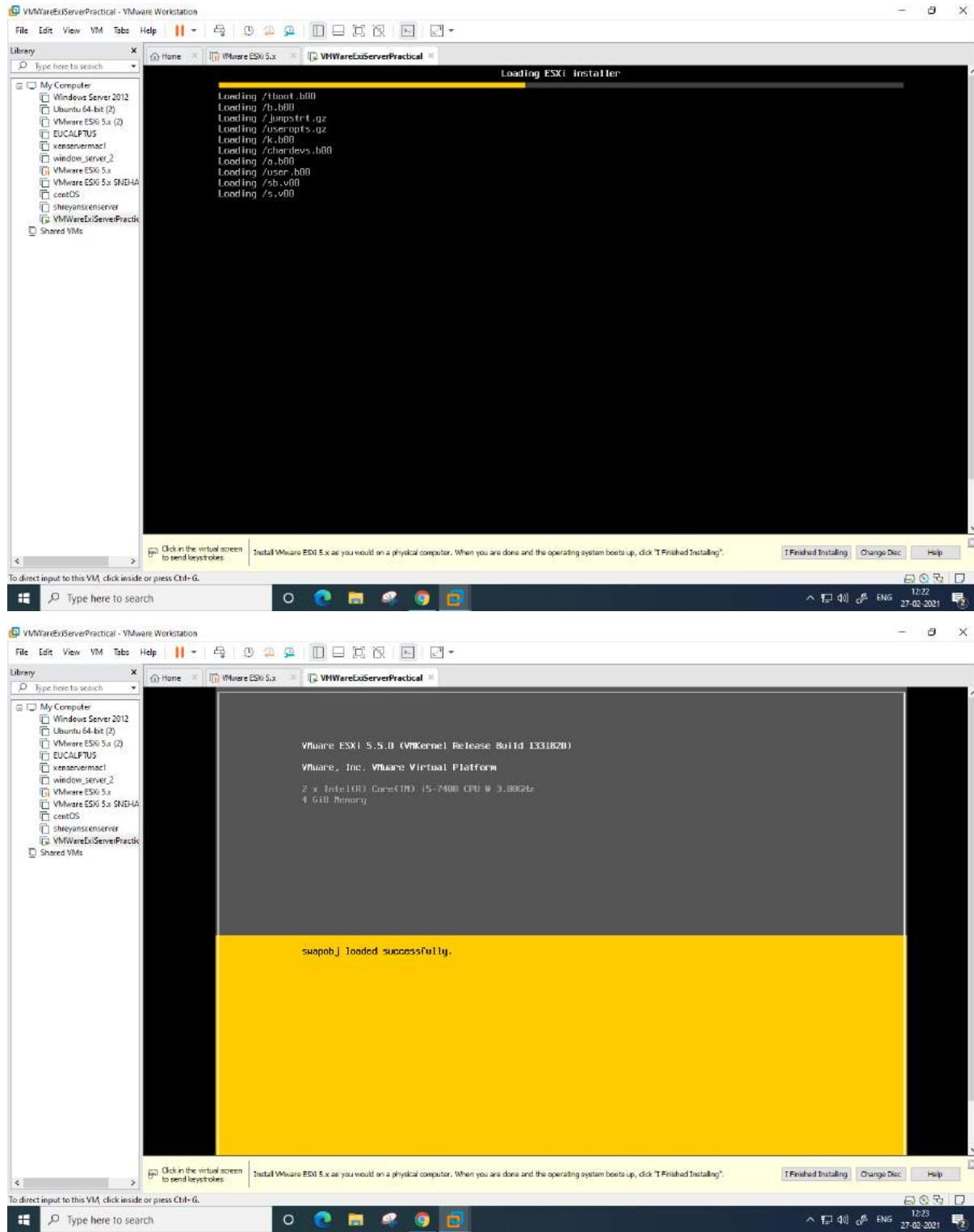
Click on processor and select Virtualize Intel Vt and close



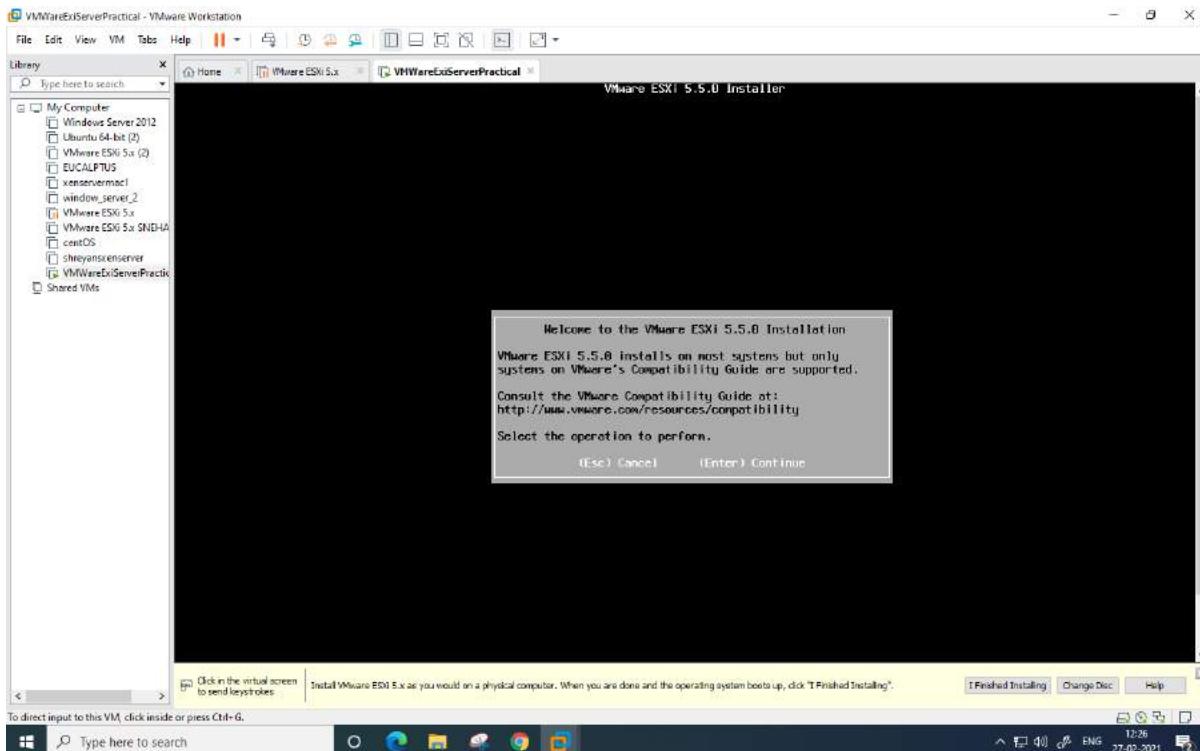
Click On Finish



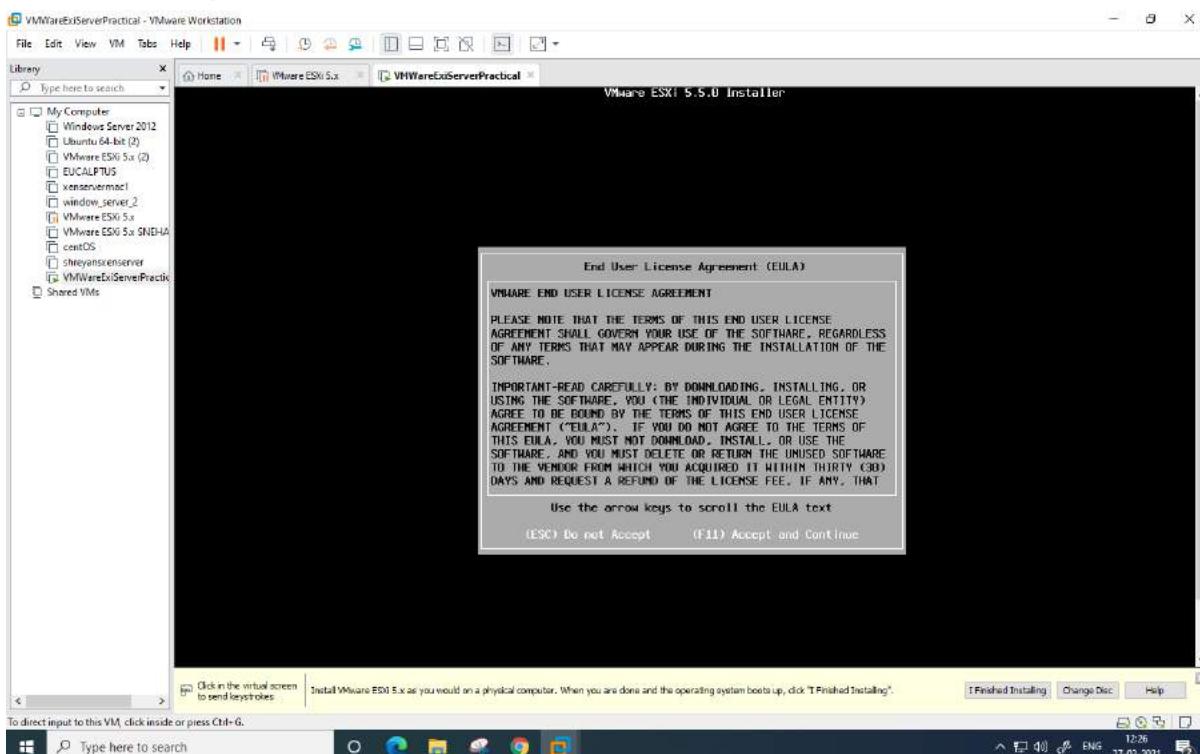
Now power on the newly created Esxi virtual Machine



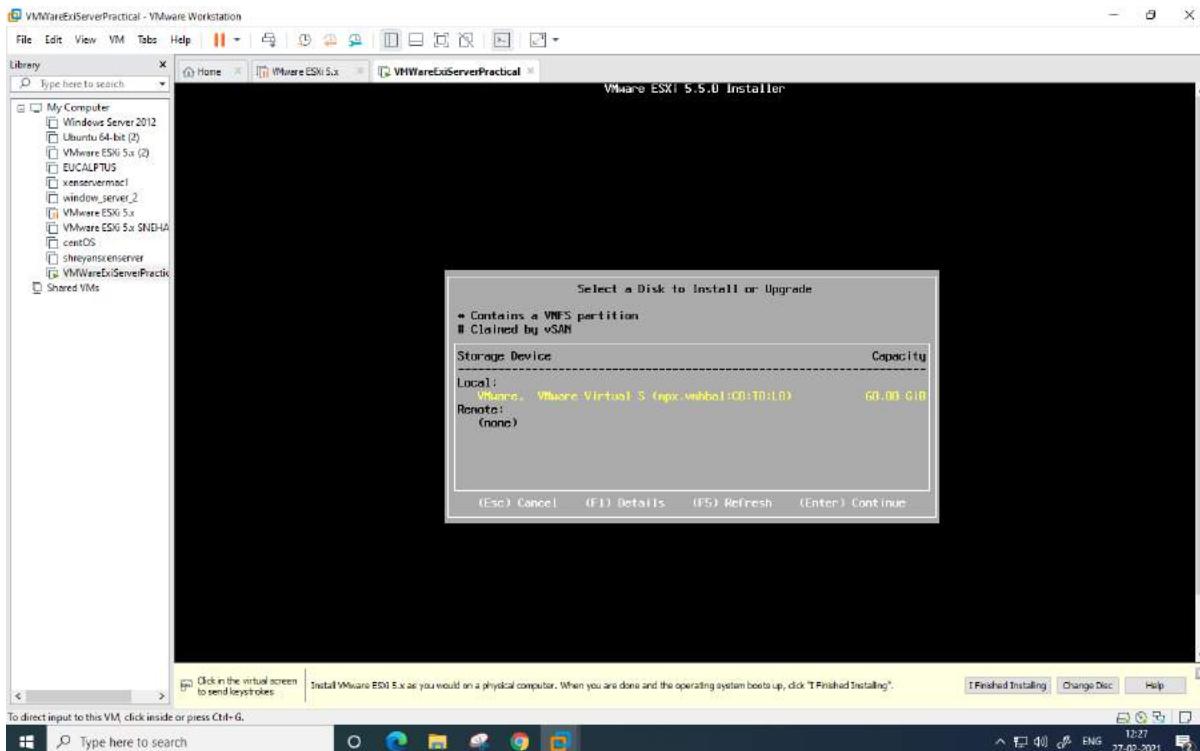
Click Enter for continue



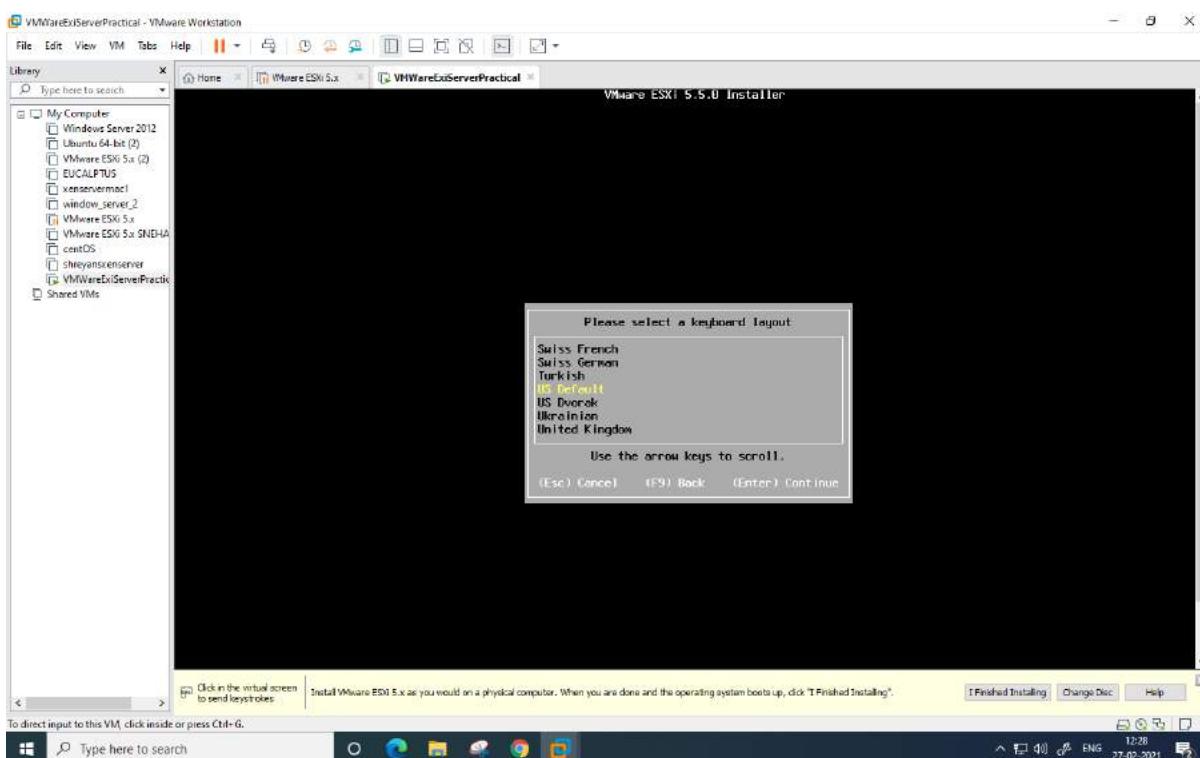
Click f11Accept and Continue



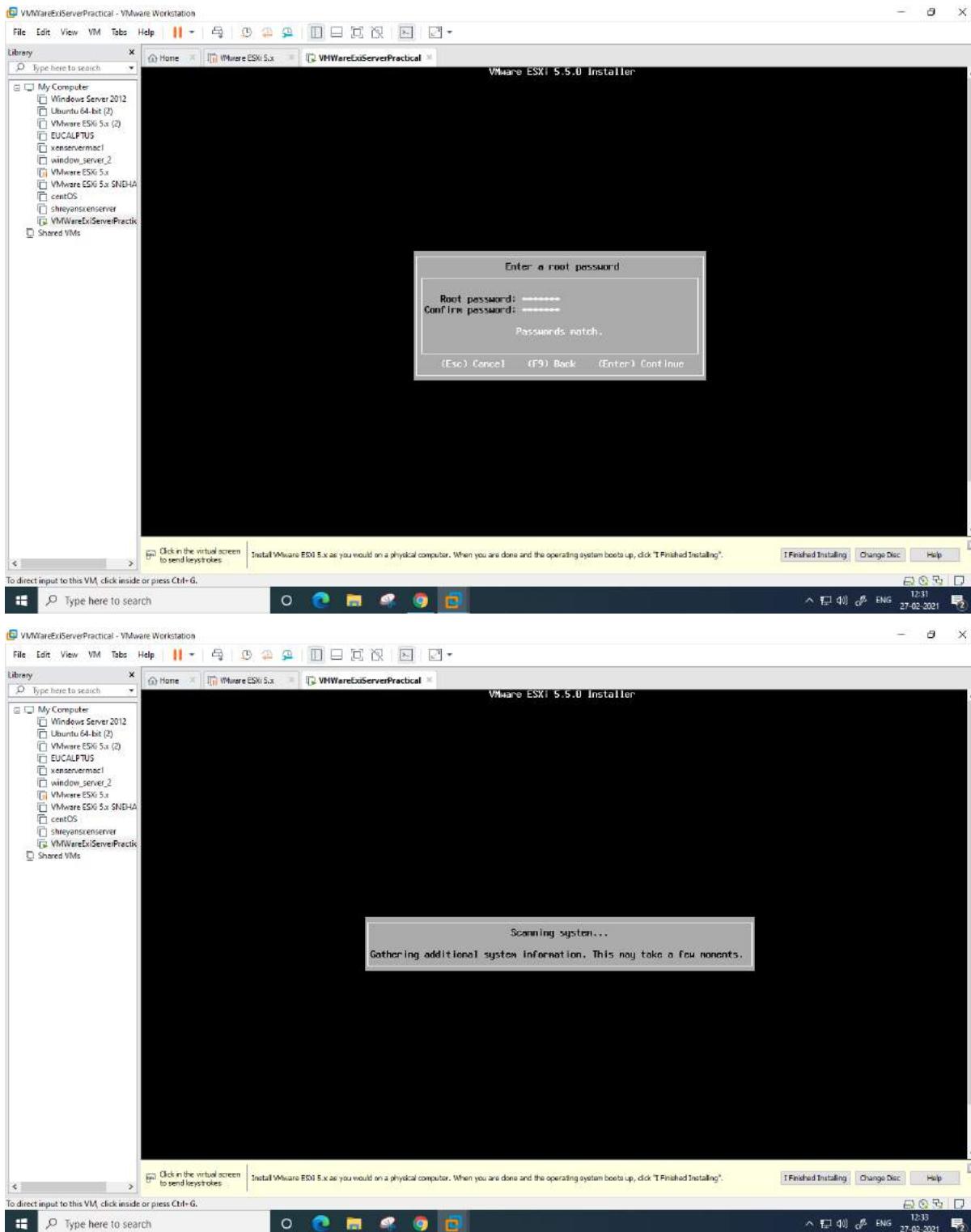
Click Enter for continue



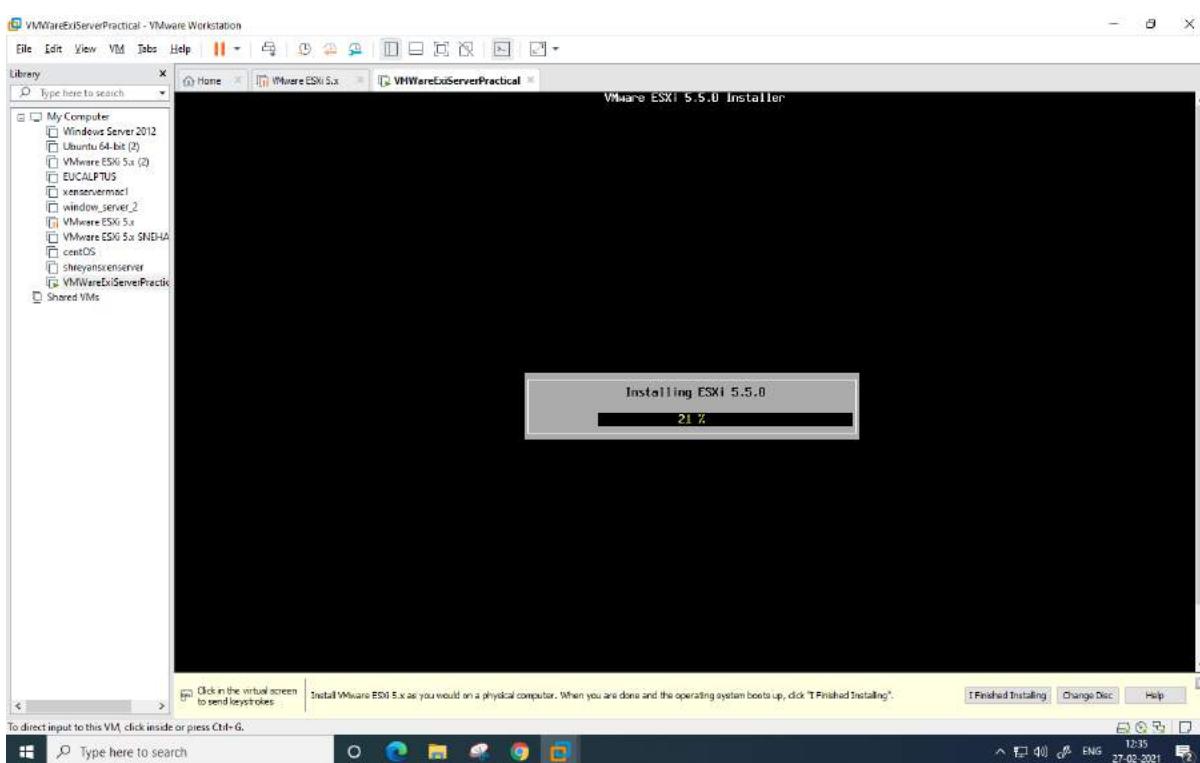
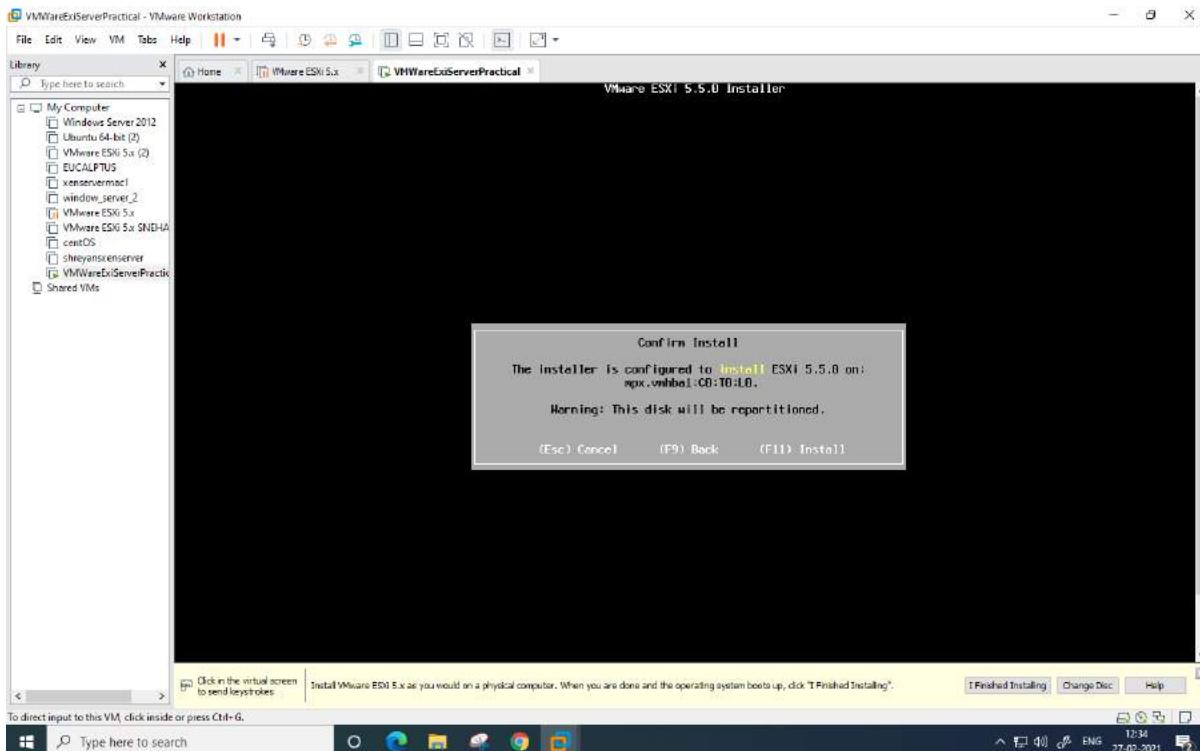
Select US default and click enter for continue

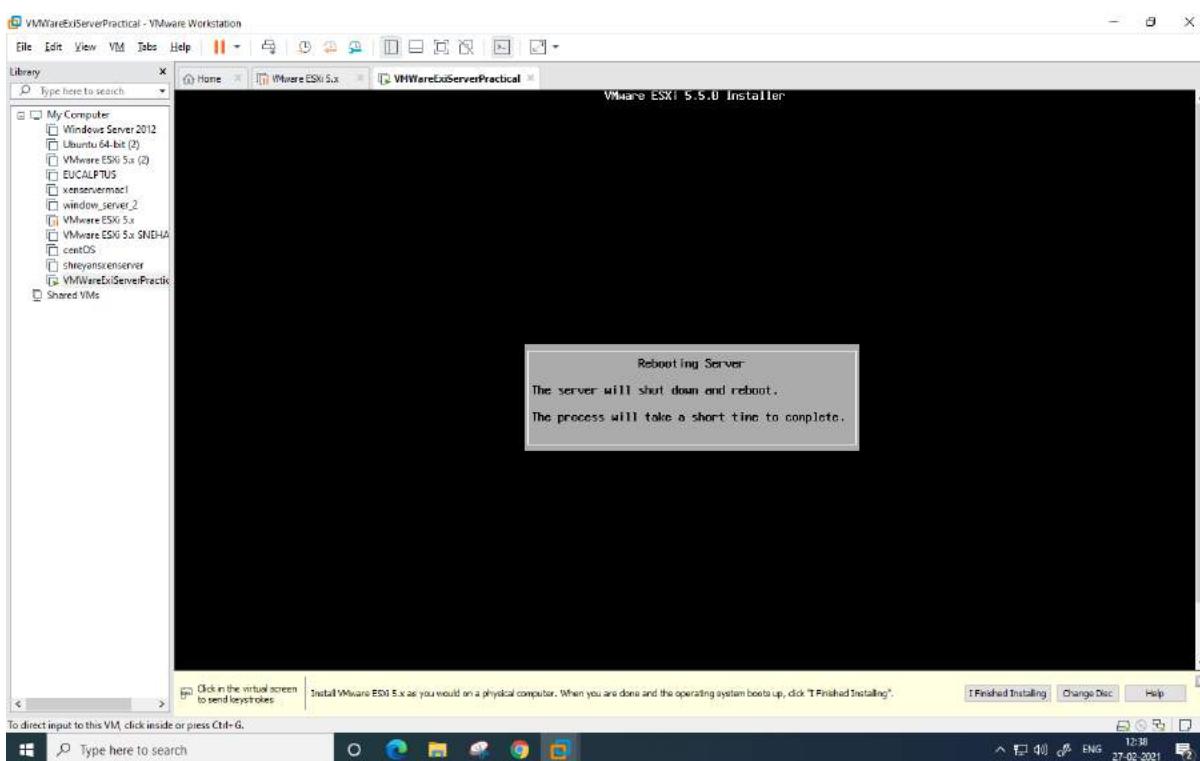
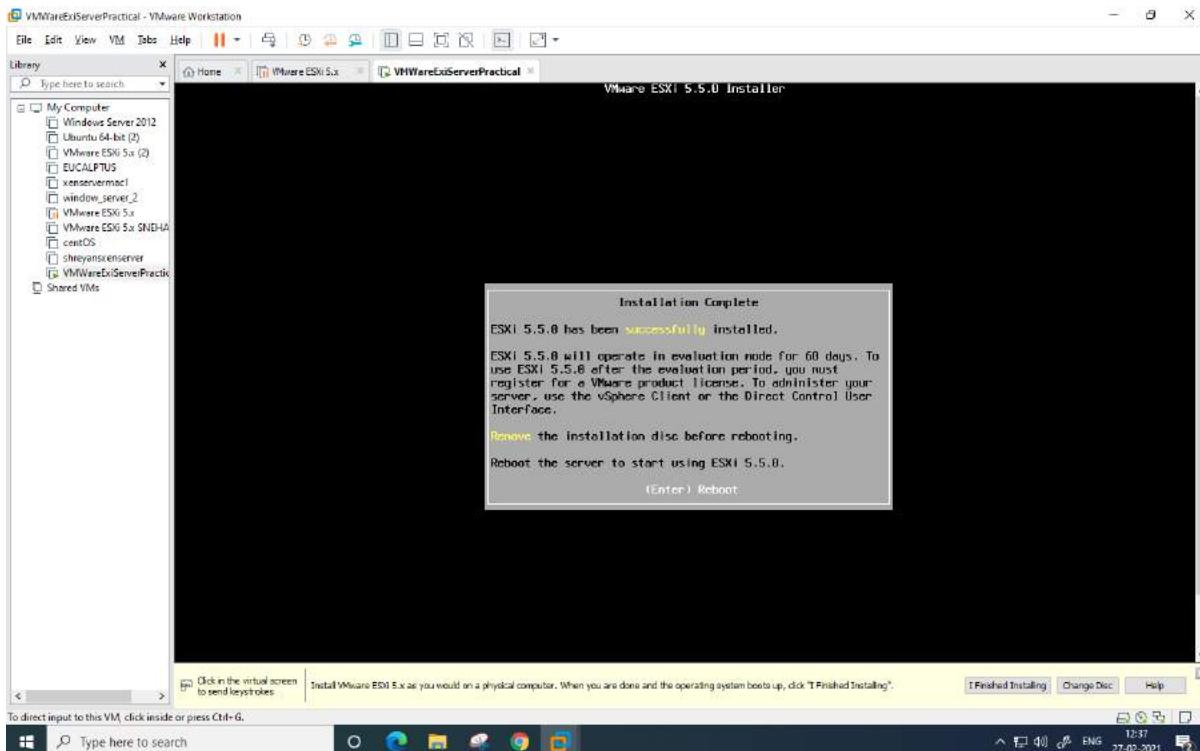


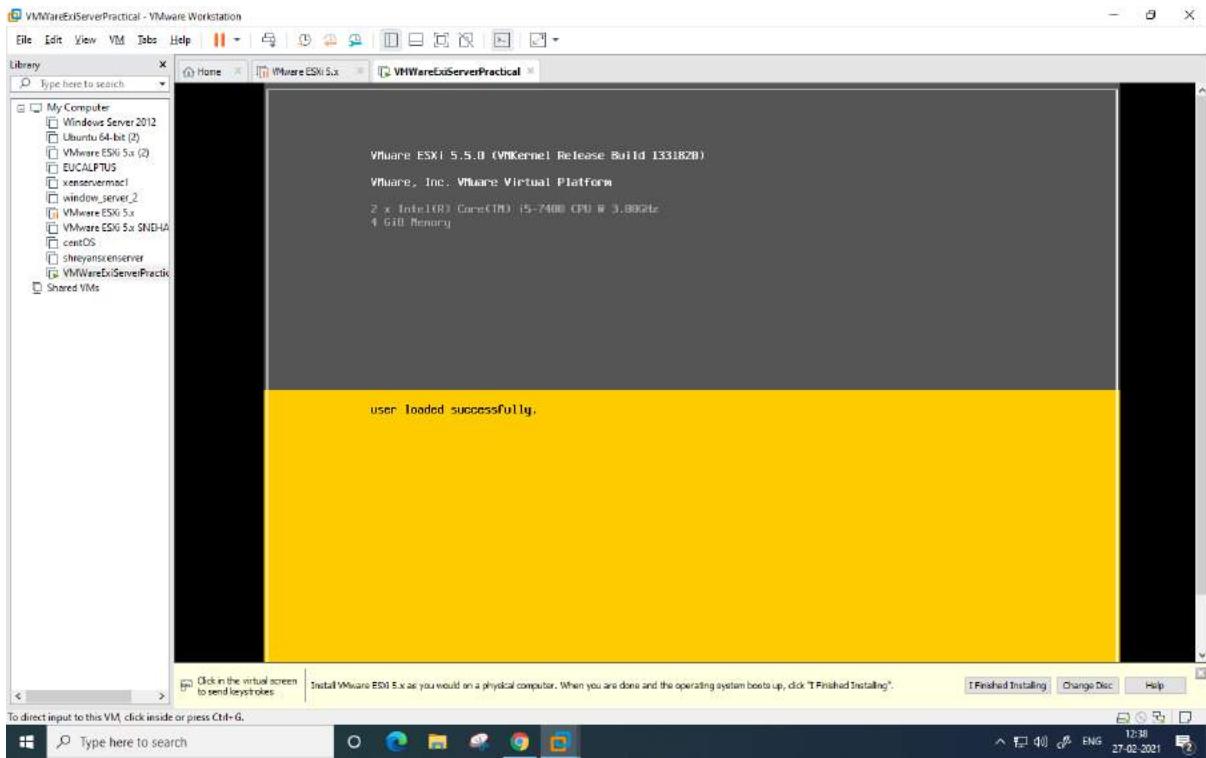
Enter root password and confirm password and click enter for continue



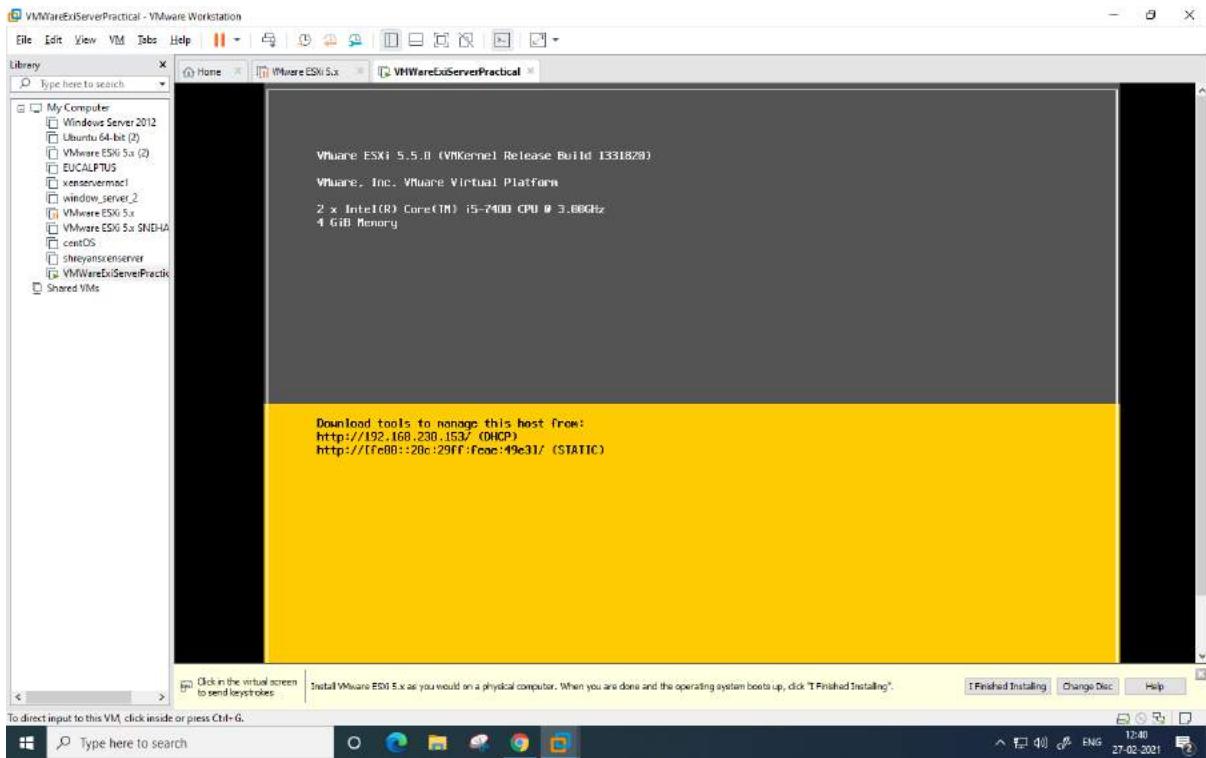
Click F11 for install



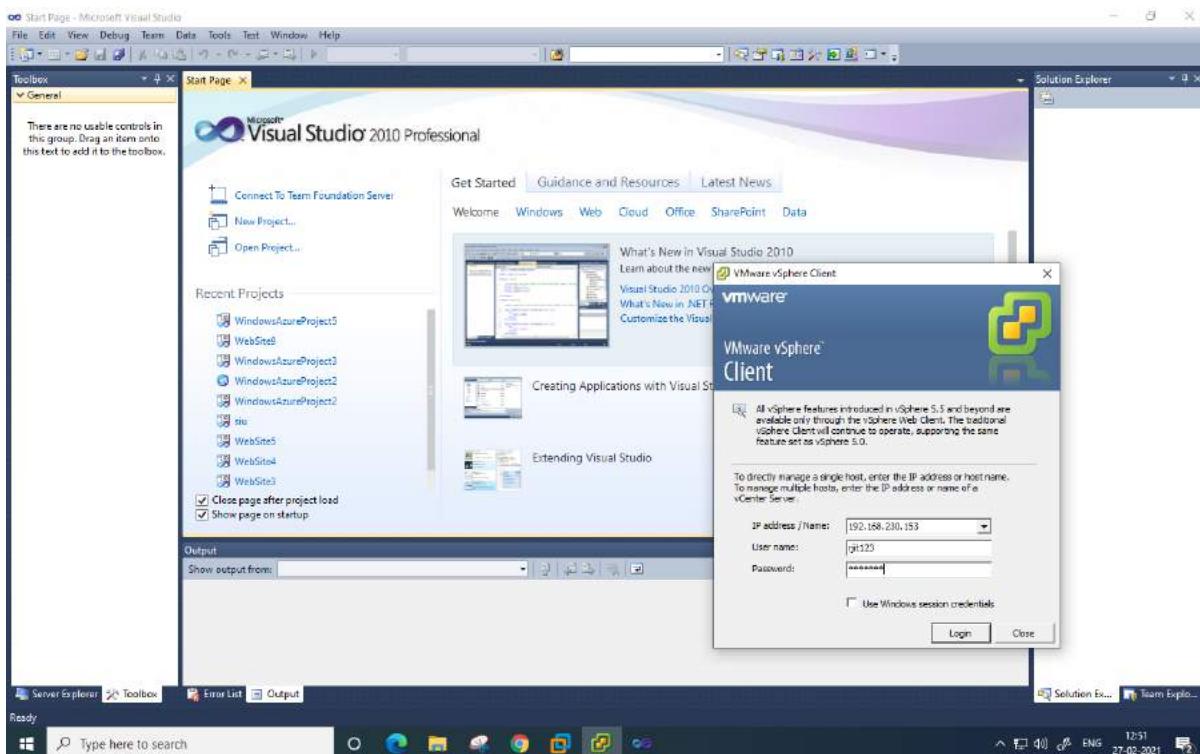




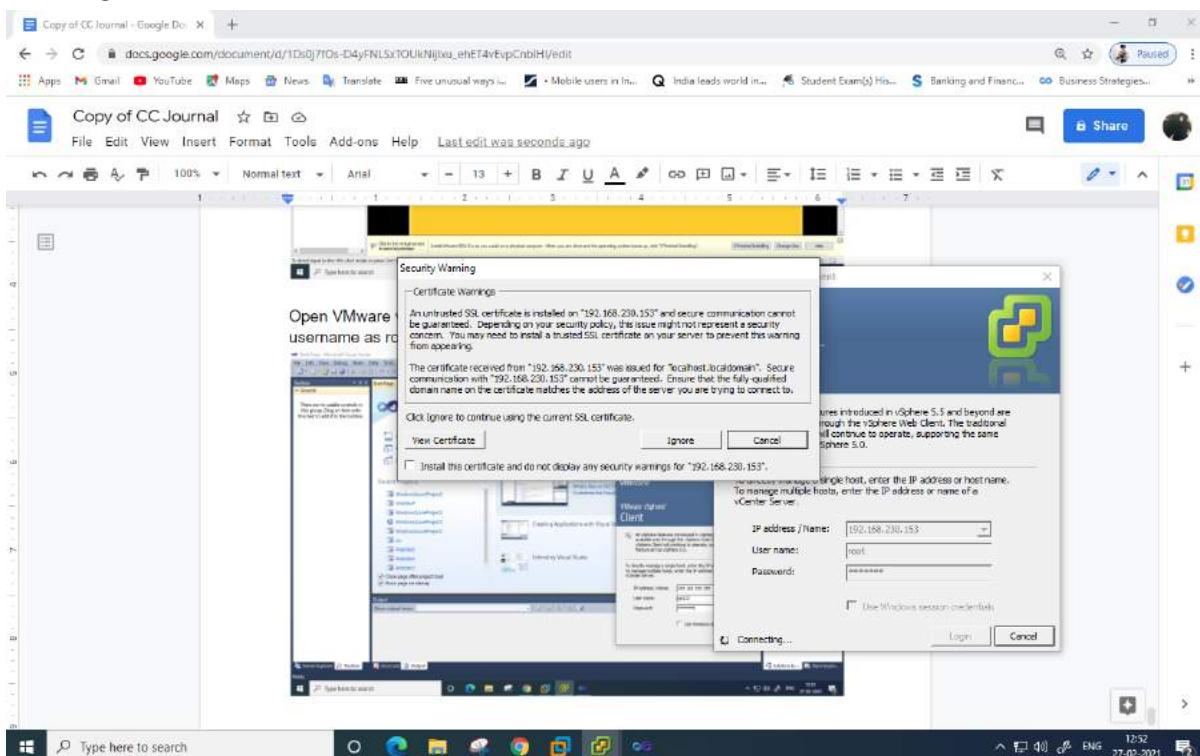
Open Browser and type respective ip address



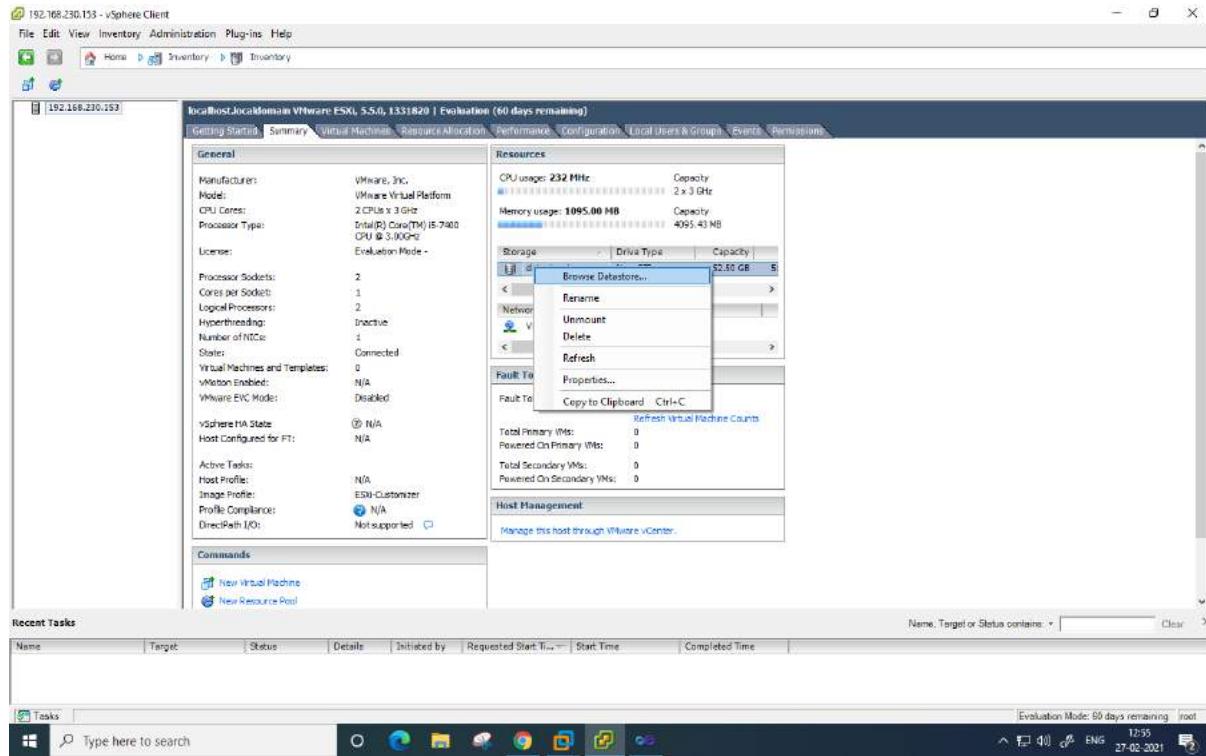
Open VMware vSphere Client and the IP address and password and username as root and the password that you have written and Login



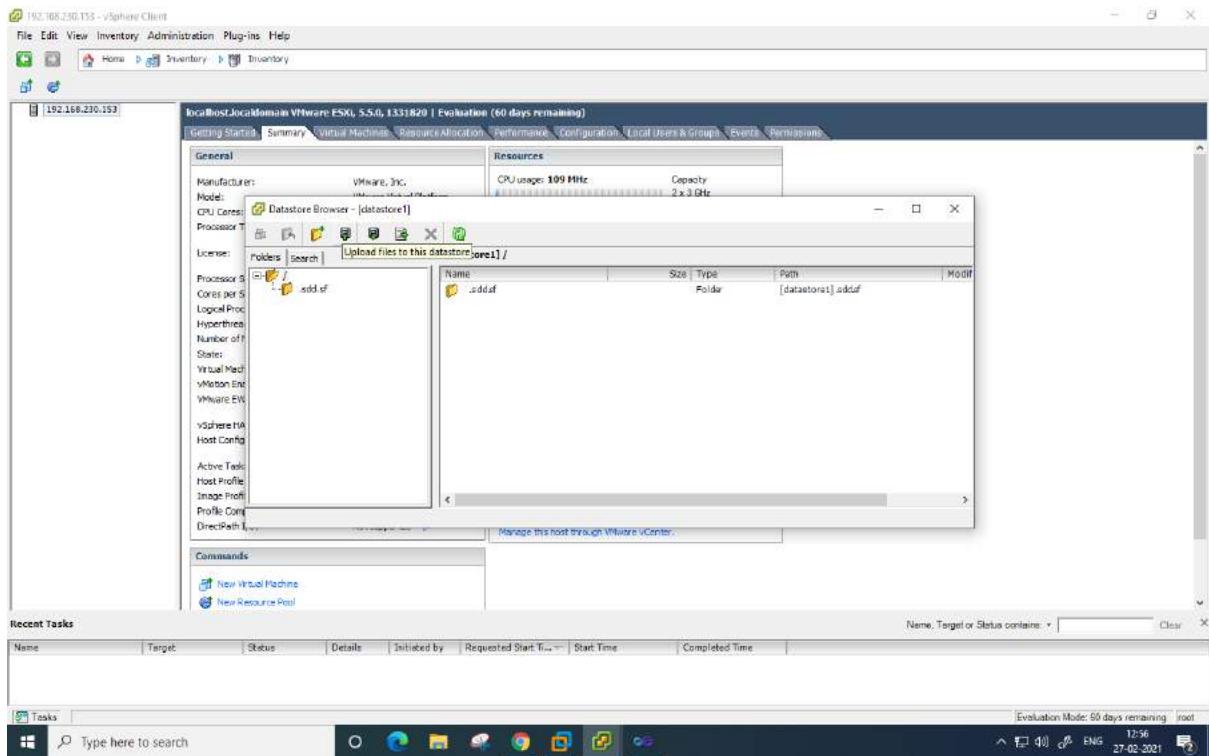
Click Ignore this below window



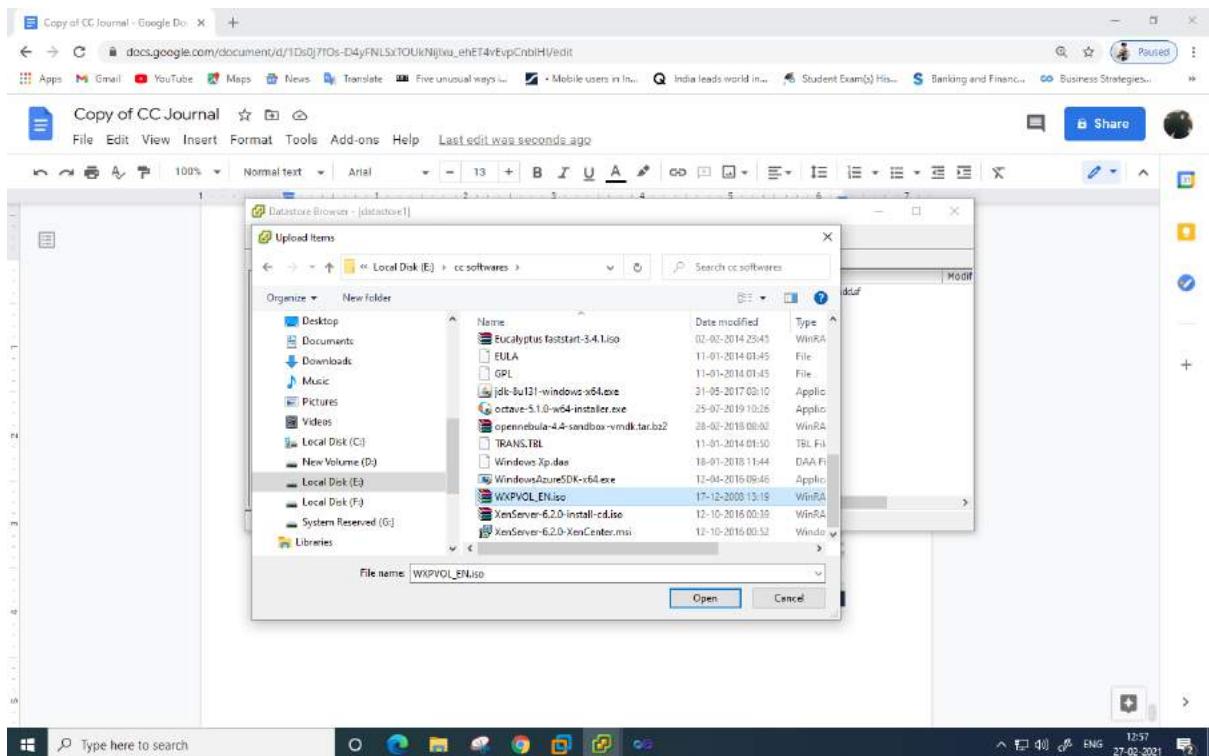
Click Onn Summary and right click on datastrore and click on browse datastore.

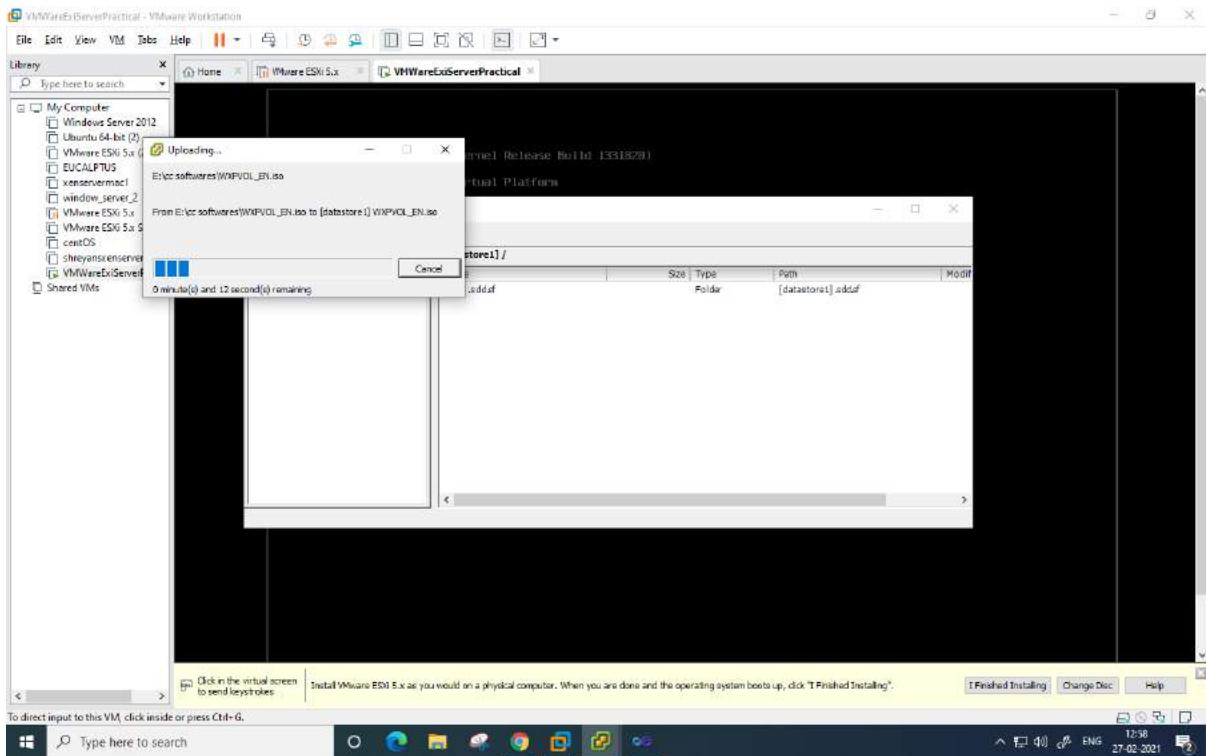


Click on upload files to datastore

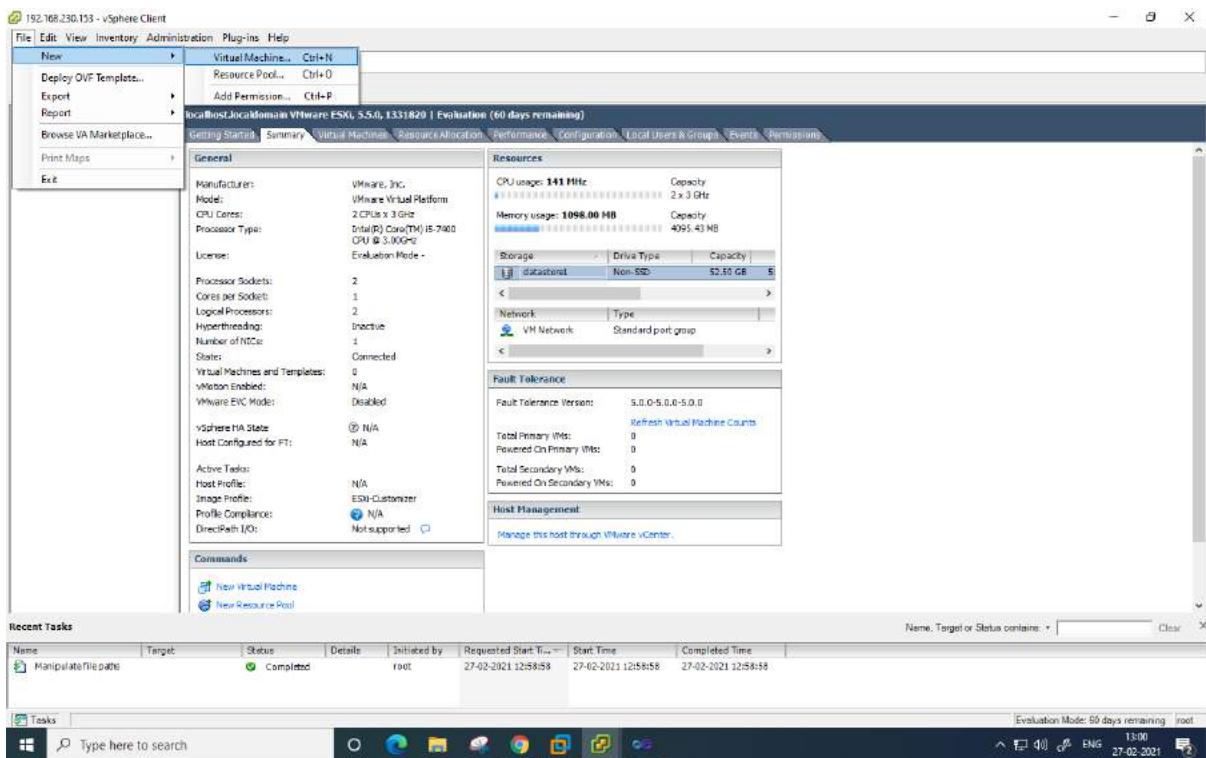


Browse WXPVOL_EN.iso

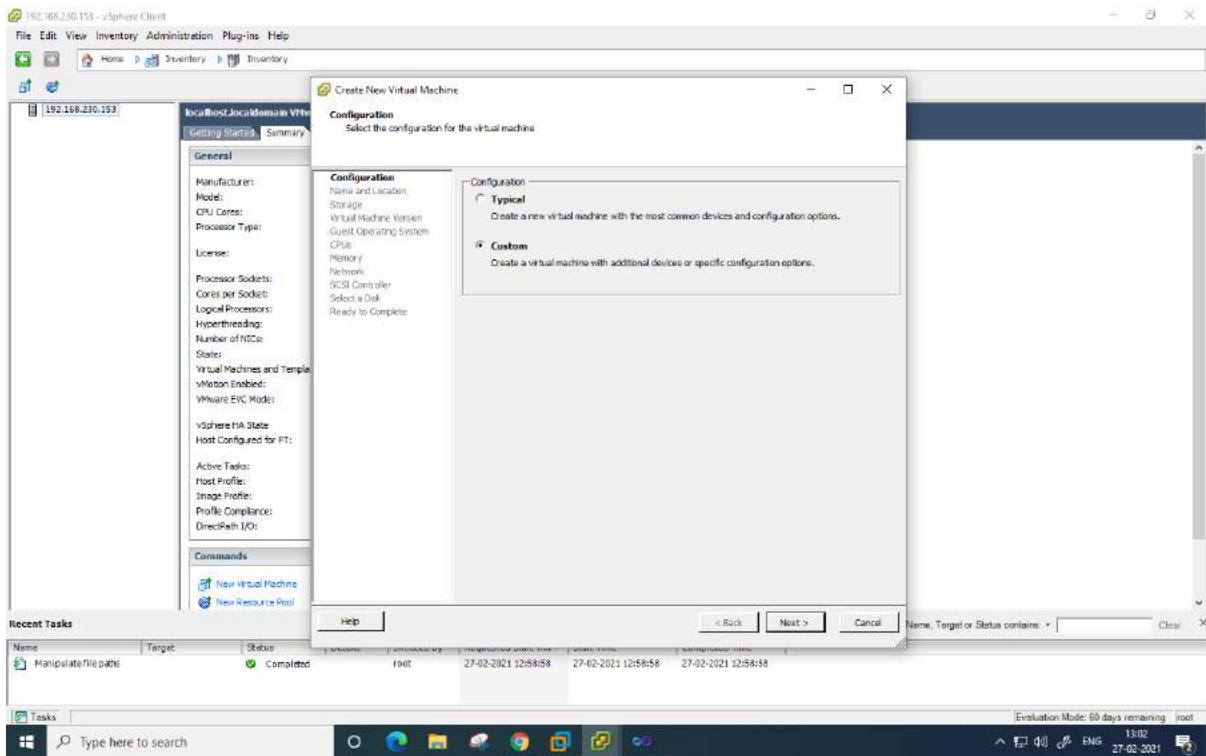




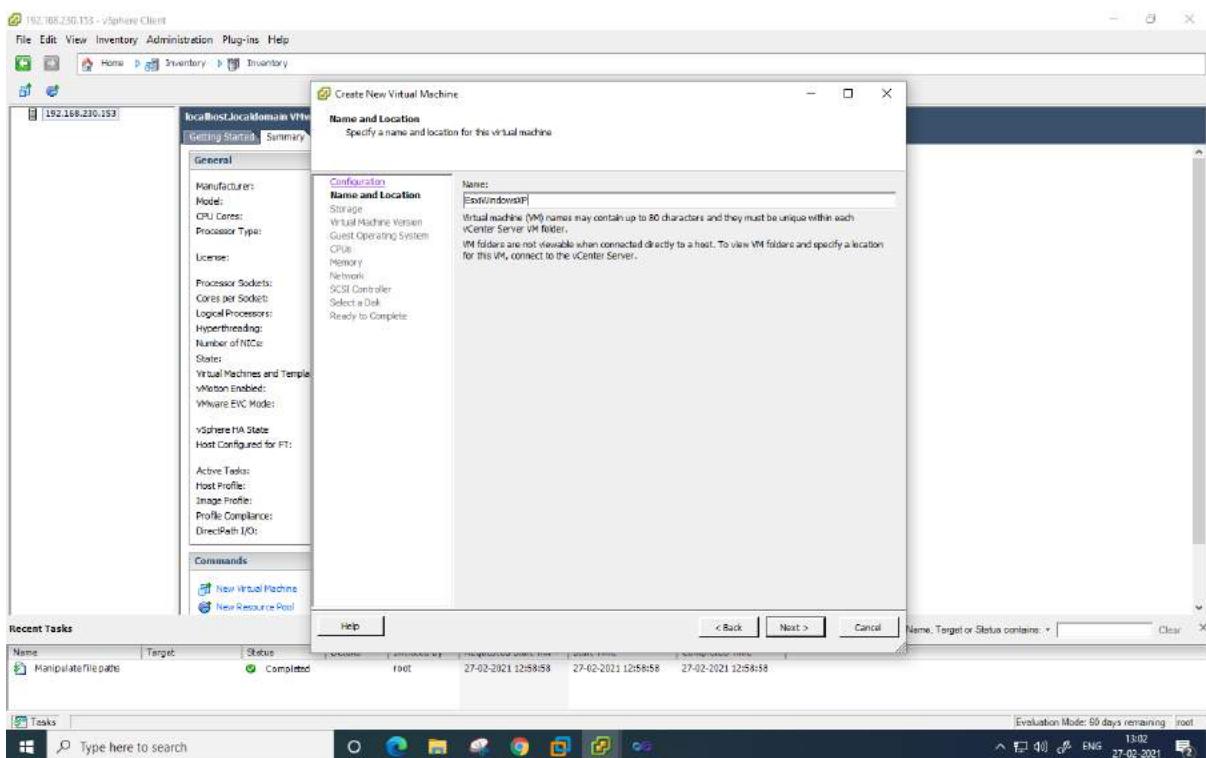
Click on file-> new->Virtual Machine



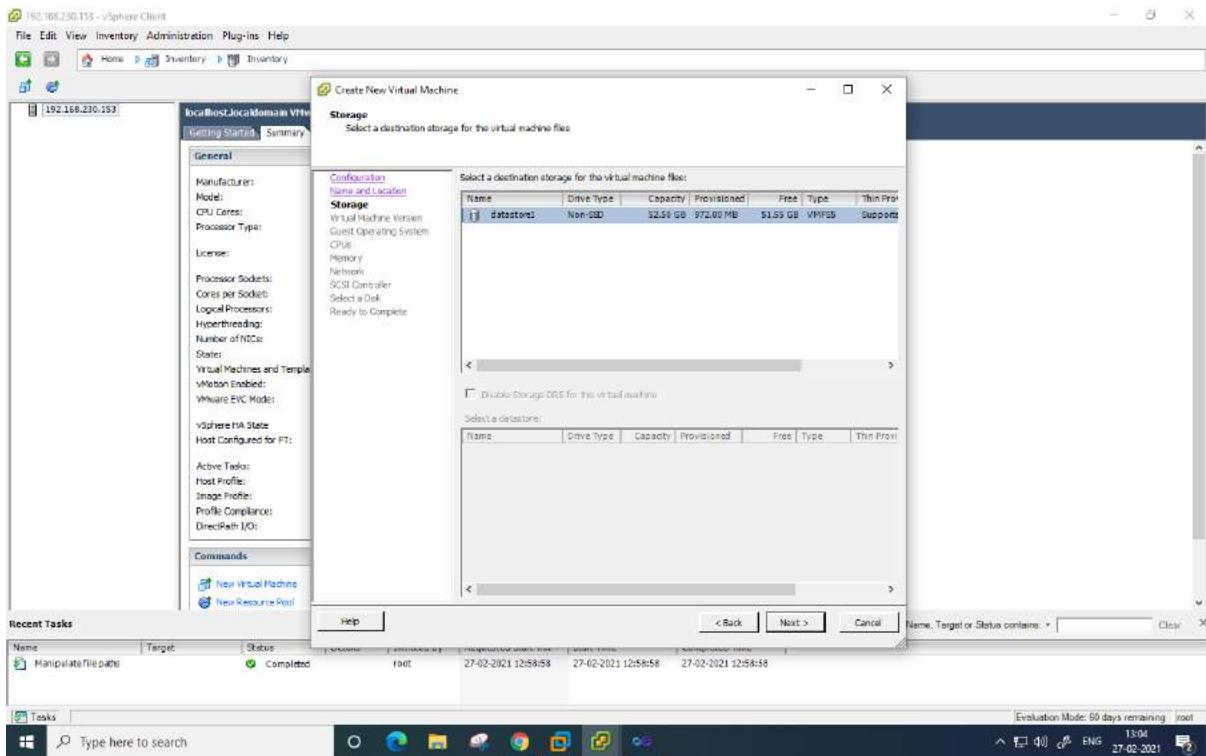
Configuration : Select Custom Configuration and click Next



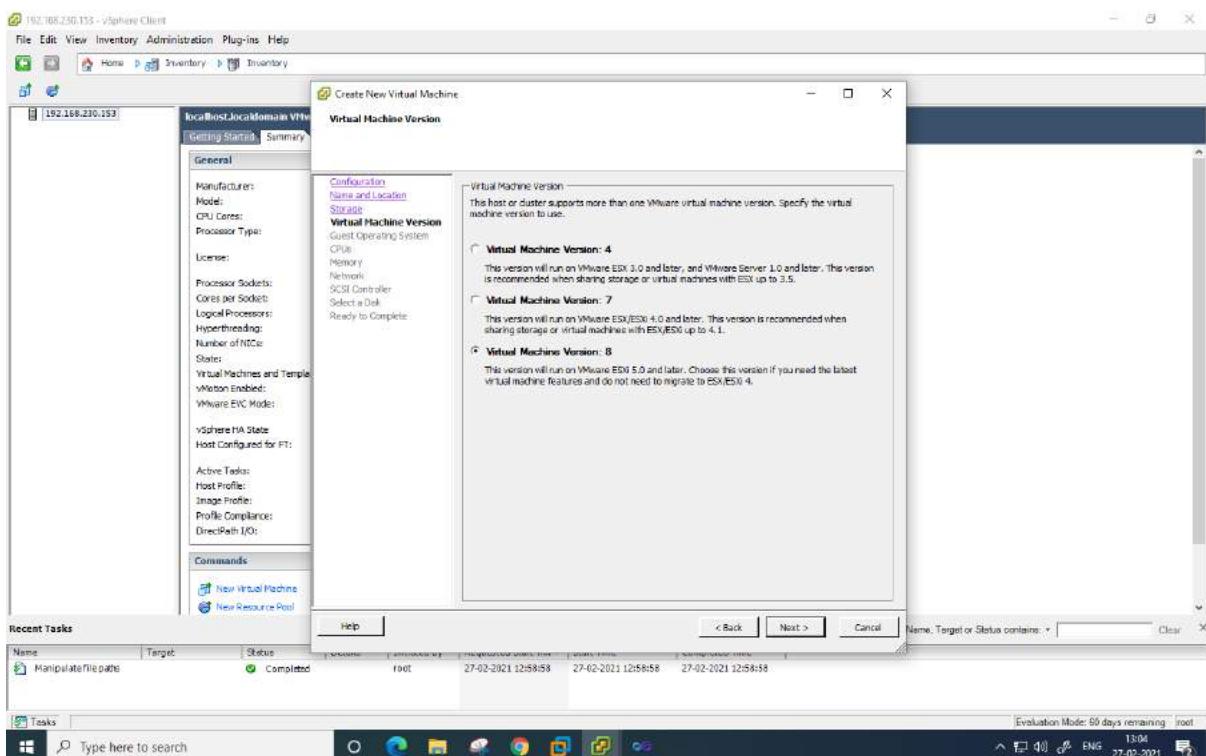
Name and Location : Give name to virtual machine



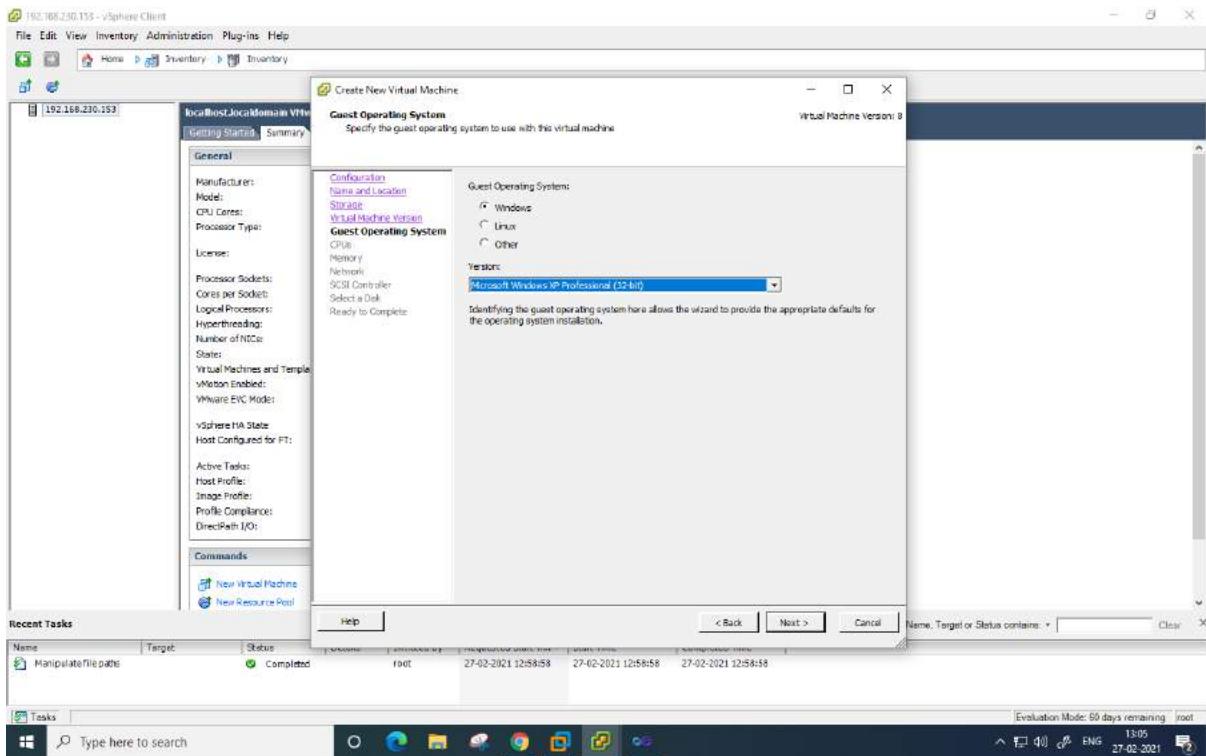
Select datastore1 and click next



Select Virtual Machine Version 8 and click on next



Guest: Operating System :
Select Windows and
Select MicroSoft windows XP Professional (32-bit)

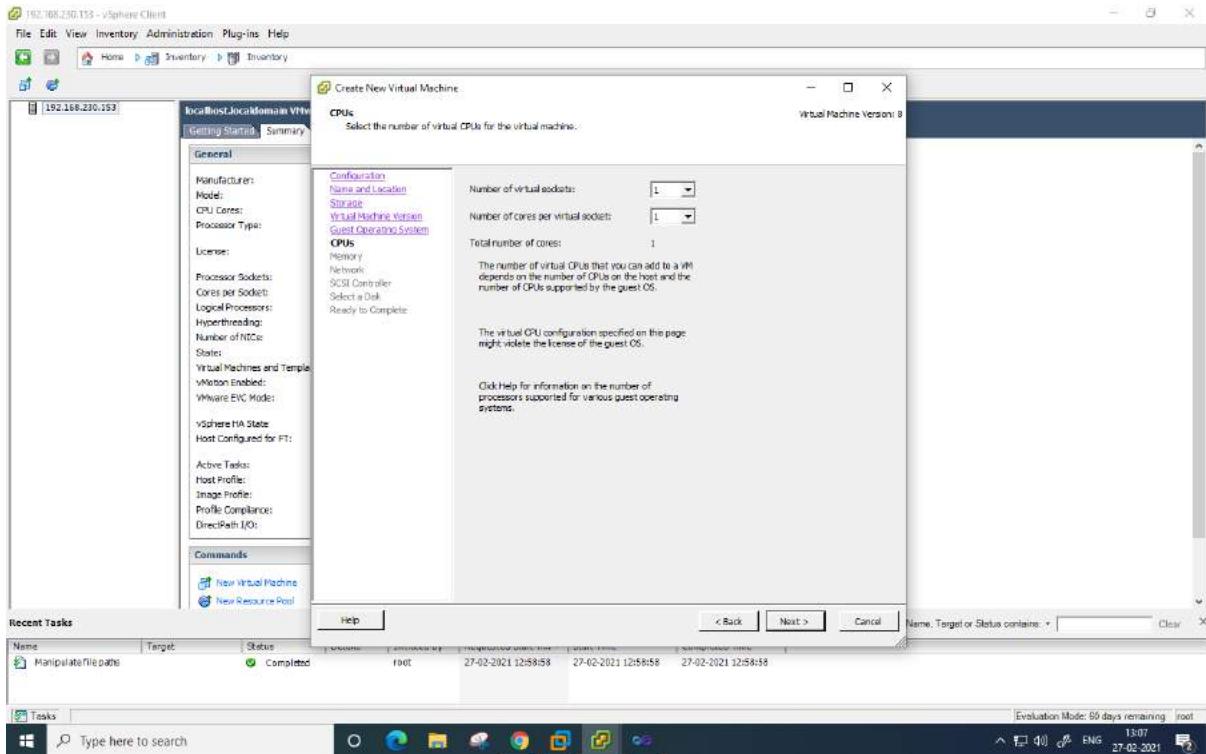


CPUs:

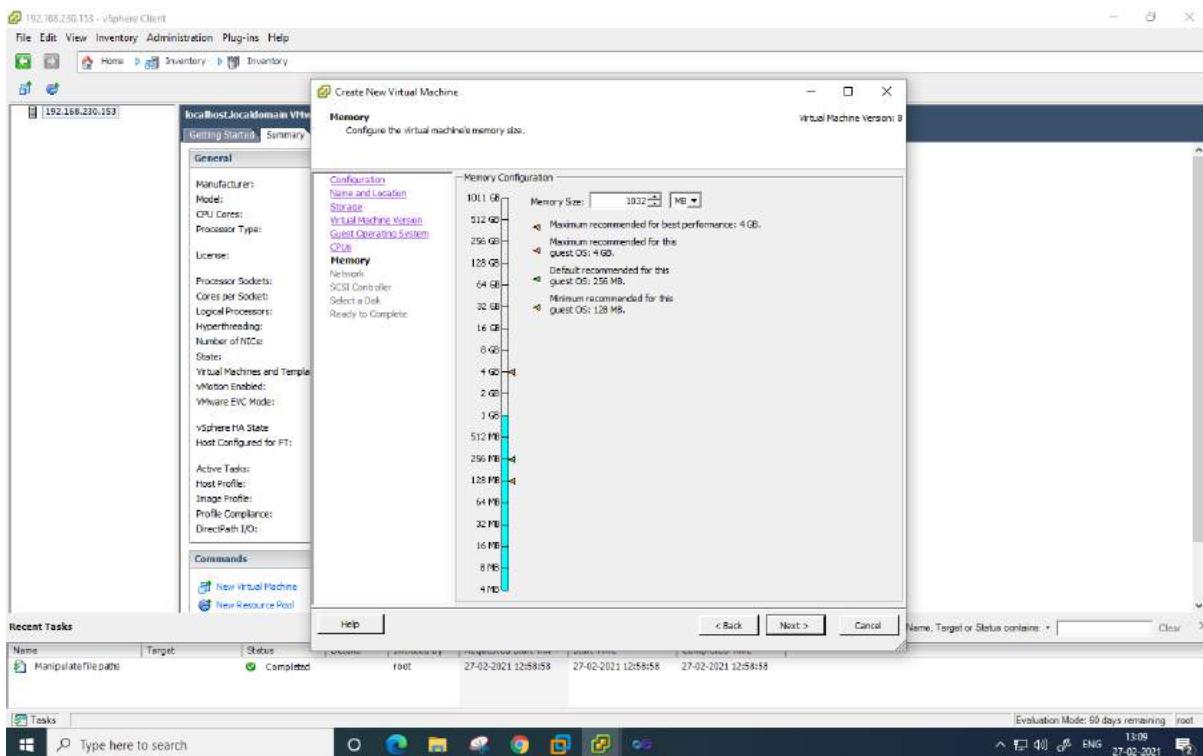
Number of virtual sockets :1

Number of cores and per virtual socket :1

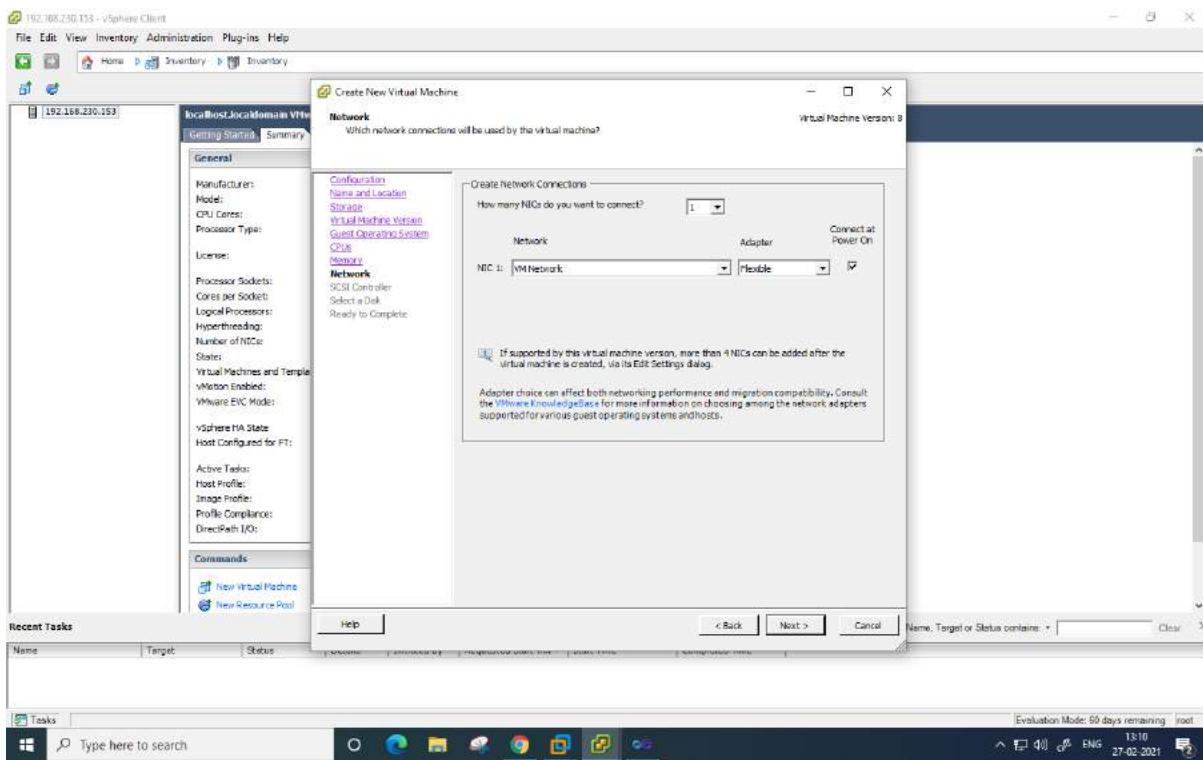
Click Next



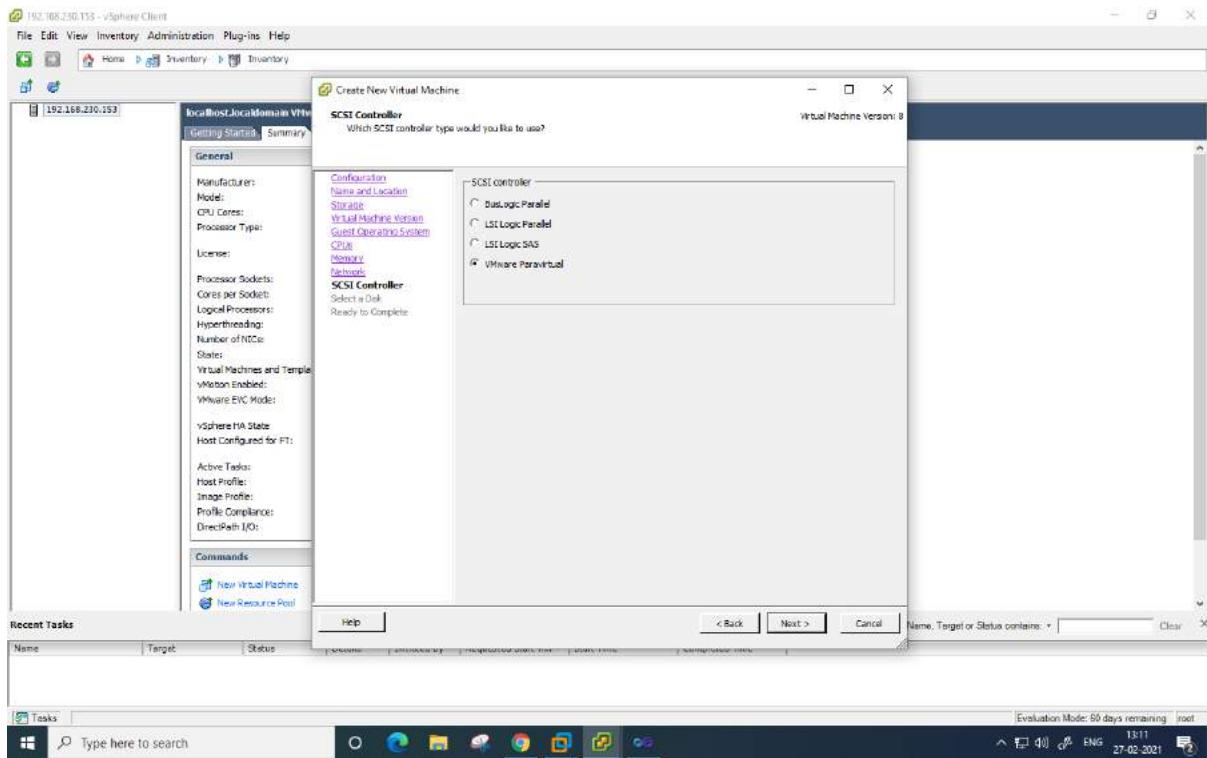
Memory : Select 1GB and Click Next



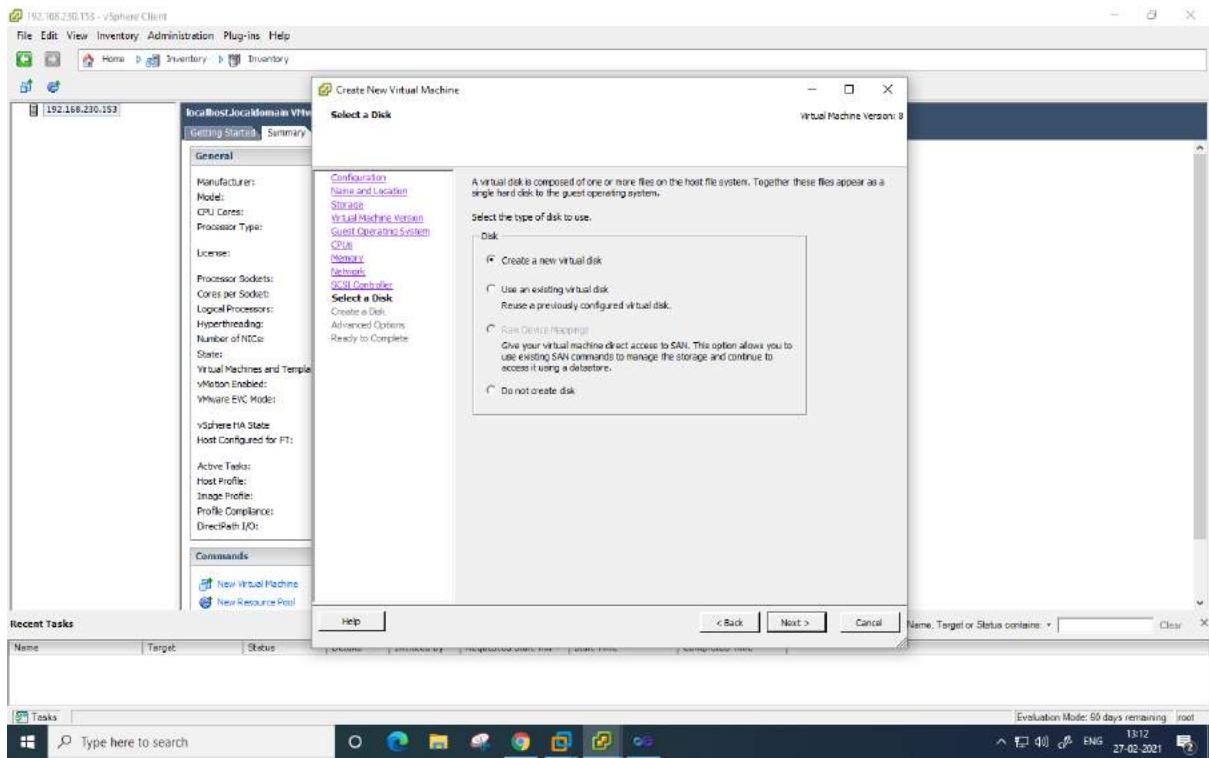
Network : Number of NICs :1 and click Next



SCSI Controller : VMware Paravirtual



Select a Disk : create new virtual Disk

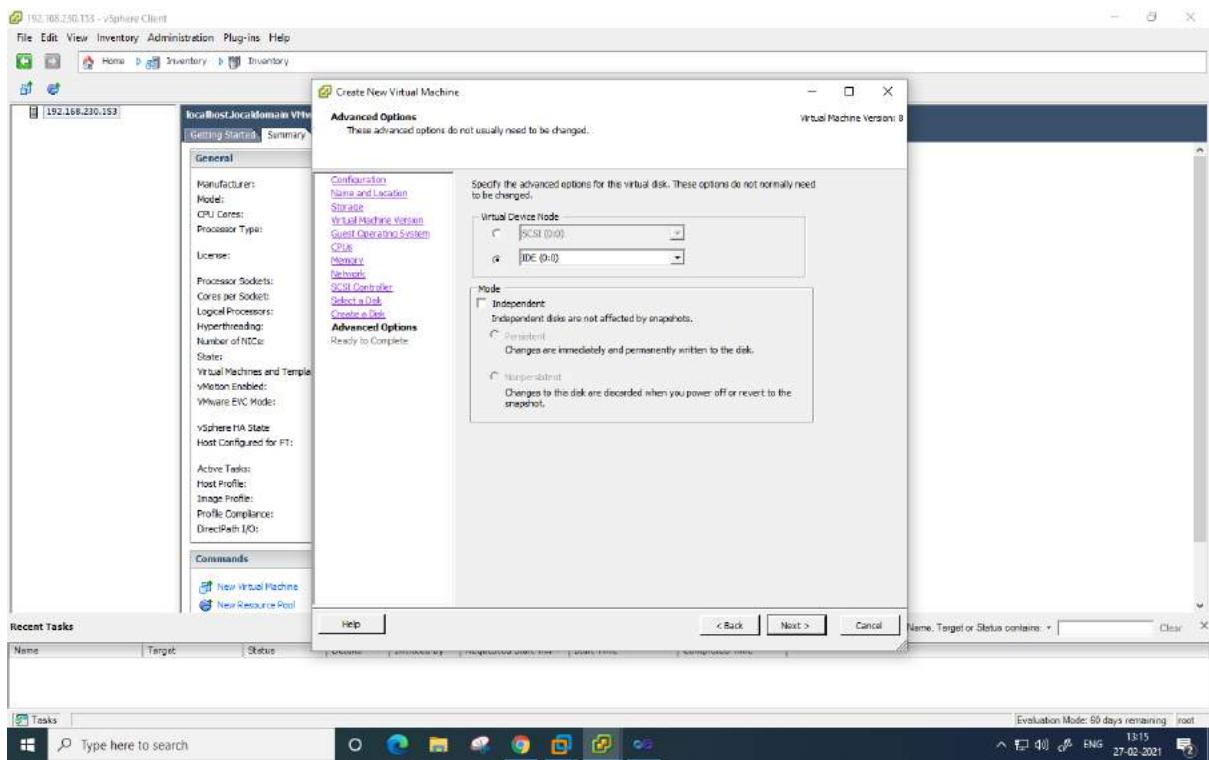
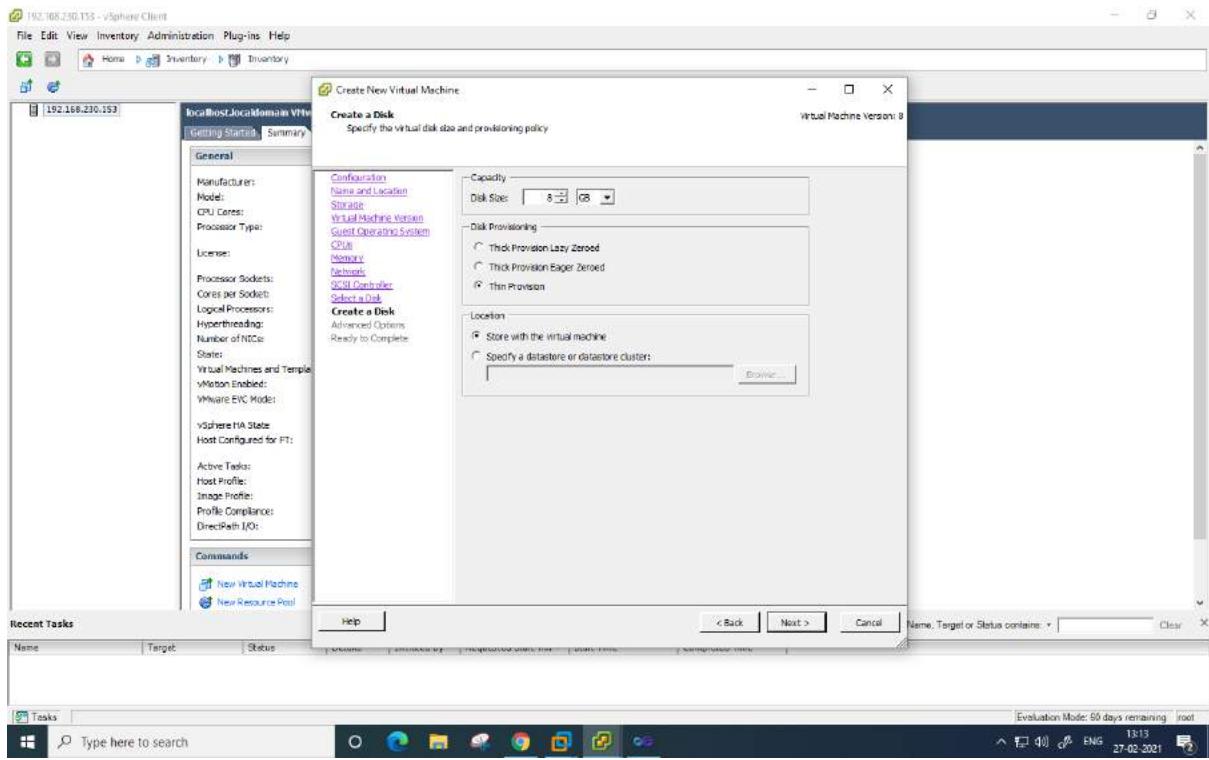


Create a Disk:

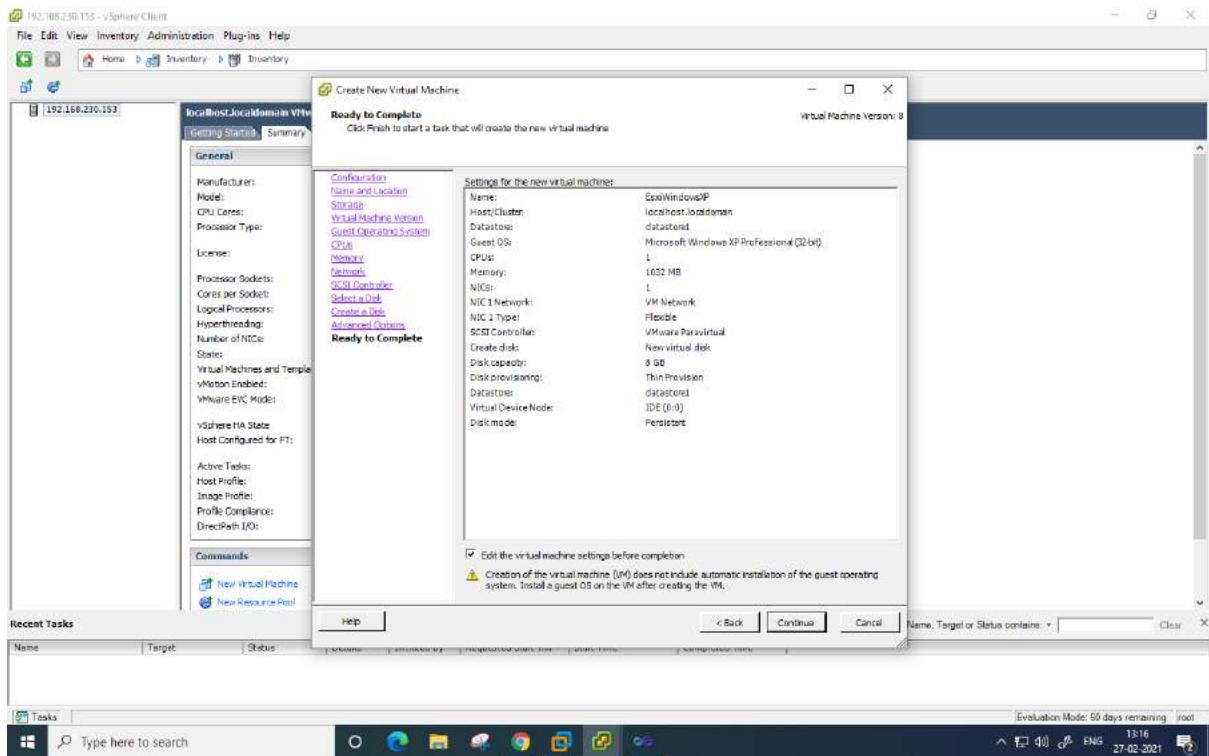
Disk Size : 8GB

Disk Provisioning: Thin Provision

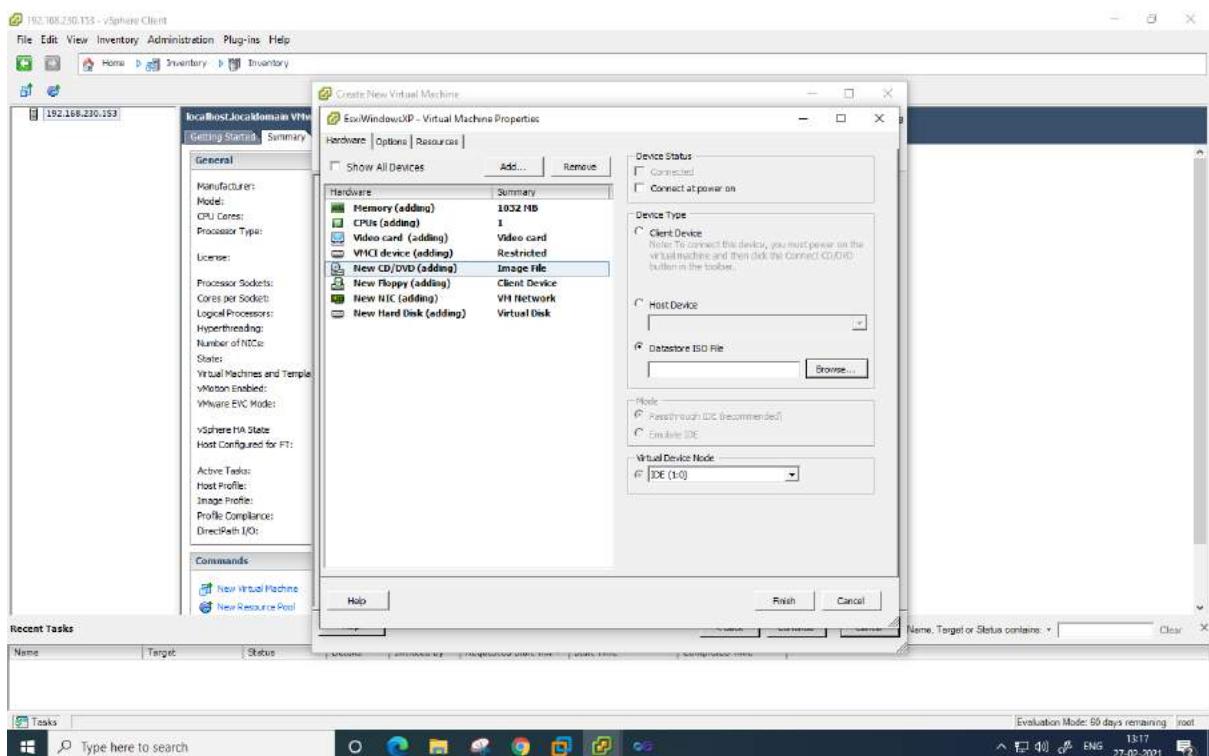
Location: Store with the virtual machine



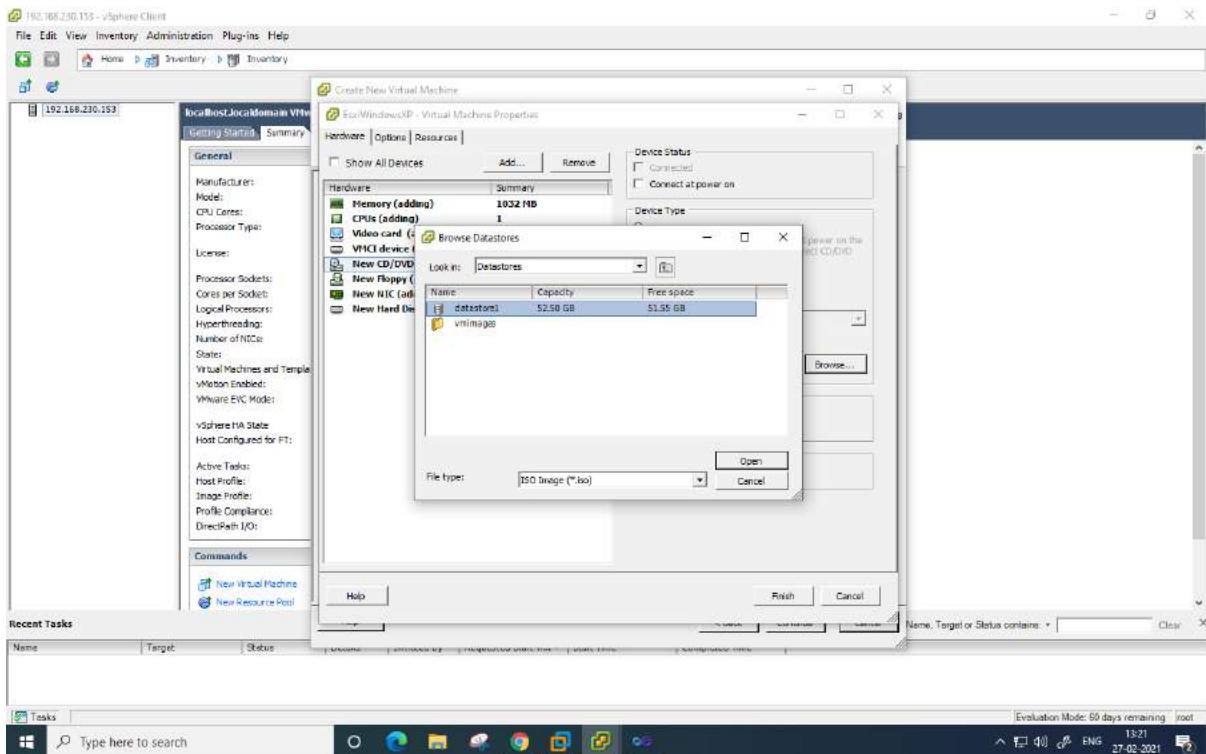
Click Edit and continue



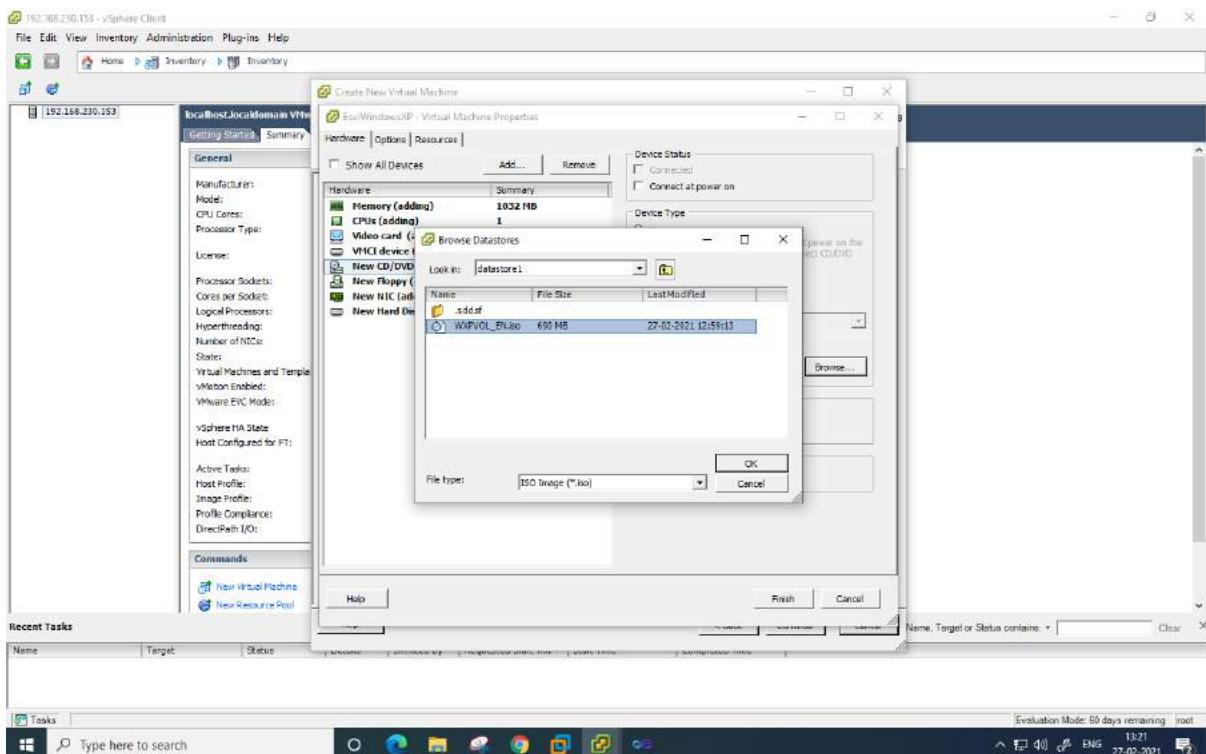
Select Datastore ISO File



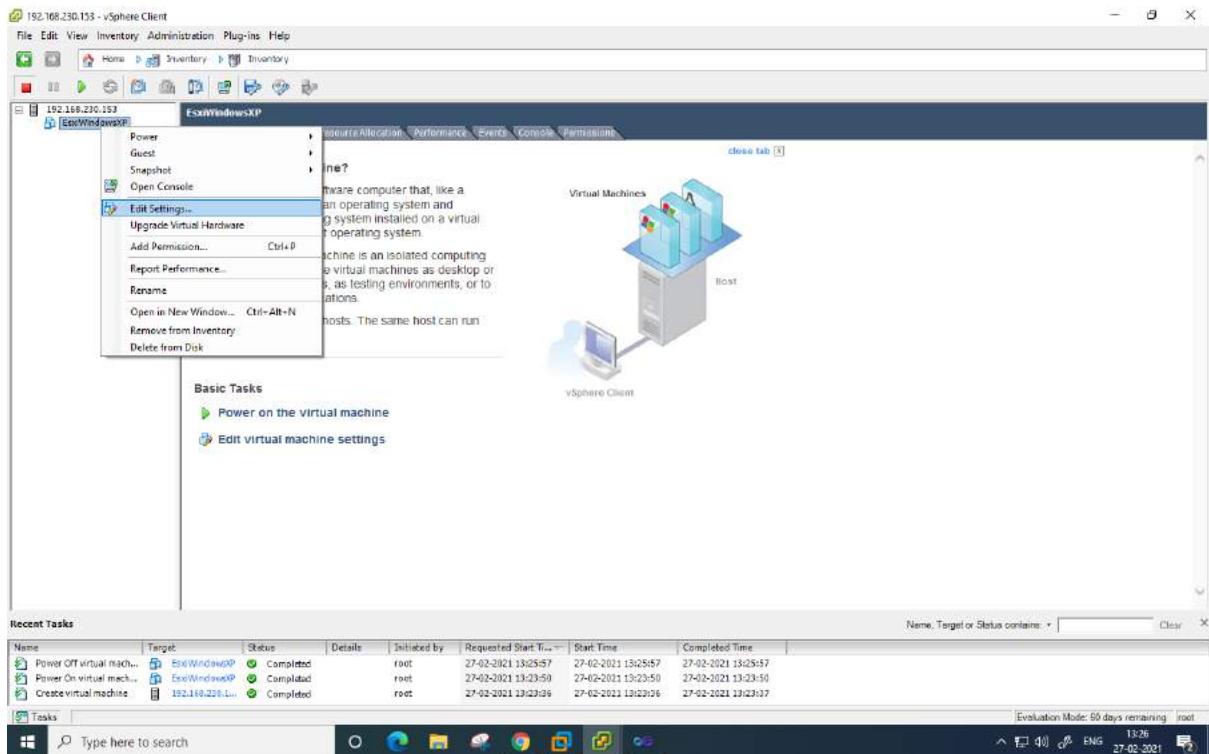
Click on datastore1



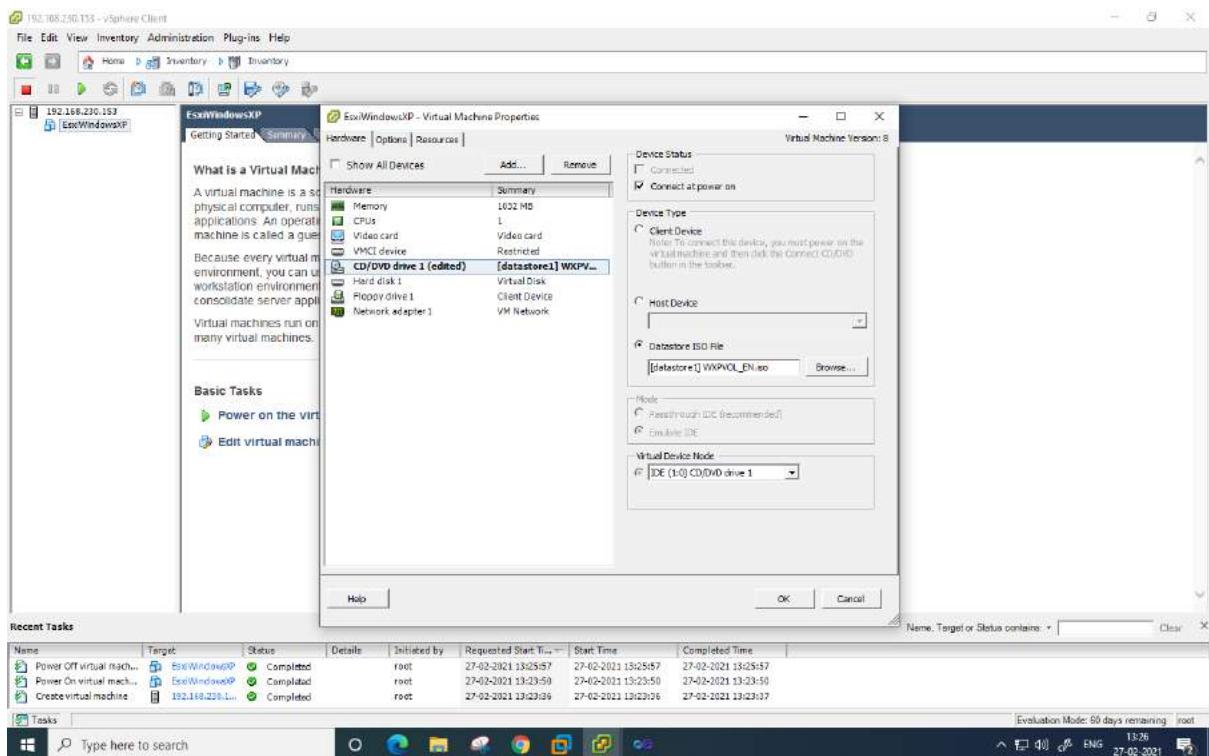
Under datastore1 -> Select WXPVOL_EN.iso and click Ok and then Click on Finish



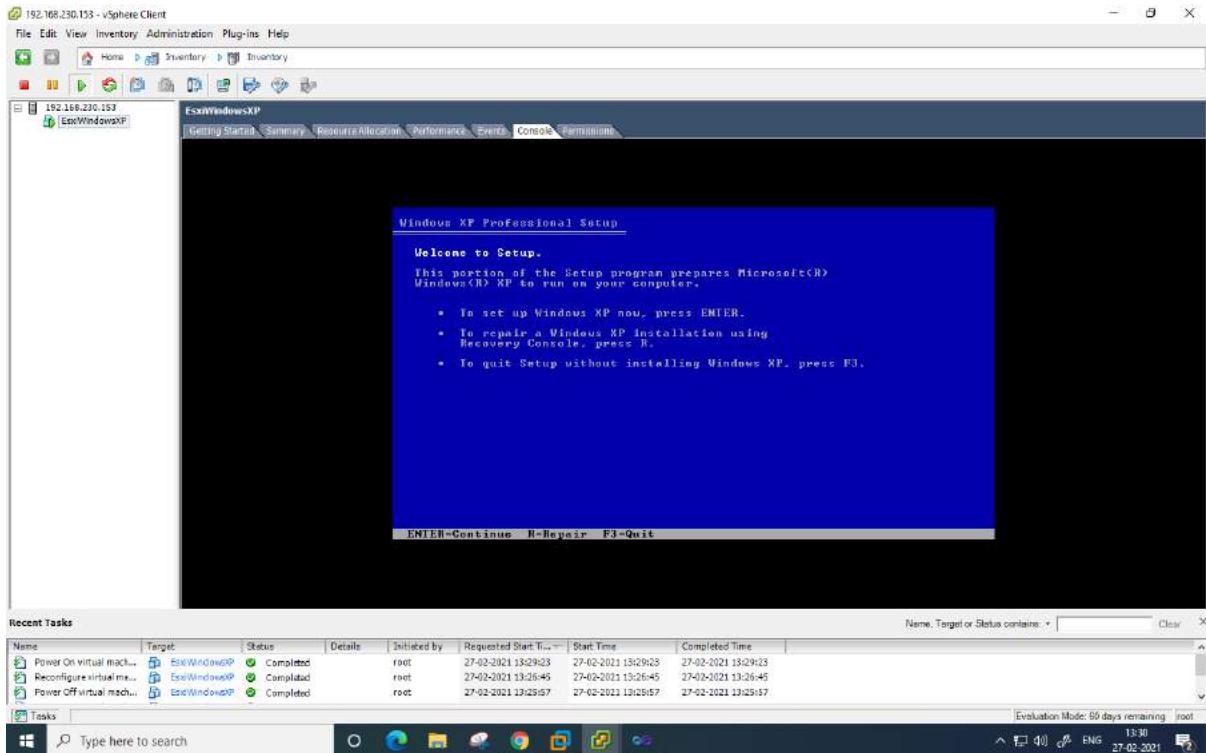
Click Right on your virtual machine-> Edit Settings



Select CD/DVD drive
Device status : check connect at power on



Right click on Virtual Machine -> Power-> Power On



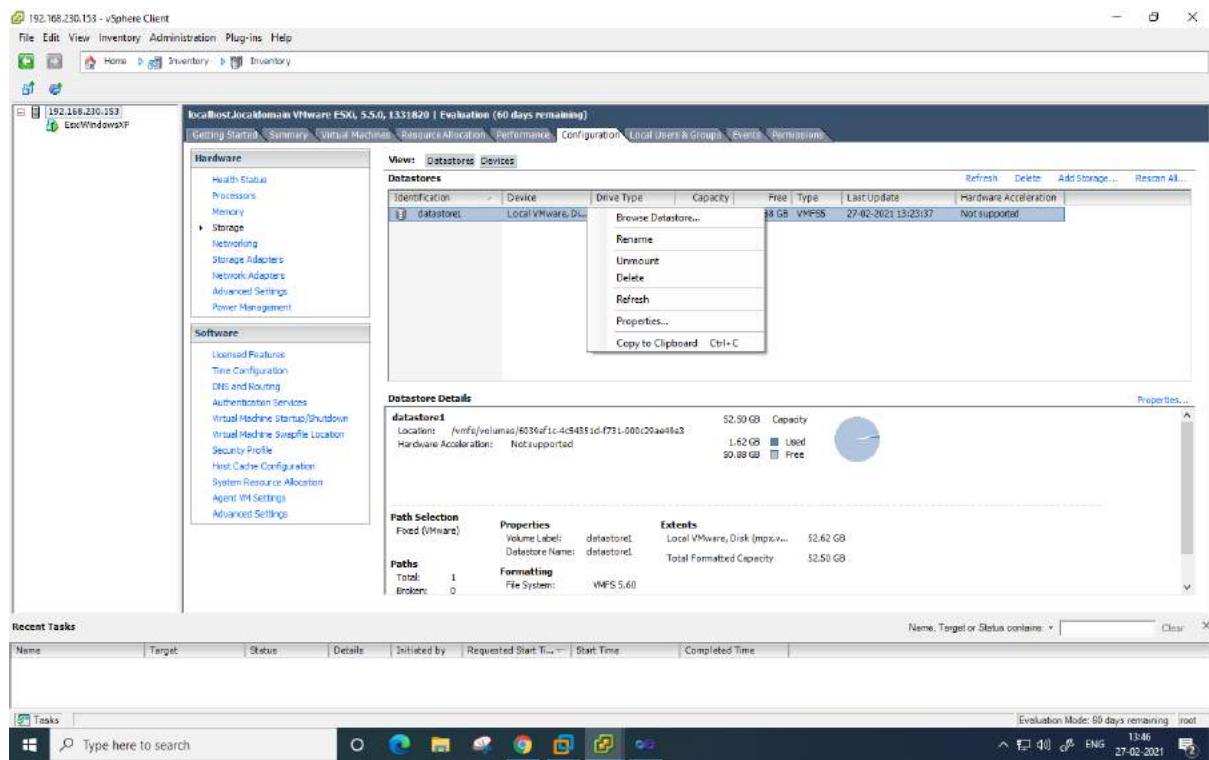
Practical 6

Implement Open Nebula

Open vSphere Client and Power on Exsi Server

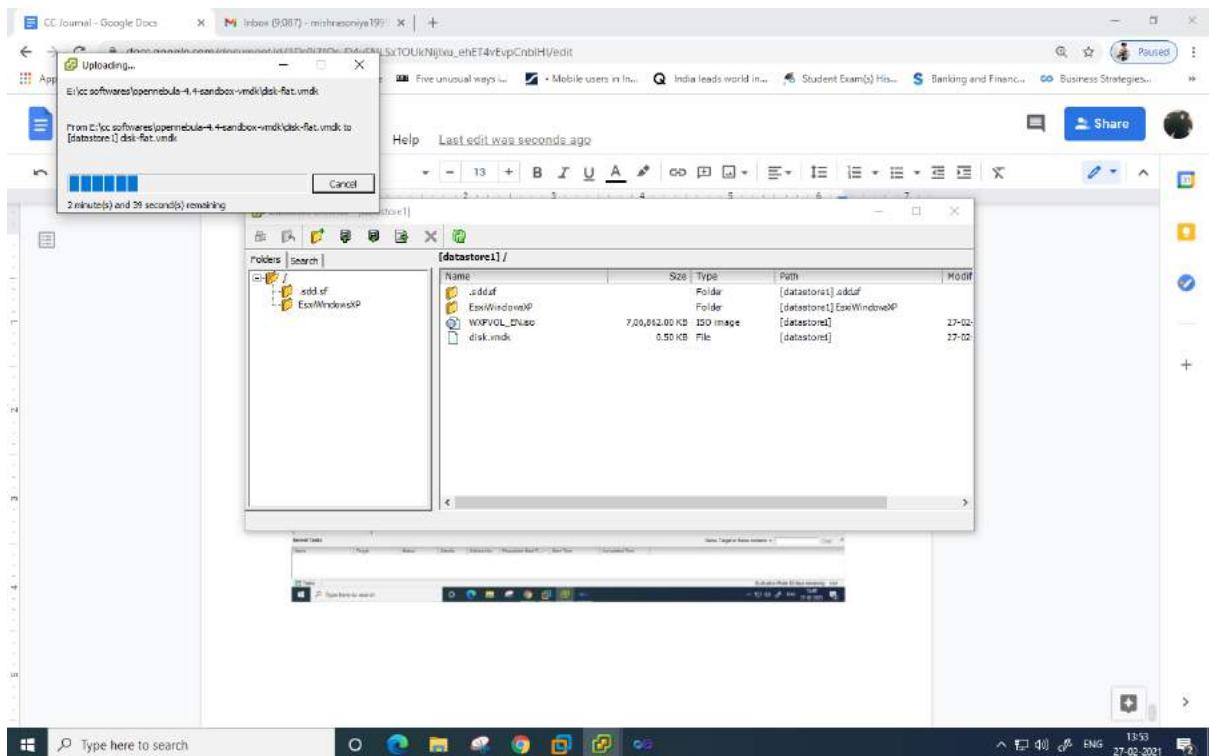
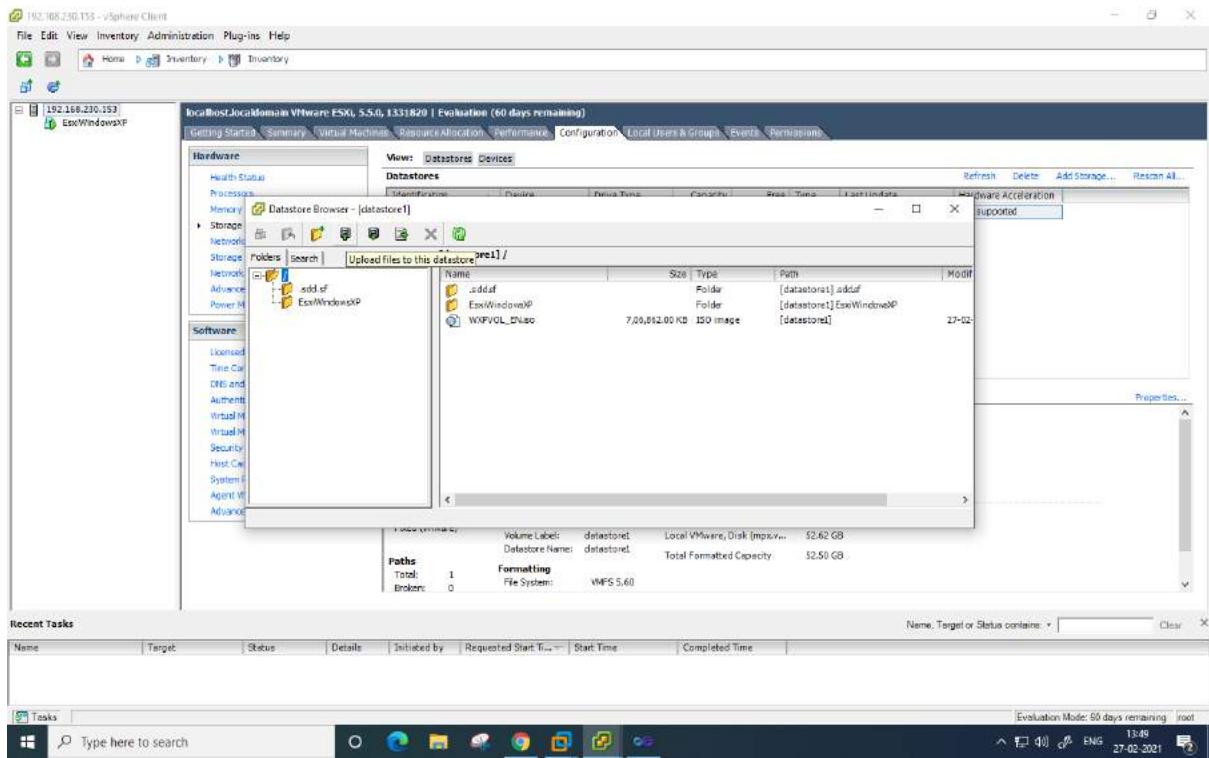
Click on the Ip address above the esxi server in the side bar

Select Storage -> click on datastore -> Browse Datastore.

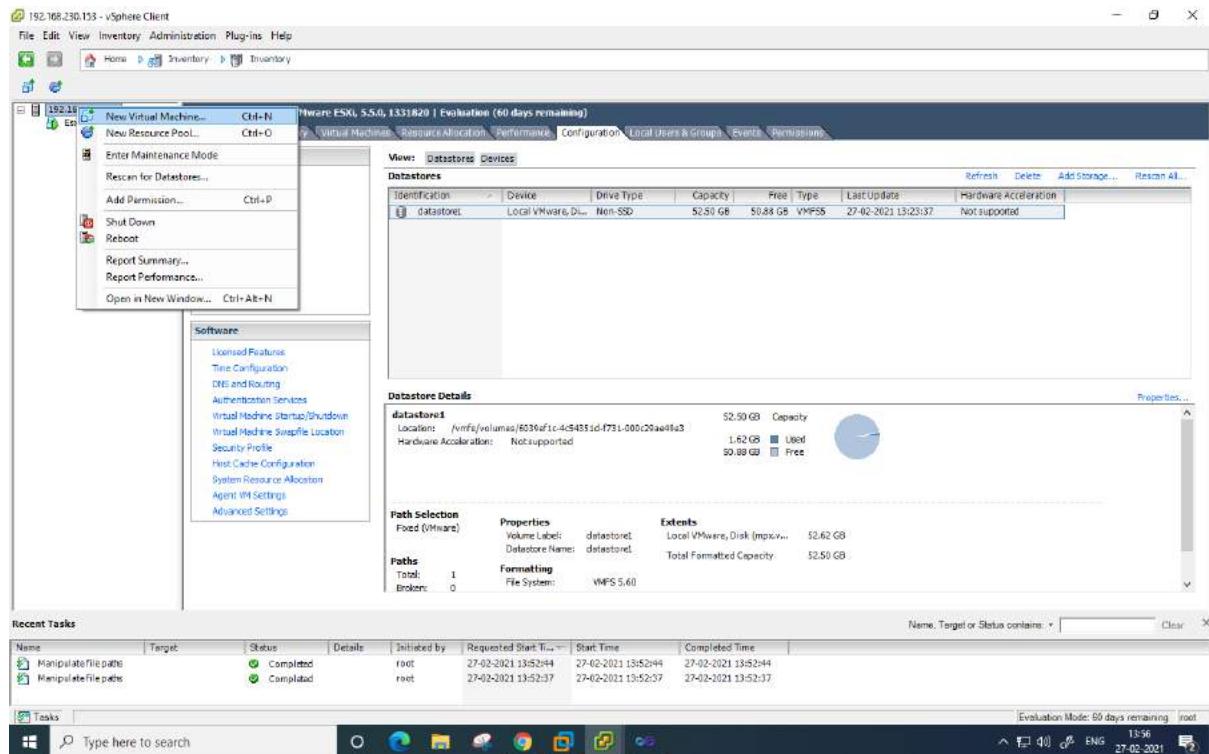


Click on upload files into datastore

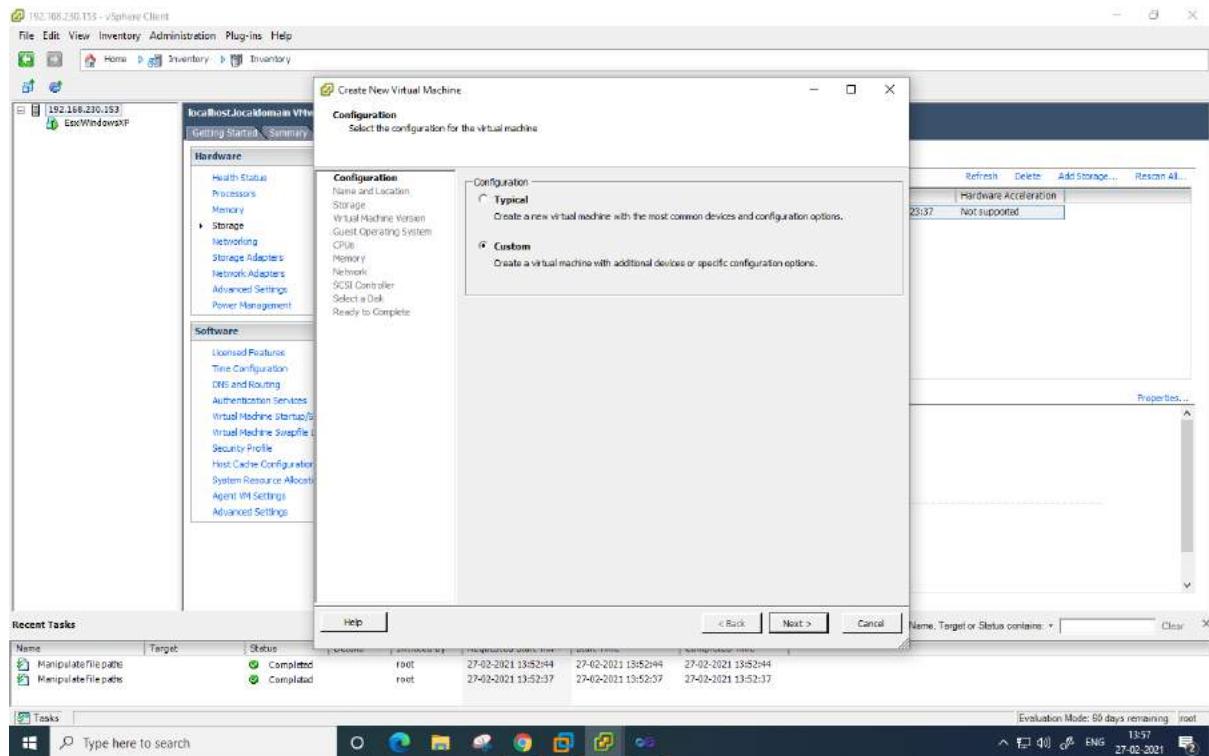
Select disk and then disk-flat

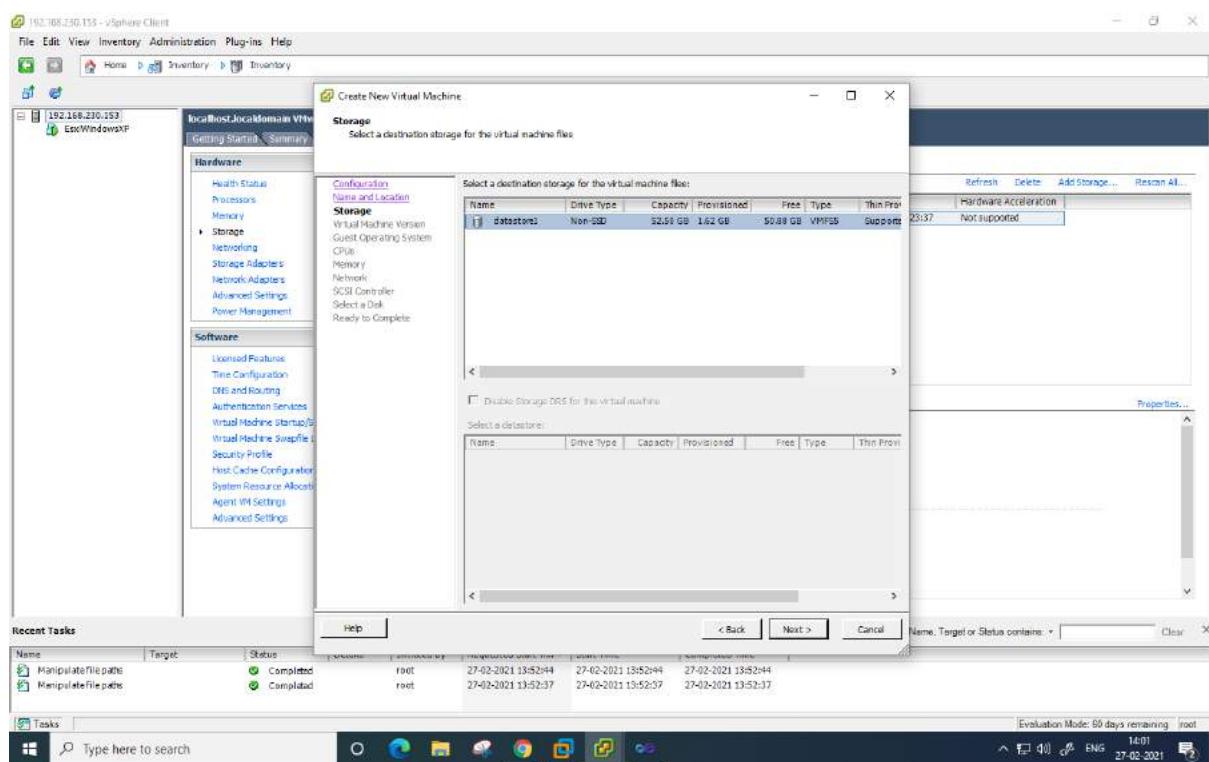
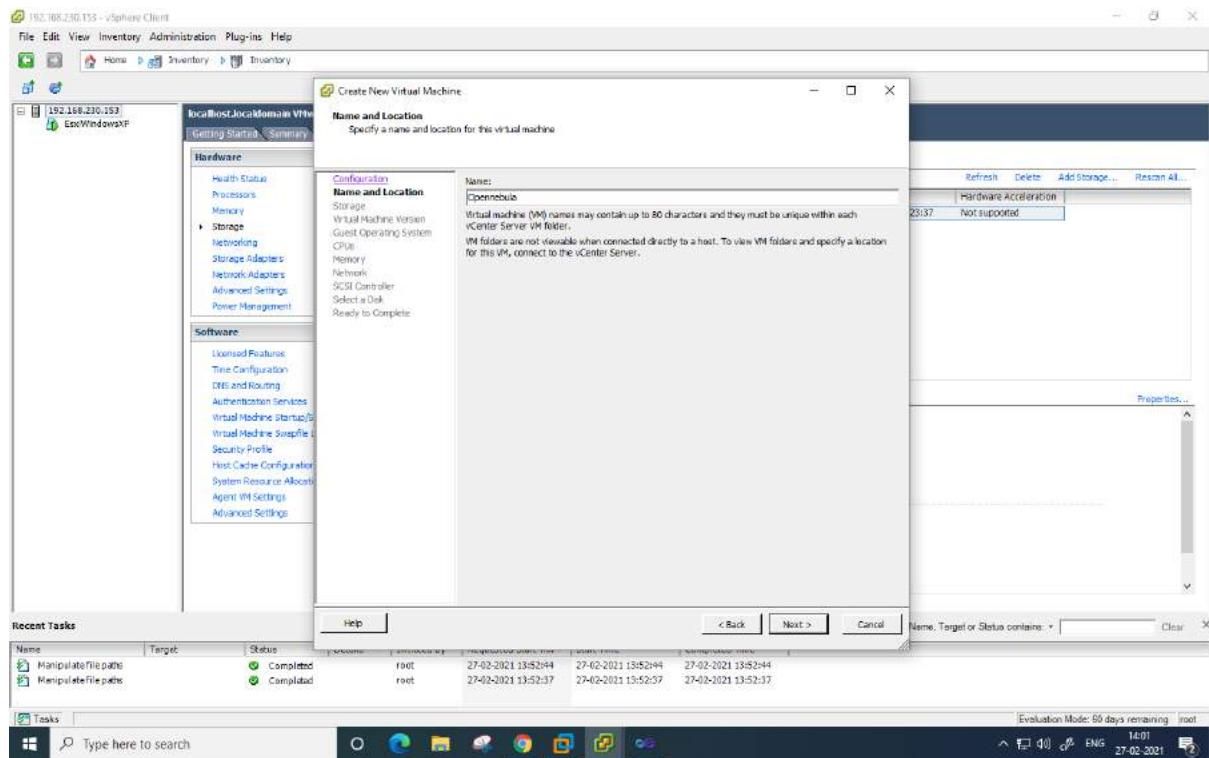


Click Create New Virtual Machine

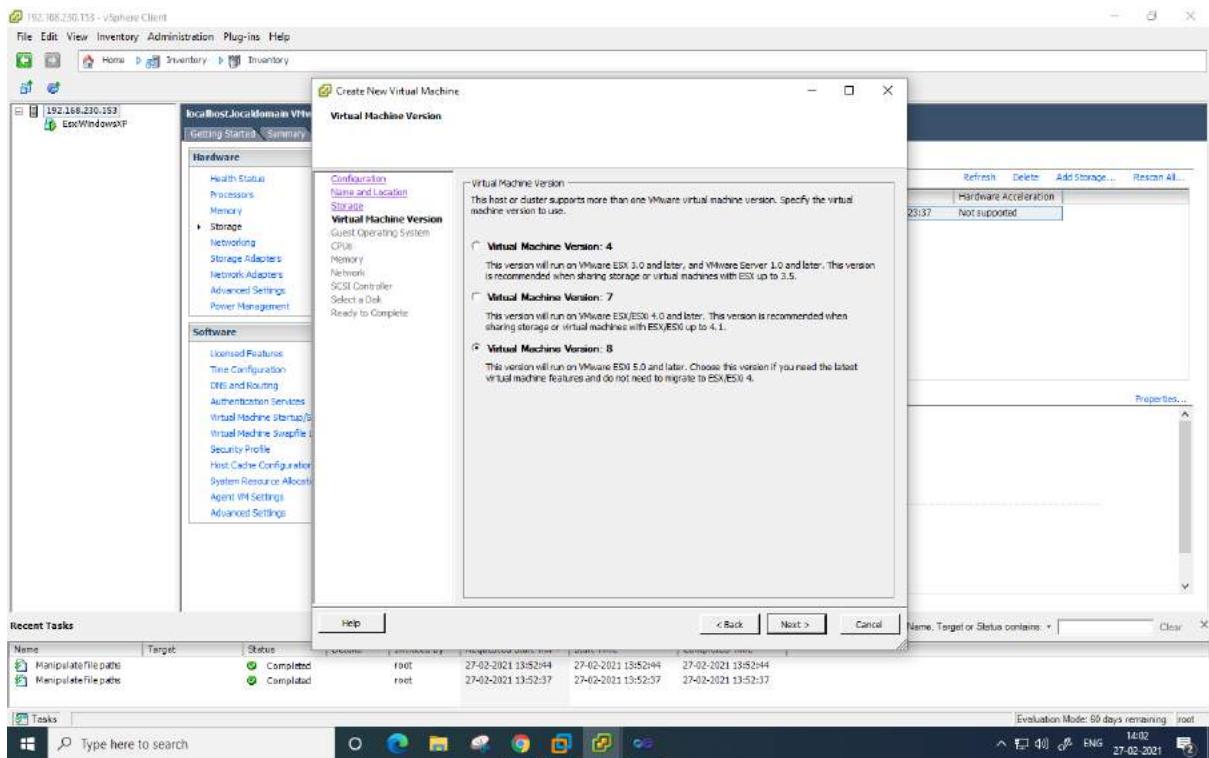


Configuration : Custom

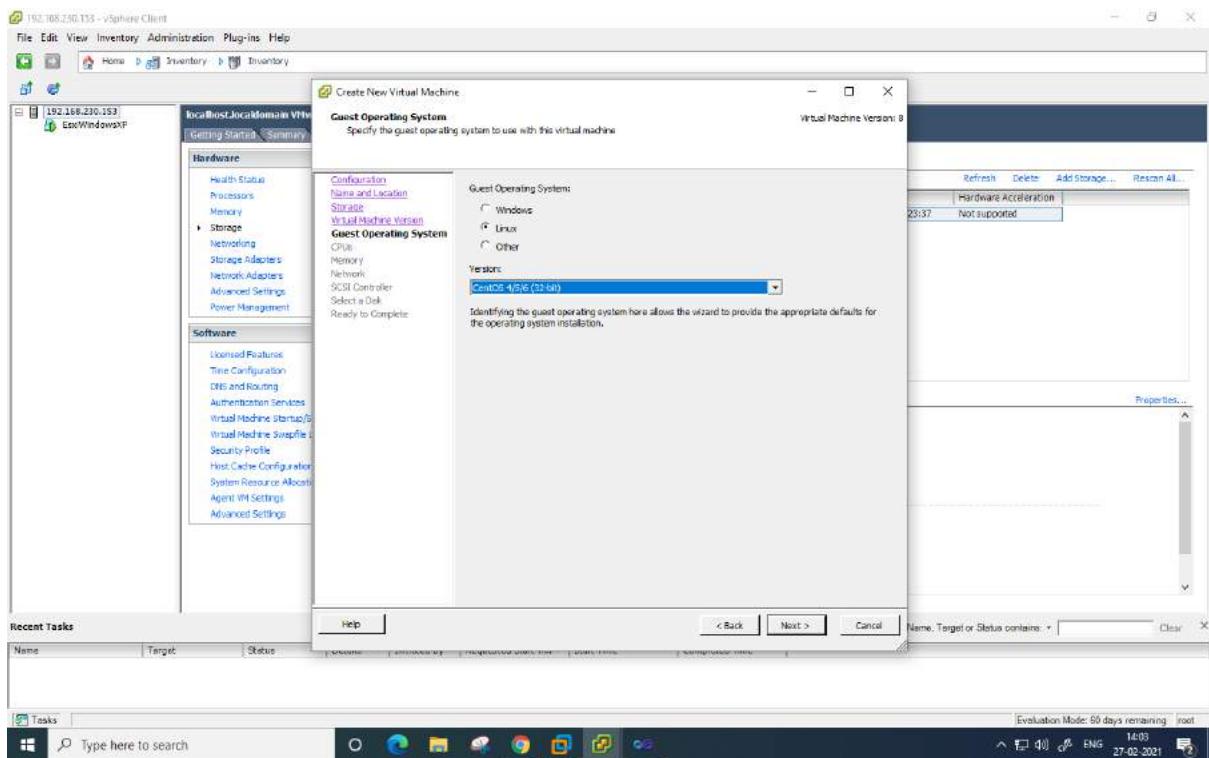


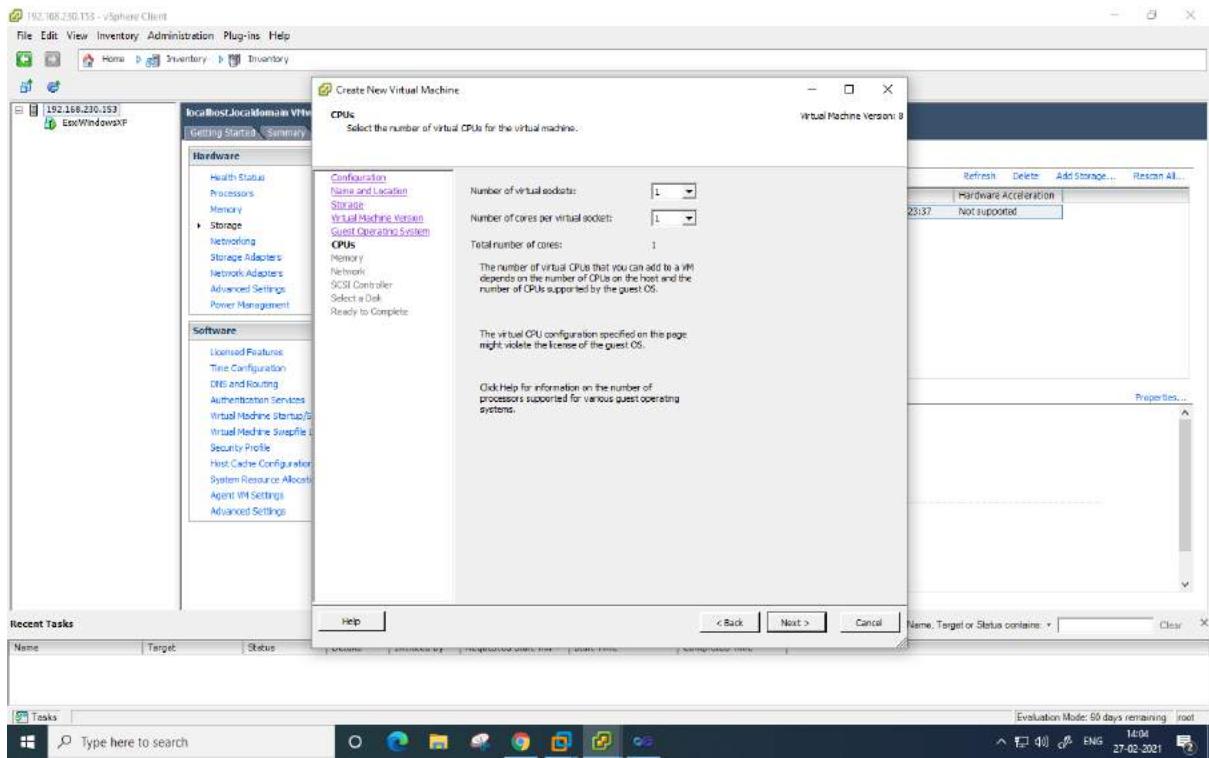


Virtual Machine Version : Virtual Machine Version 8

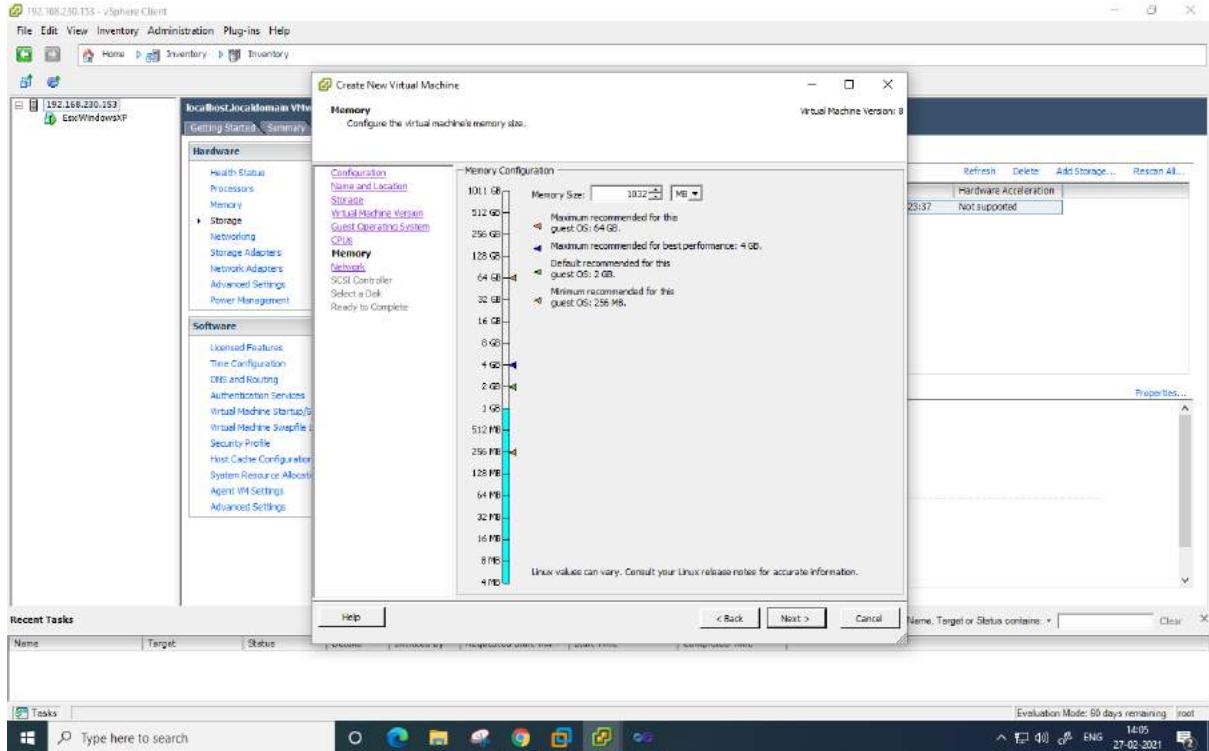


Select Linux and select CentOS 4/5/6 bit and click On next

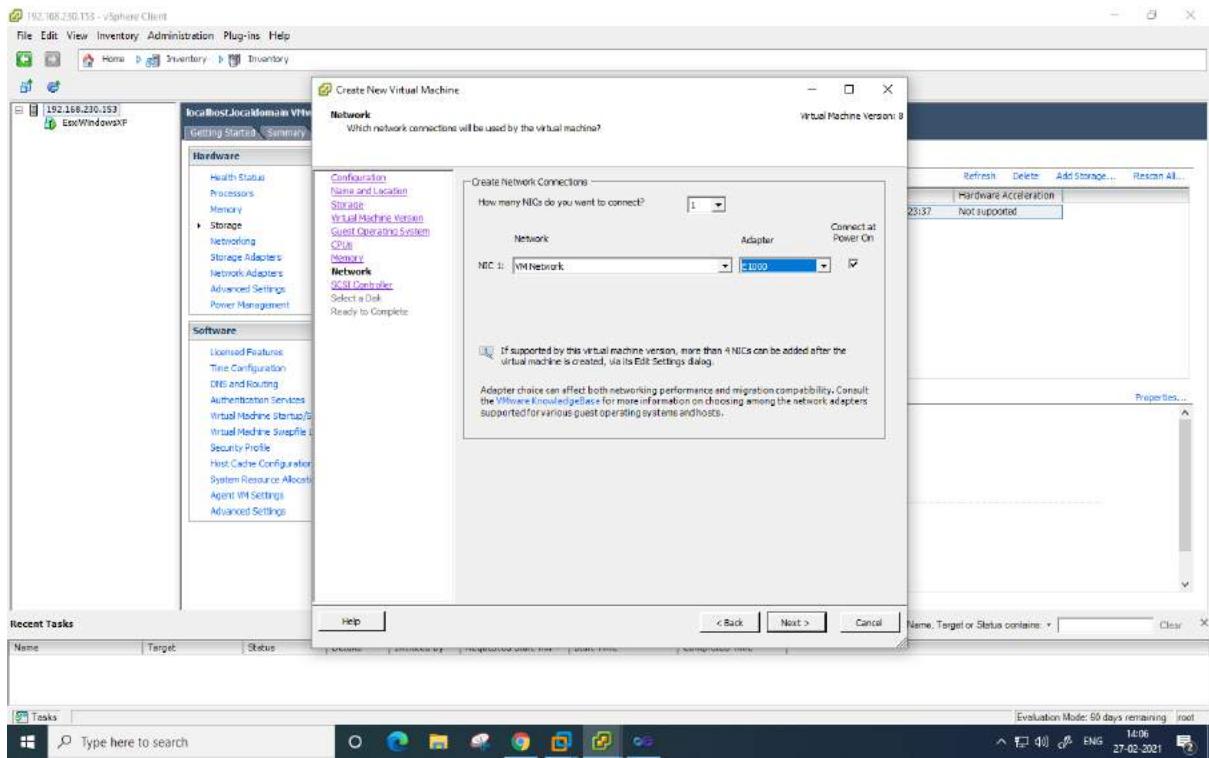




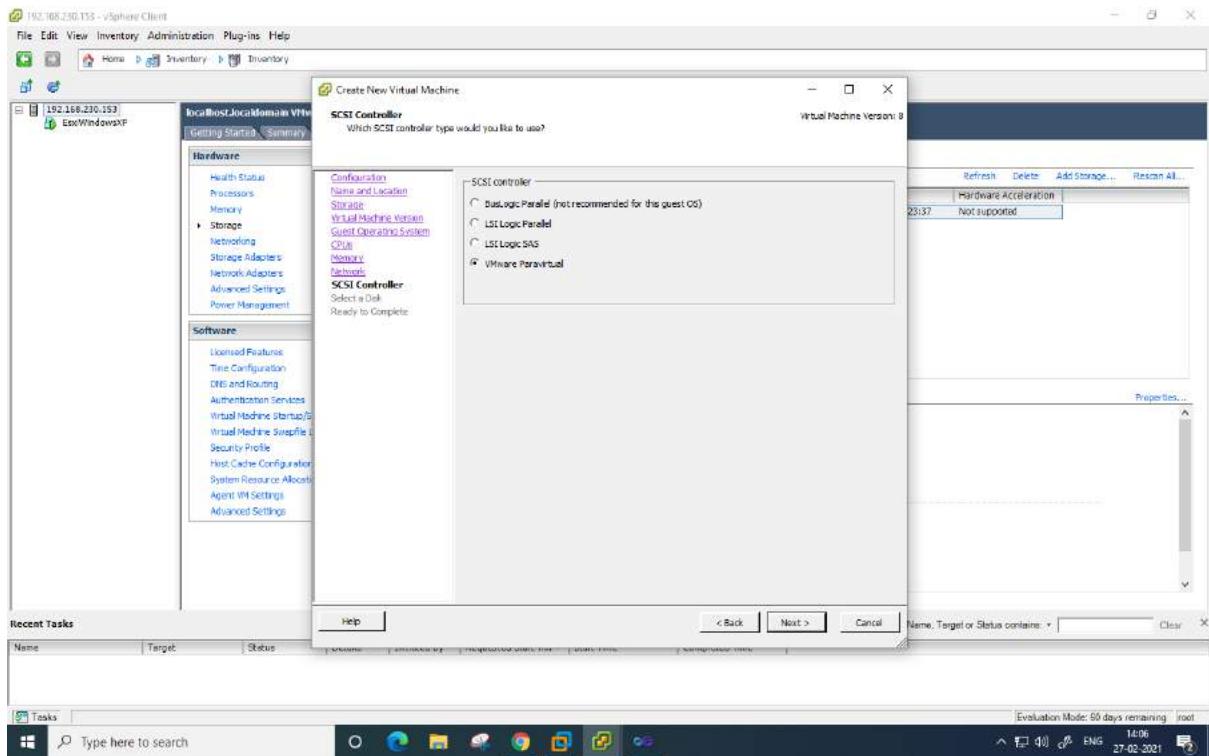
Memory : 1GB



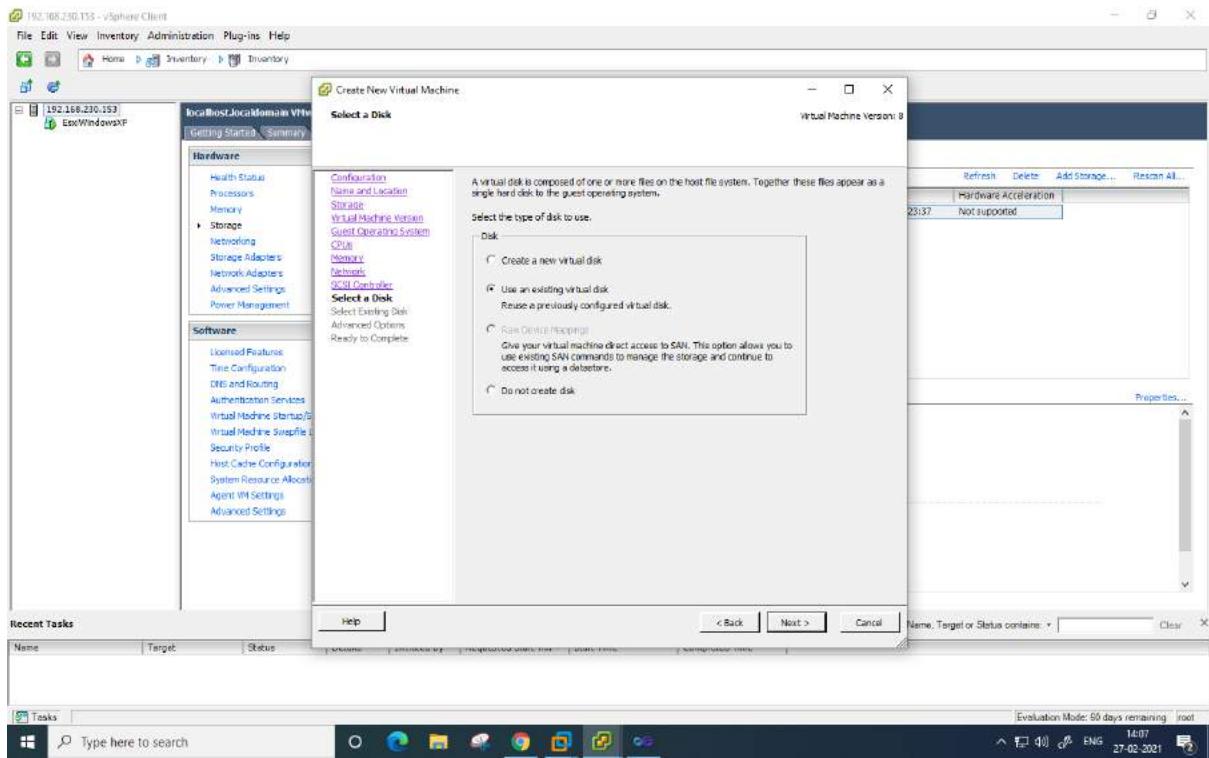
Adapter: E1000



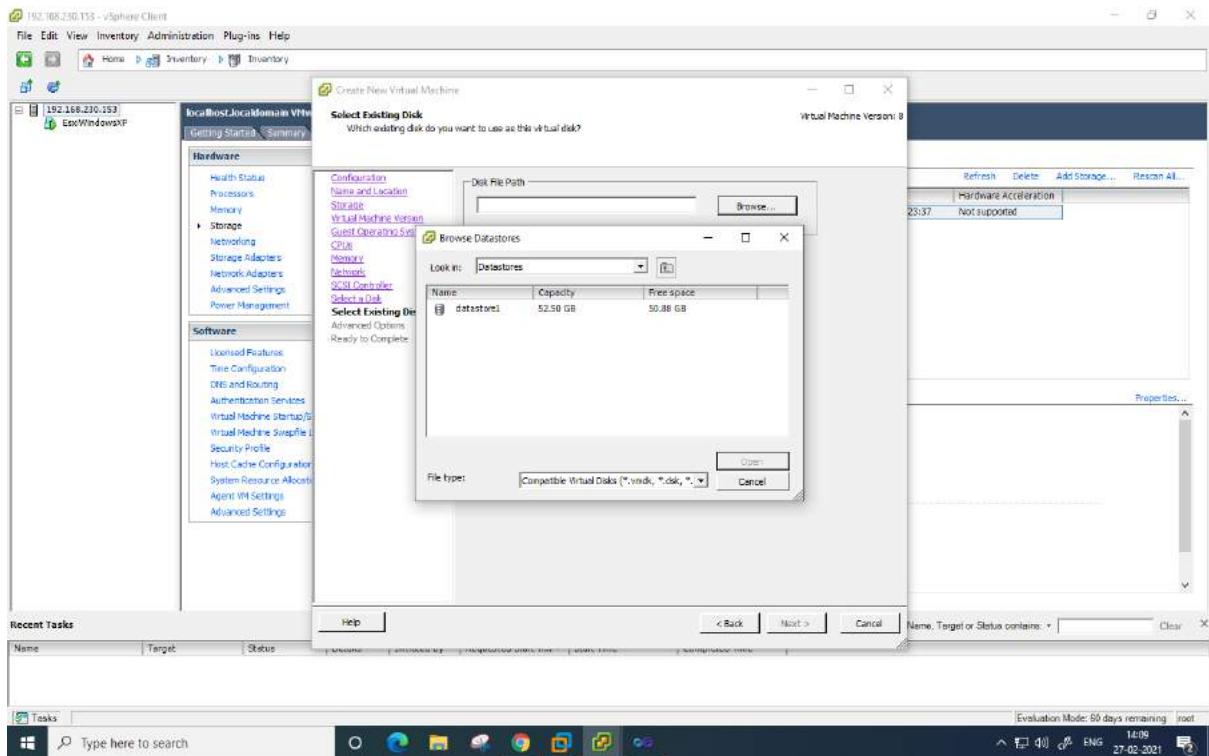
SCSI controller :VMware Paravirtual



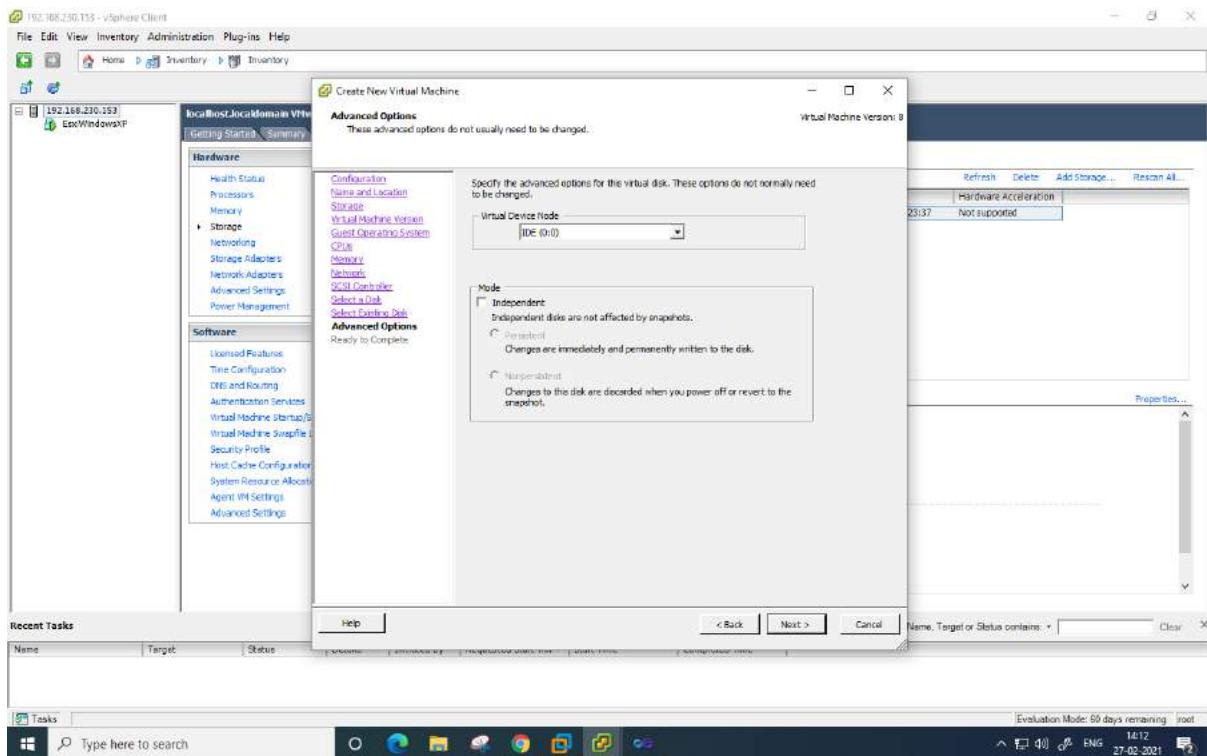
Create disk : Use an existing virtual disk



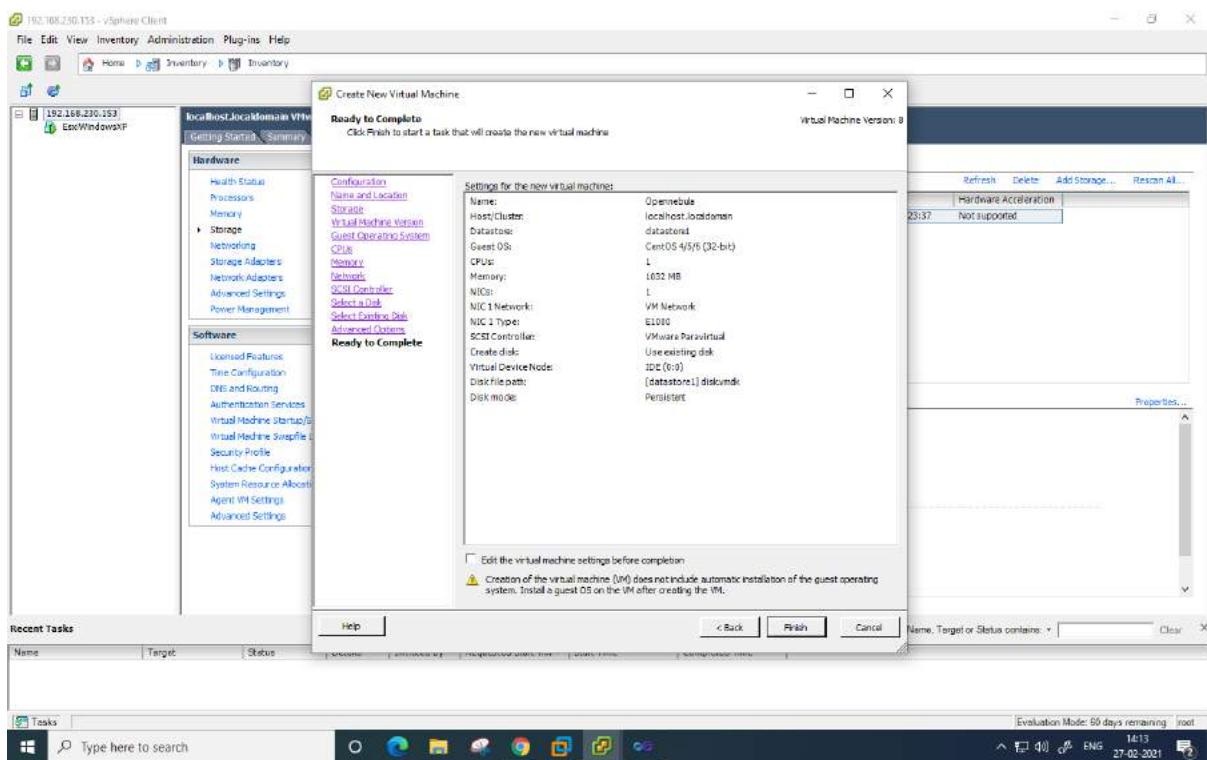
Select Existing Disk -> click on datastore1-> click on disk.vmdk and OK and click next



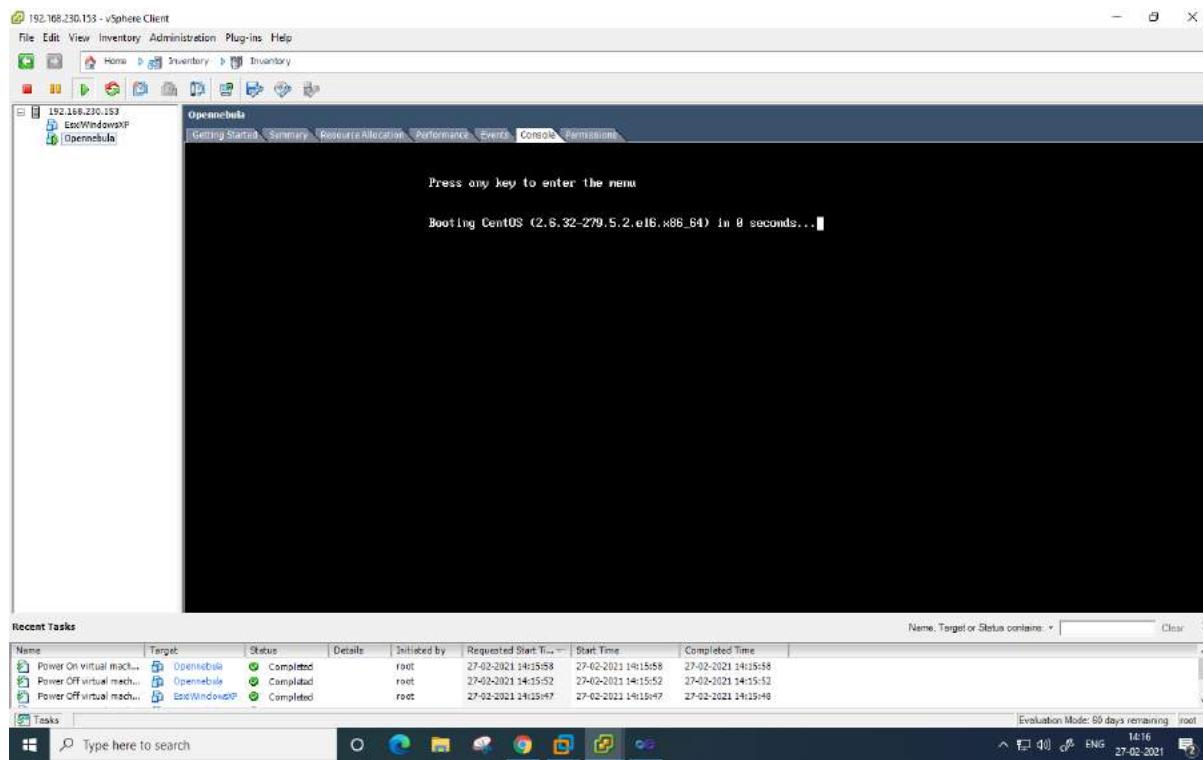
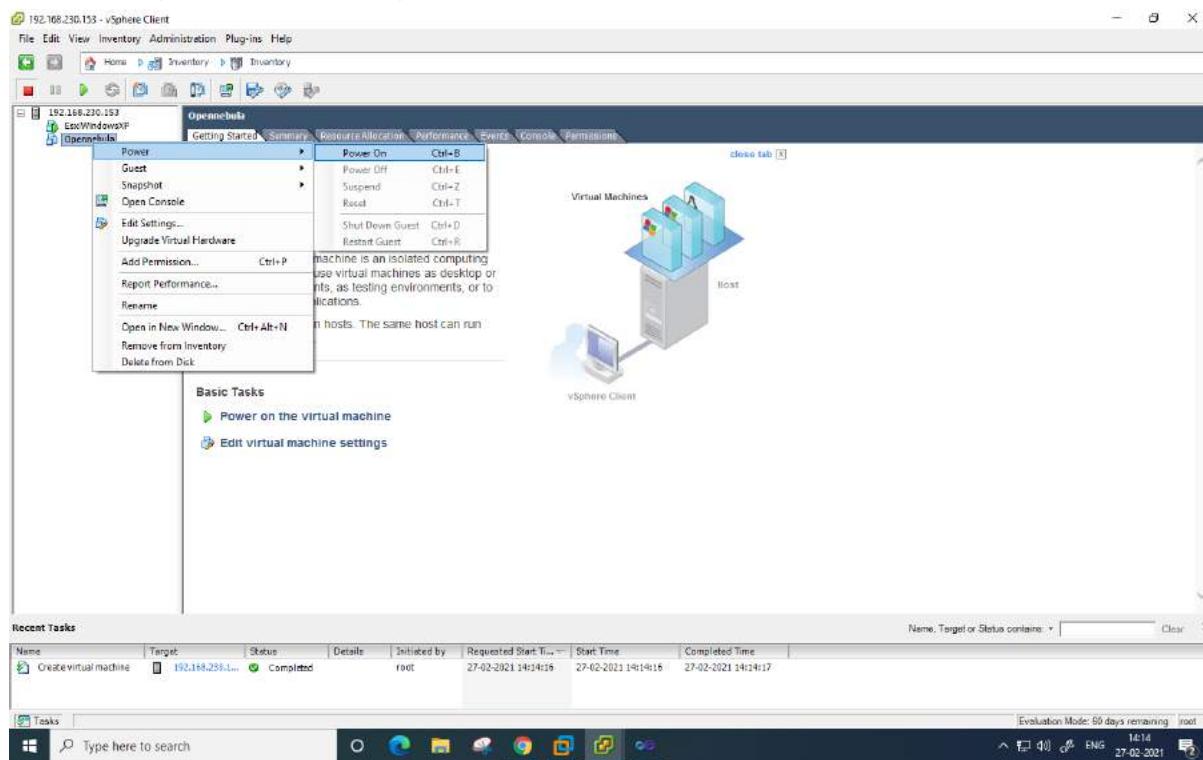
Click Next



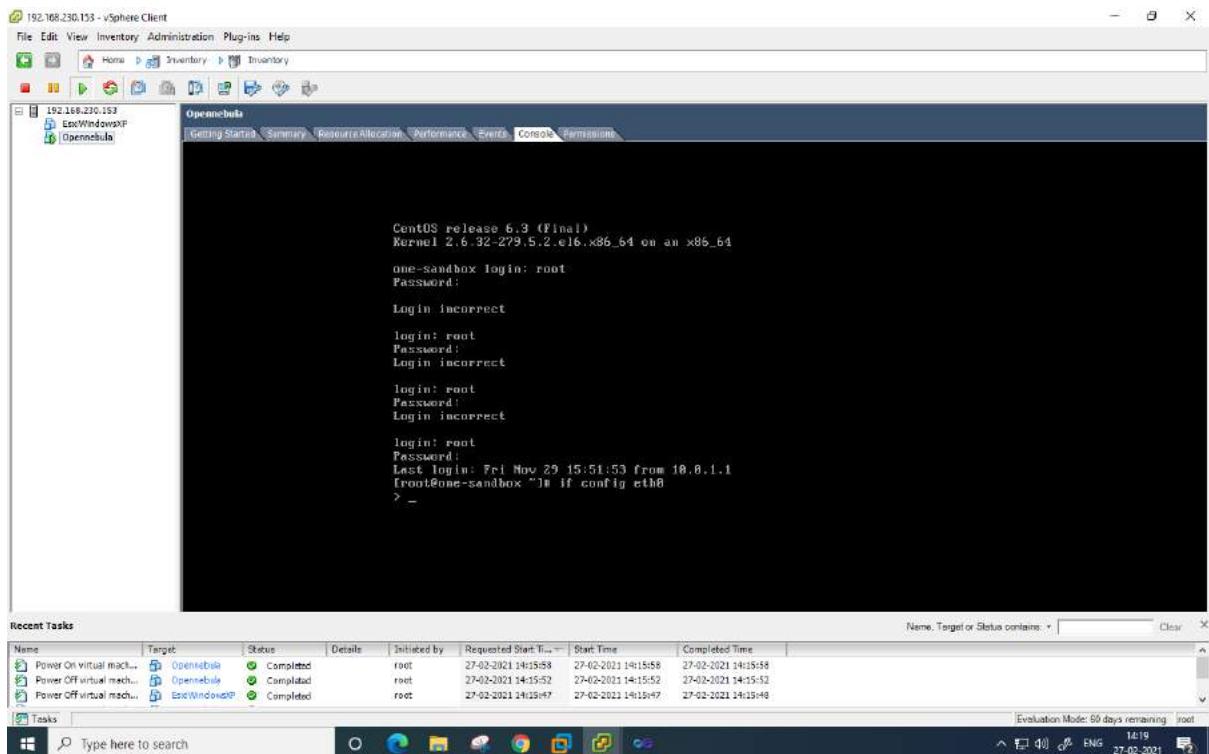
Finish



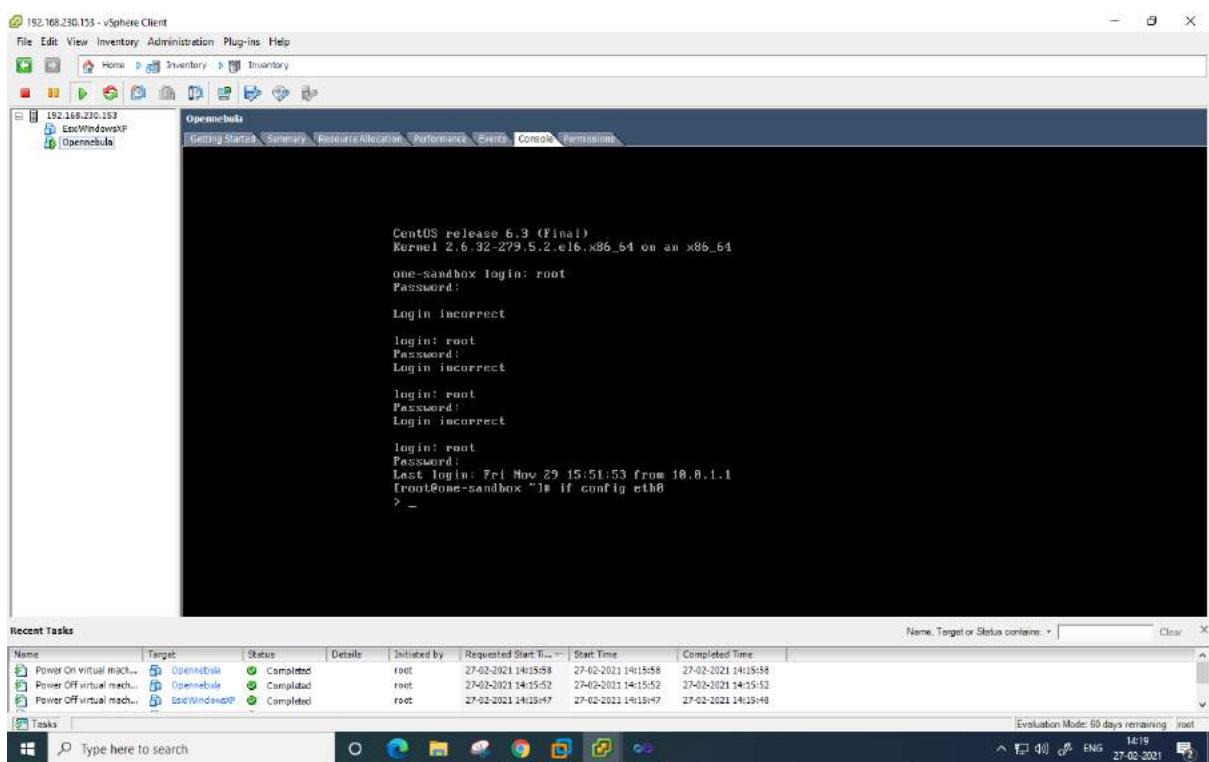
Click on opennebula and power on

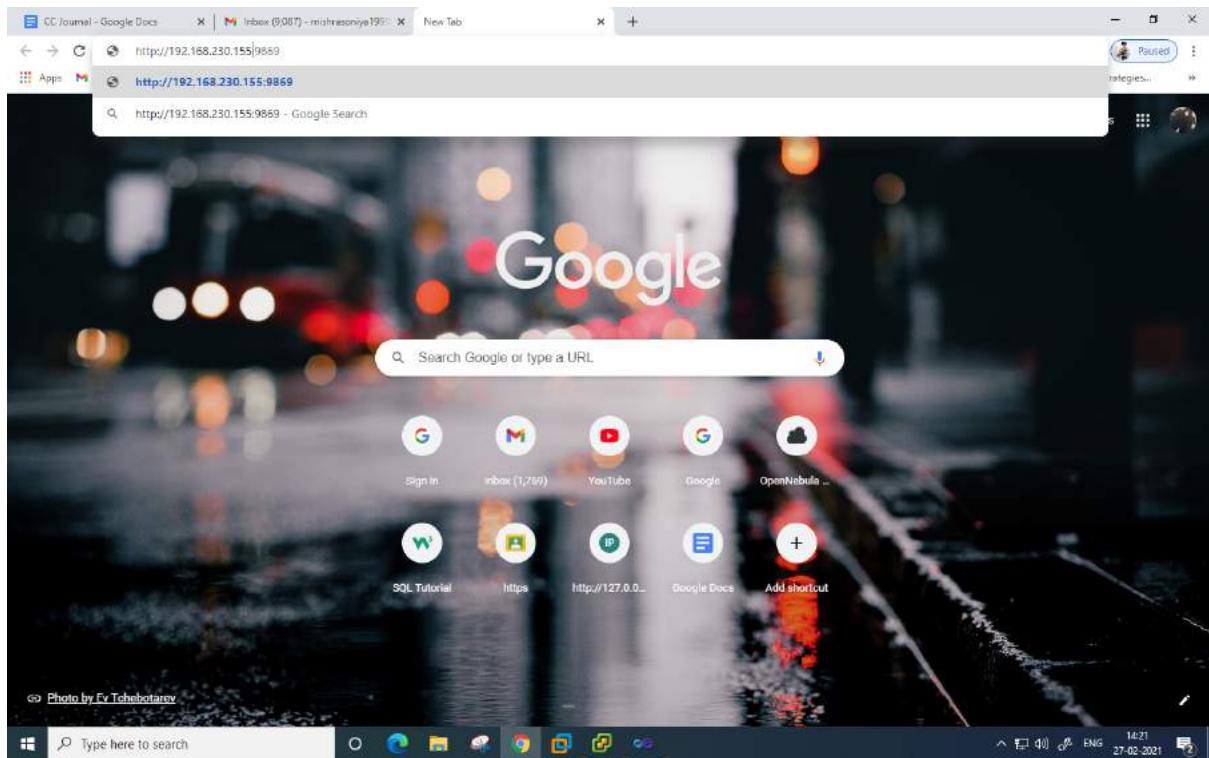


Enter Username: root
Password : opennebula



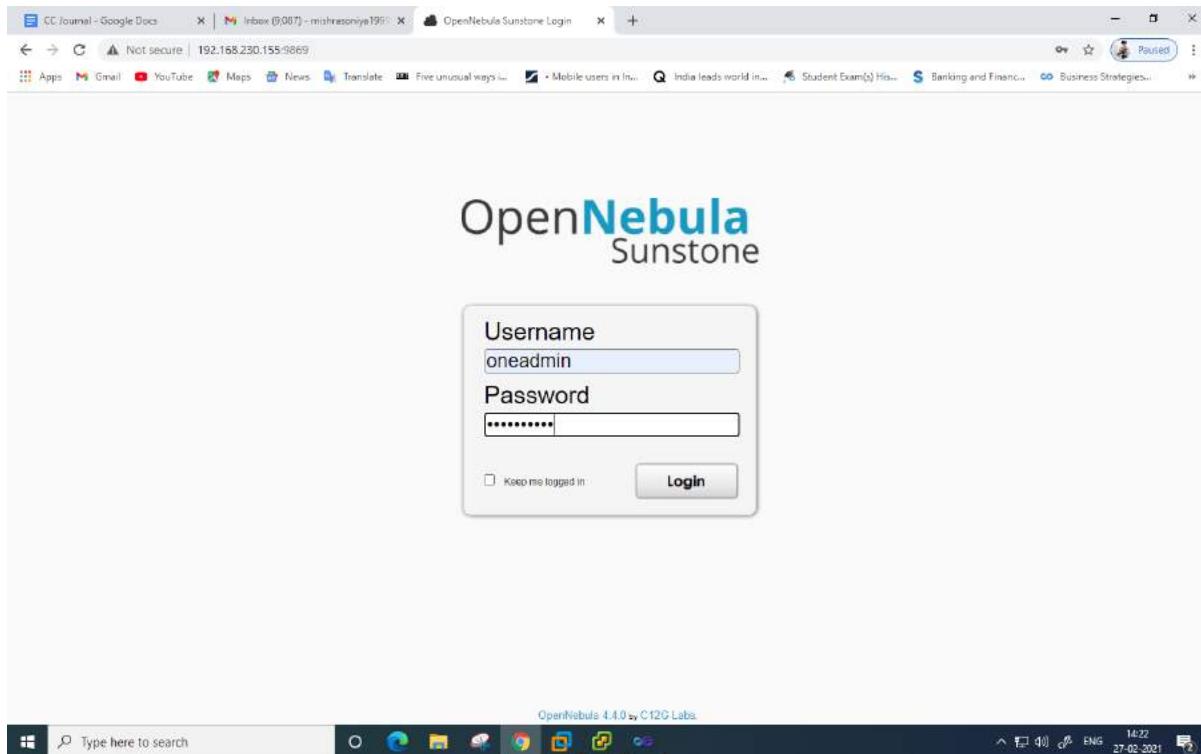
Write ifconfig eth0





Username: oneadmin

Password : opennebula



Under System -User

OpenNebula Sunstone

Users

ID	Name	Group	Auth driver	VMs	Memory	CPU
1	serveradmin	oneadmin	server_cipher	0 / -	0KB / -	0 / -
0	oneadmin	oneadmin	core	-	-	-

Showing 1 to 2 of 2 entries

OpenNebula 4.4.0 by C12G Labs

Create User

The screenshot shows the OpenNebula Sunstone web interface. On the left, there is a sidebar with navigation links: Dashboard, System (Users, Groups, ACLs), Virtual Resources, Infrastructure, Marketplace, and OneFlow. The main area is titled 'Users' and shows a list of users with columns for Name, ID, and Last login. A modal dialog box is open in the center, titled 'Create User'. It contains fields for 'Username' (set to 'soniya'), 'Password' (a masked password), and 'Authentication' (set to 'Core'). There are 'Close', 'Create user', and 'Create' buttons at the bottom. The status bar at the bottom of the screen indicates 'OpenNebula 4.4.0 by C12G Labs'.

Under Infrastructure -> Virtual Network

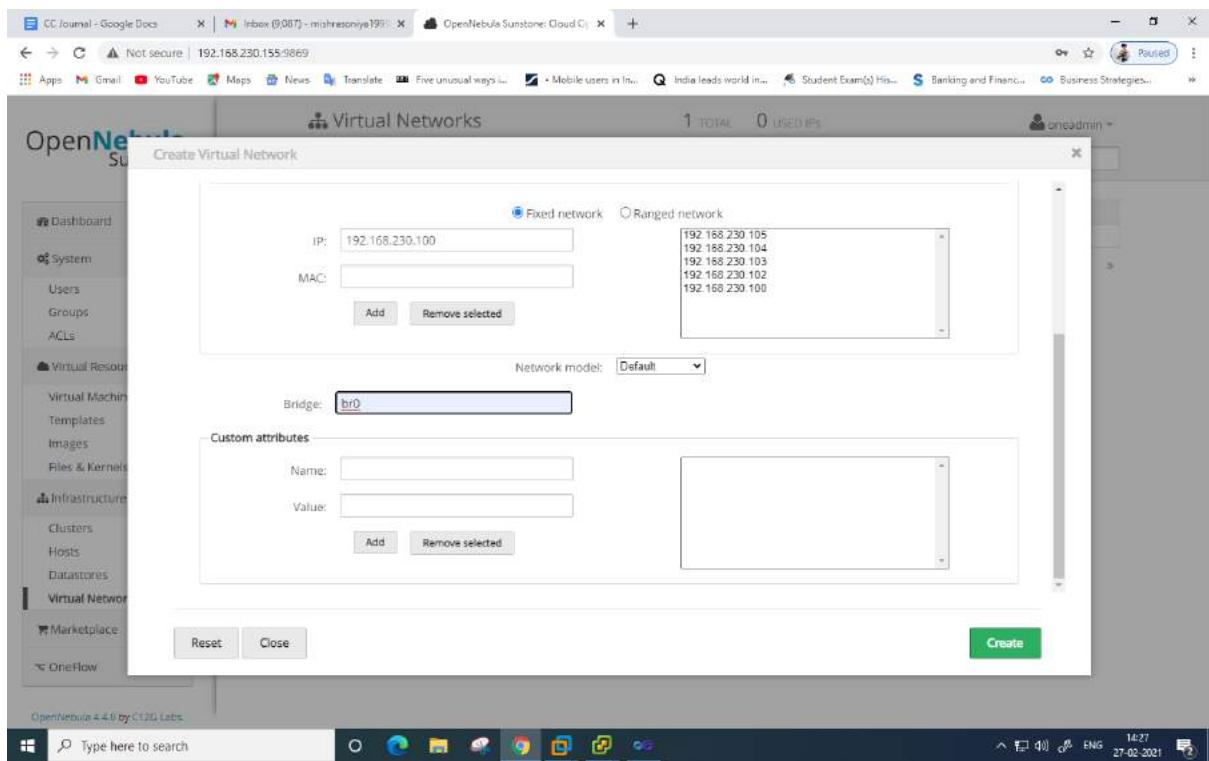
The screenshot shows the OpenNebula Sunstone web interface. On the left, a sidebar menu includes options like Dashboard, System (Users, Groups, ACLs), Virtual Resources (Virtual Machines, Templates, Images, Files & Kernels), Infrastructure (Clusters, Hosts, Datastores), Virtual Networks, Marketplace, and OneFlow. The main content area is titled "Virtual Networks" and displays a table with one entry:

ID	Owner	Group	Name	Cluster	Type	Leases
0	oneadmin	oneadmin	cloud	-	FIXED	0

Below the table, it says "Showing 1 to 1 of 1 entries". At the top right, there are buttons for Delete, More, and Search, along with a user profile for "oneadmin". The browser's address bar shows "192.168.230.155:9869". The taskbar at the bottom shows various application icons.

Create Virtual Network

The screenshot shows the "Create Virtual Network" wizard. The "Wizard" tab is selected. The "Name:" field contains "SonlyaVirtualNetwork". The "Type" section has "IPv4" selected. Under "IPv4", fields for "N. Address:", "N. Mask:", "DNS:", and "Gateway:" are present. Below these, under "IPs", "192.168.230.100" is listed. Under "MAC:", there is a dropdown menu showing "192.168.230.105, 192.168.230.104, 192.168.230.103, 192.168.230.102, 192.168.230.100". Buttons for "Add" and "Remove selected" are available. At the bottom right is a "Create" button. The background shows the same OpenNebula Sunstone interface as the previous screenshot.



Create Datastore

The screenshot shows the OpenNebula Sunstone web interface. On the left, there's a sidebar with navigation links like Dashboard, System, Virtual Resources (Virtual Machines, Templates, Images, Files & Kernels), Infrastructure (Clusters, Hosts, Datastores, Virtual Networks), Marketplace, and OneFlow. The main area is titled 'Datastores' and contains a 'Create Datastore' wizard. The 'Wizard' tab is selected. The form fields include:

- Name: SoniyaDatastore
- Presets: Filesystem
- Cluster: Default (none)
- Type:
 - Images
 - System
 - Files
- Managers:
 - Datastore: Filesystem
 - Transfer: Shared
- Disk type: File
- Safe Directories: (empty field)
- Restricted Directories: (empty field)
- Base Path: (empty field)
- Limit: (empty field)

At the bottom are 'Reset' and 'Close' buttons, and a prominent green 'Create' button.

This screenshot shows the 'Create Image' wizard in the OpenNebula Sunstone interface. The sidebar and overall layout are identical to the previous screenshot. The main area is titled 'Images' and displays '1 TOTAL 40MB USED'. The 'Create Image' wizard is open:

- Name: Soniyalimage
- Type: CDROM
- Description: (empty field)
- Datastore: default (id:1)
- Persistent:
- Image location:
 - Provide a path:
 - Upload:
 - Empty datablock:
- Advanced options: (button)

At the bottom are 'Reset' and 'Close' buttons, and a green 'Create' button.

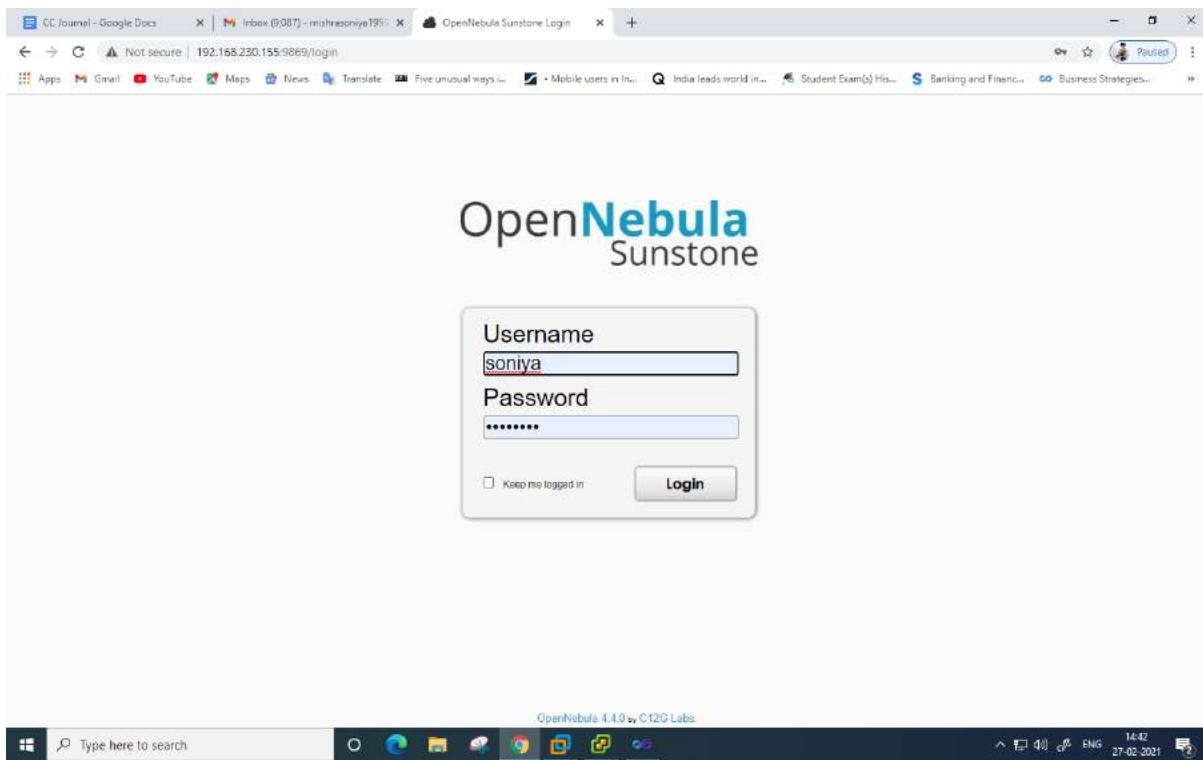
Provide access of admin,user and manager of datastore

The screenshot shows the OpenNebula Sunstone web interface. On the left, a sidebar menu includes options like Dashboard, System, Virtual Resources (Virtual Machines, Templates, Images, Files & Kernels), Infrastructure (Clusters, Hosts, Datastores, Virtual Networks), Marketplace, and OneFlow. The main area displays a table of images. The top row of the table shows the following columns: ID, Owner, Group, Name, Datastore, Type, Status, and #VMS. The first entry is highlighted with a blue background and contains the values: ID 1, Owner oneadmin, Group oneadmin, Name Soniyalimage, Datastore default, Type CDROM, Status READY, and #VMS 0. Below the table, a message says "Showing 1 to 2 of 2 entries". A modal window titled "Information" provides detailed information about the selected image. It lists fields such as ID, Name, Datastore, Type, Register time, Persistent, Filesystem type, Size, State, and Running VMS. To the right of the table, there are sections for Permissions, Ownership, Configuration & Tags, and a "Submitted" status box for "Image chmod: 1".

Provide access of admin,user and manager of virtual network

This screenshot shows the OpenNebula Sunstone interface again, this time focusing on Virtual Networks. The sidebar and overall layout are similar to the previous screenshot. The main area shows a table of virtual networks. The first entry is highlighted with a blue background and contains the values: ID 1, Owner oneadmin, Group oneadmin, Name SoniyaVirtualNetwork, Cluster -, Type FIXED, and Leases 0. Below the table, a message says "Showing 1 to 2 of 2 entries". A modal window titled "Information" provides detailed information about the selected virtual network. It lists fields such as ID, Name, Cluster, Bridge, VLAN, Physical device, and VLAN ID. To the right of the table, there are sections for Lease management, Permissions, Ownership, and Configuration Attributes, all containing "Submitted" status boxes for various chmod and Network chmod values.

Logout from admin and login with created user



Under Virtual Resources-> Templates

The screenshot shows the OpenNebula Sunstone web interface. The left sidebar has a 'Templates' section selected. The main area displays a table titled 'Templates' with one entry:

ID	Owner	Group	Name	Registration time
0	oneadmin	oneadmin	ttylinux	03:16:57 21/11/2012

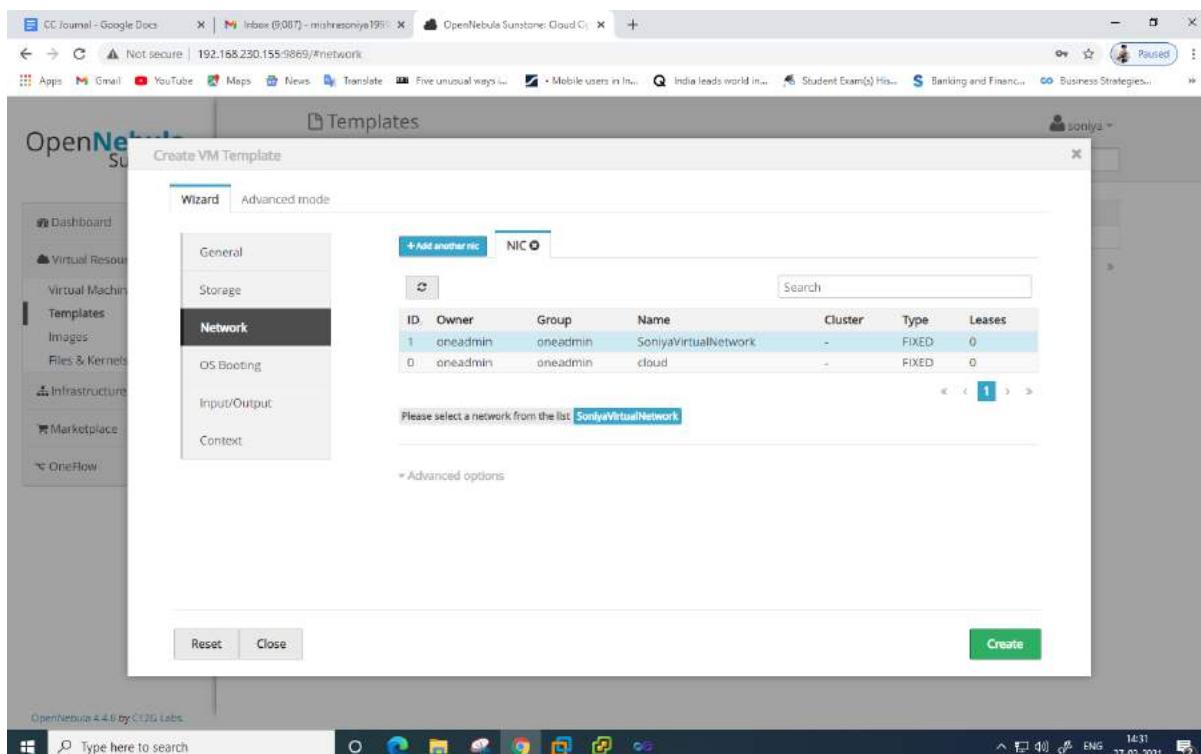
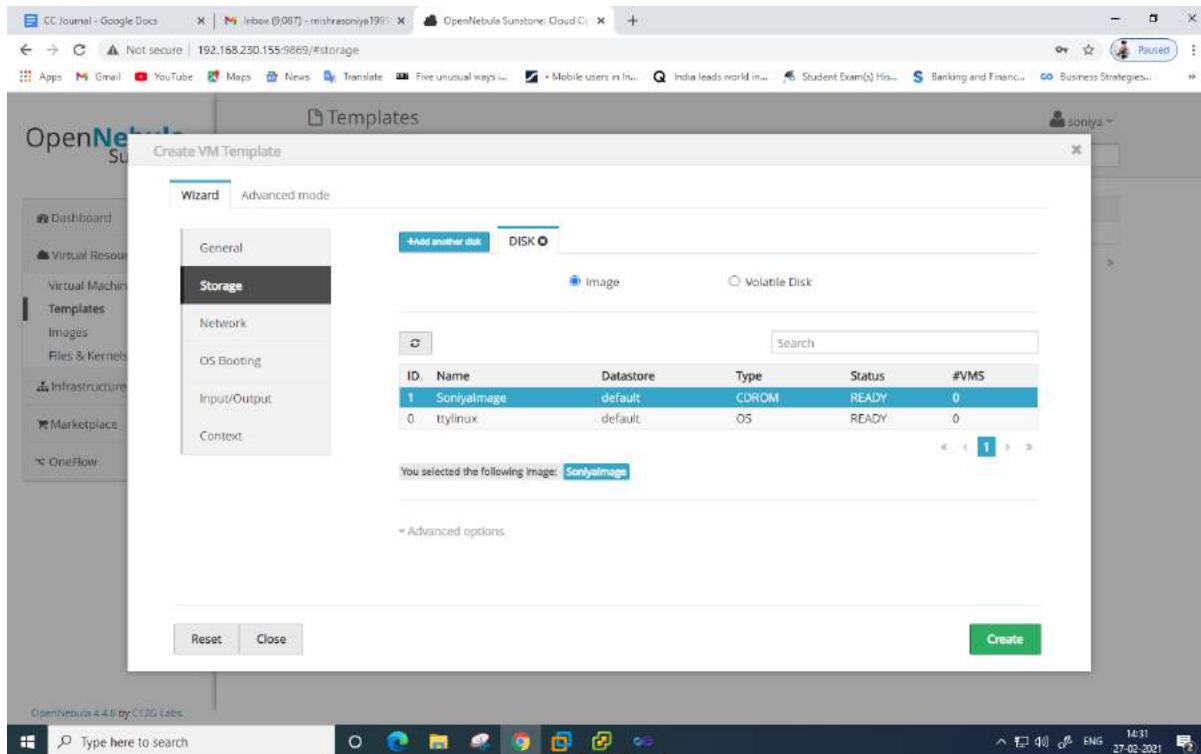
Below the table, it says 'Showing 1 to 1 of 1 entries'. There are buttons for 'Delete', 'Instantiate', 'More...', and 'Search'.

The browser's address bar shows the URL: 192.168.230.155:9869/. The taskbar at the bottom shows various icons and the date: 27-02-2021.

Create template

The screenshot shows the 'Create VM Template' wizard in the OpenNebula Sunstone interface. The left sidebar has a 'Templates' section selected. The main area is titled 'Create VM Template' and shows the 'Wizard' tab selected. The 'General' configuration page is displayed, with fields for NAME (set to 'Soniyatemplate'), CPU (set to 1), and MEMORY (set to 512 MB). There are tabs for 'Advanced mode', 'Storage', 'Network', 'OS Booting', 'Input/Output', and 'Context'. At the bottom are 'Reset' and 'Close' buttons, and a large green 'Create' button.

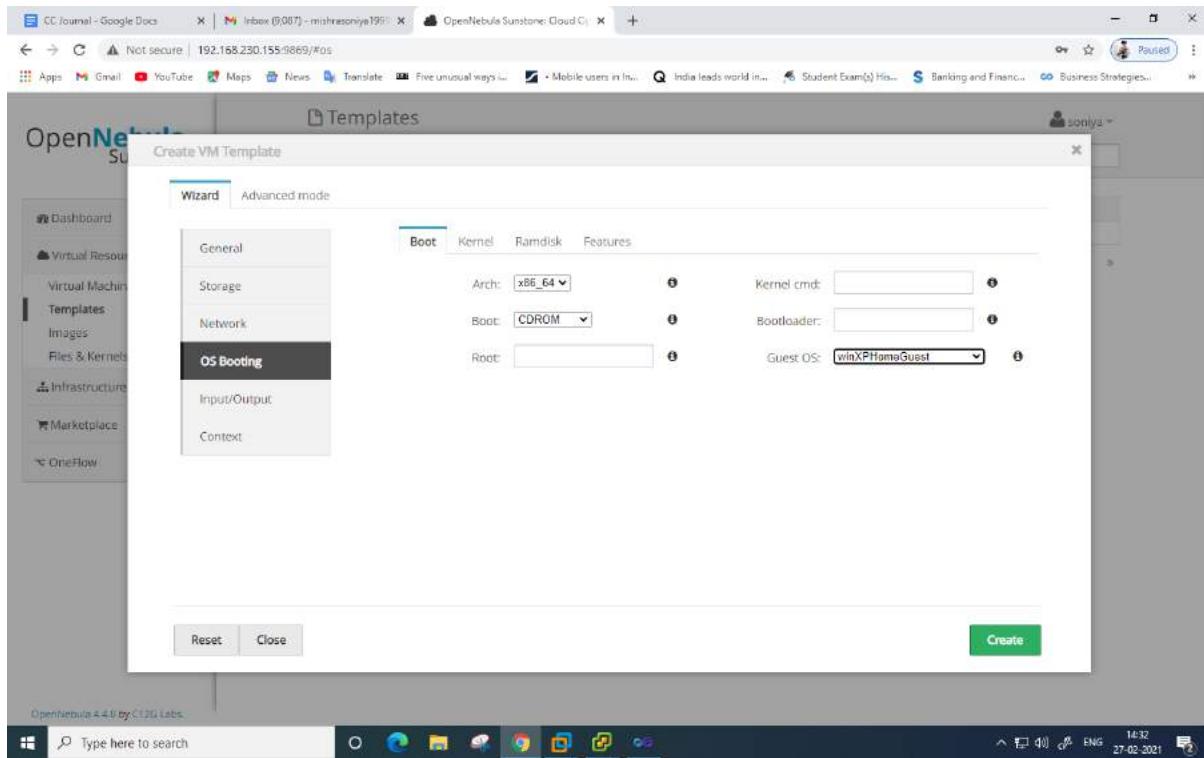
The browser's address bar shows the URL: 192.168.230.155:9869/#capacity. The taskbar at the bottom shows various icons and the date: 27-02-2021.



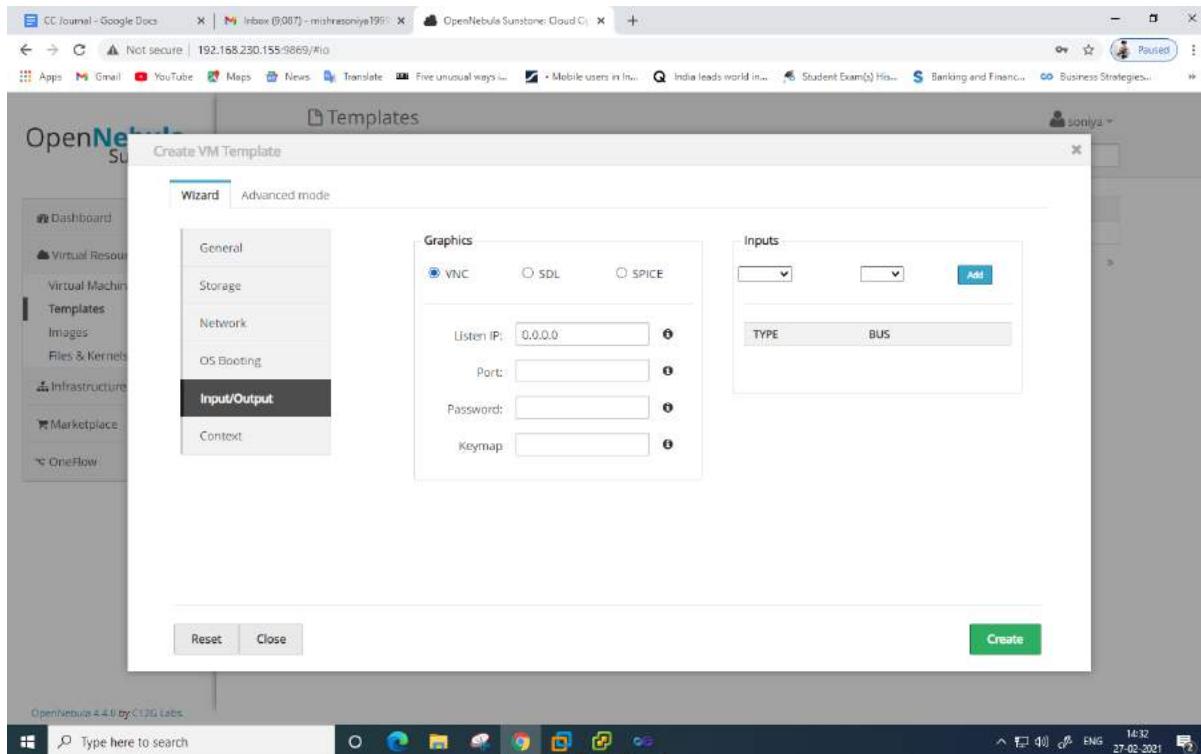
Arch :Select x86_64

Boot : CDROM

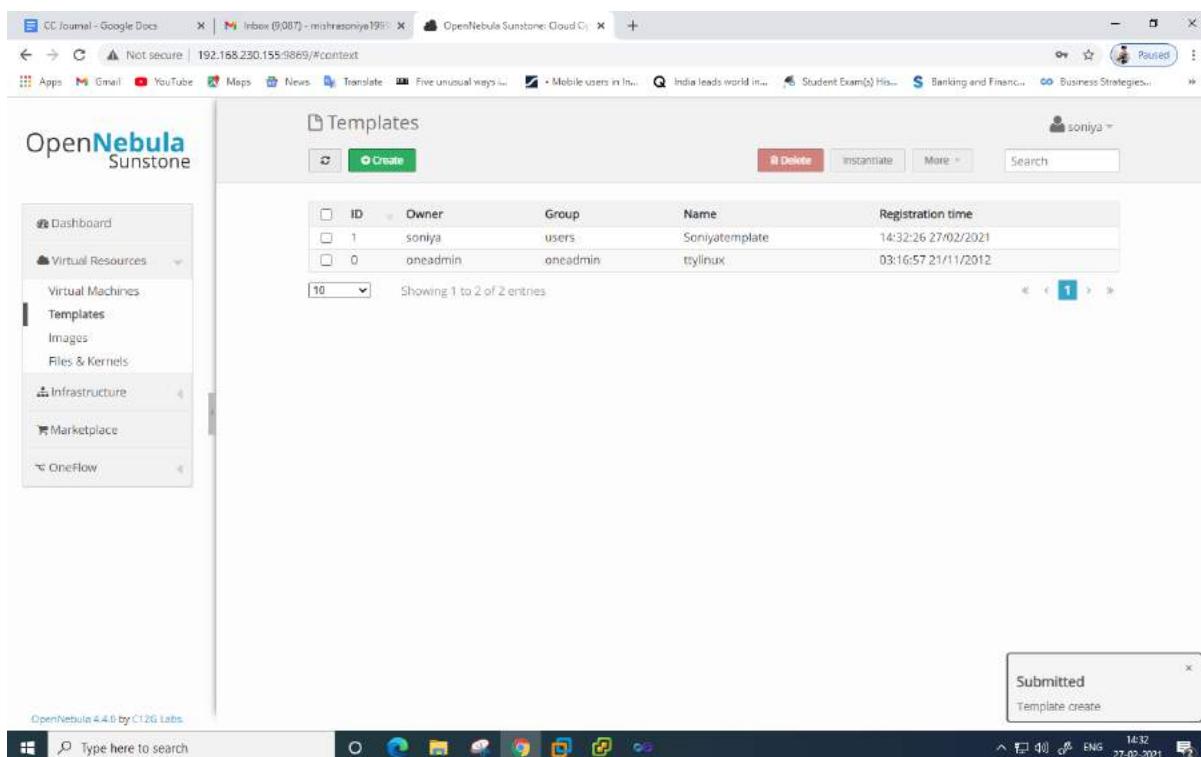
GuestOS :winXPHOMEQUEST



Input/Output : VNC



Create Instatiate of your template



OpenNebula Sunstone

Instantiate VM Template

VM Name: TempSonlya # VMs: 1

Close Instantiate

Information Template

Template - Soniyatemplate

ID	Name	Register time
1	Soniyatemplate	14:32:26 27/02/2021

Permissions:

	Use	Manage	Admin
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Type here to search

Give Permission of user and manager

OpenNebula Sunstone

Templates

Create Delete Instantiate More Search

ID	Owner	Group	Name	Registration time
1	sonlya	users	Soniyatemplate	14:32:26 27/02/2021
0	oneadmin	oneadmin	tylinux	03:16:57 21/11/2012

Showing 1 to 2 of 2 entries

Information Template

Template - Soniyatemplate

ID	Name	Register time
1	Soniyatemplate	14:32:26 27/02/2021

Permissions:

	Use	Manage	Admin
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Submitted
Template instance: 1

Type here to search

The screenshot shows the OpenNebula Sunstone web interface. On the left, a sidebar menu includes options like Dashboard, Virtual Resources, Templates, Images, Files & Kernels, Infrastructure, Marketplace, and OneFlow. The main area displays a table of templates. The first template listed is 'Soniyatemplate' (ID: 1), owned by 'soniya'. A modal window is open for this template, showing its details: ID 1, Name Soniyatemplate, and Register time 14:32:26 27/02/2021. The modal also contains a permissions table and two message boxes: one red 'Error' box stating '[Template chmod] User [2] : Not authorized to perform ADMIN TEMPLATE [1]' and a green 'Submitted' box stating 'Template chmod: 1'. The bottom status bar indicates the system is running OpenNebula 4.4.0 by C12G Labs.

ID	Owner	Group	Name	Registration time
1	soniya	users	Soniyatemplate	14:32:26 27/02/2021
0	oneadmin	oneadmin	tylinux	03:16:57 21/11/2012

Showing 1 to 2 of 2 entries

Template - Soniyatemplate

ID	Name	Register time
1	Soniyatemplate	14:32:26 27/02/2021

Permissions:

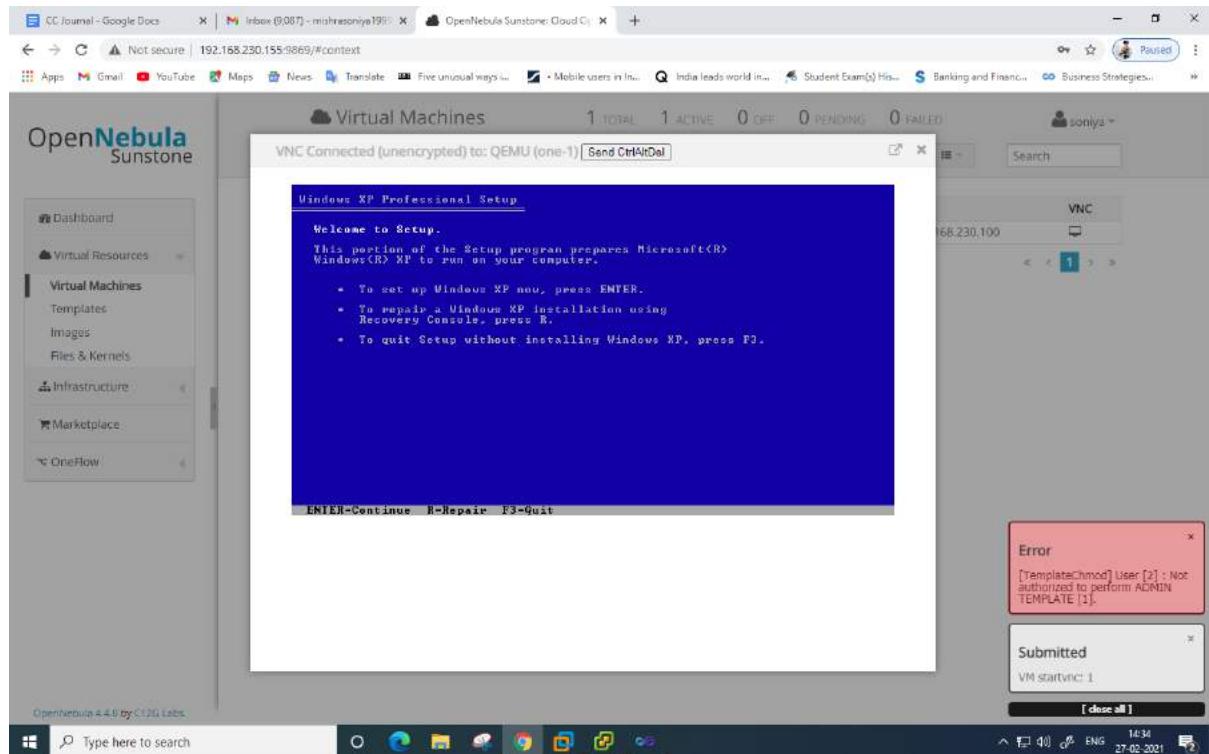
Owner	Use	Manage	Admin
Group	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Error
[Template chmod] User [2] : Not authorized to perform ADMIN TEMPLATE [1].

Submitted
Template chmod: 1

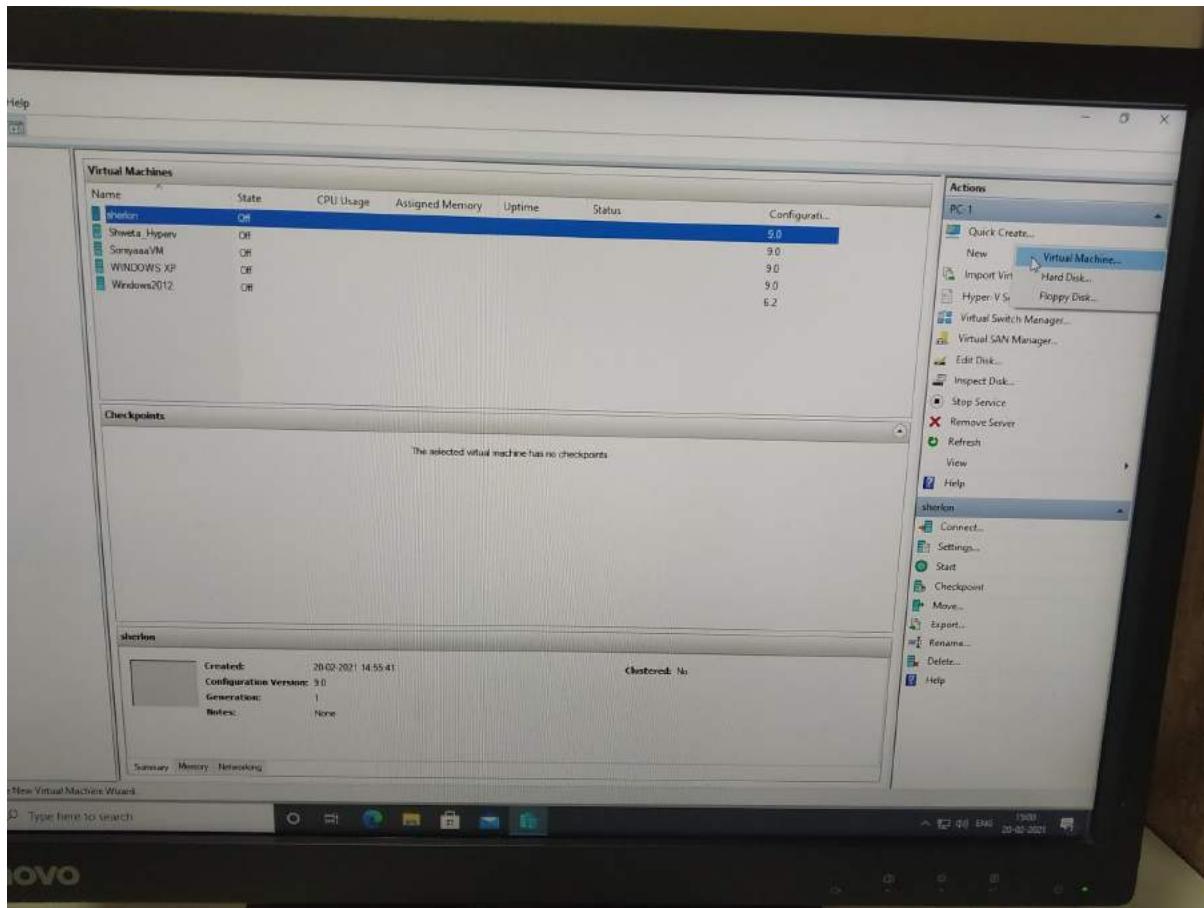
[close all]

Go to Virtual Machines:
Refresh page by selecting the template

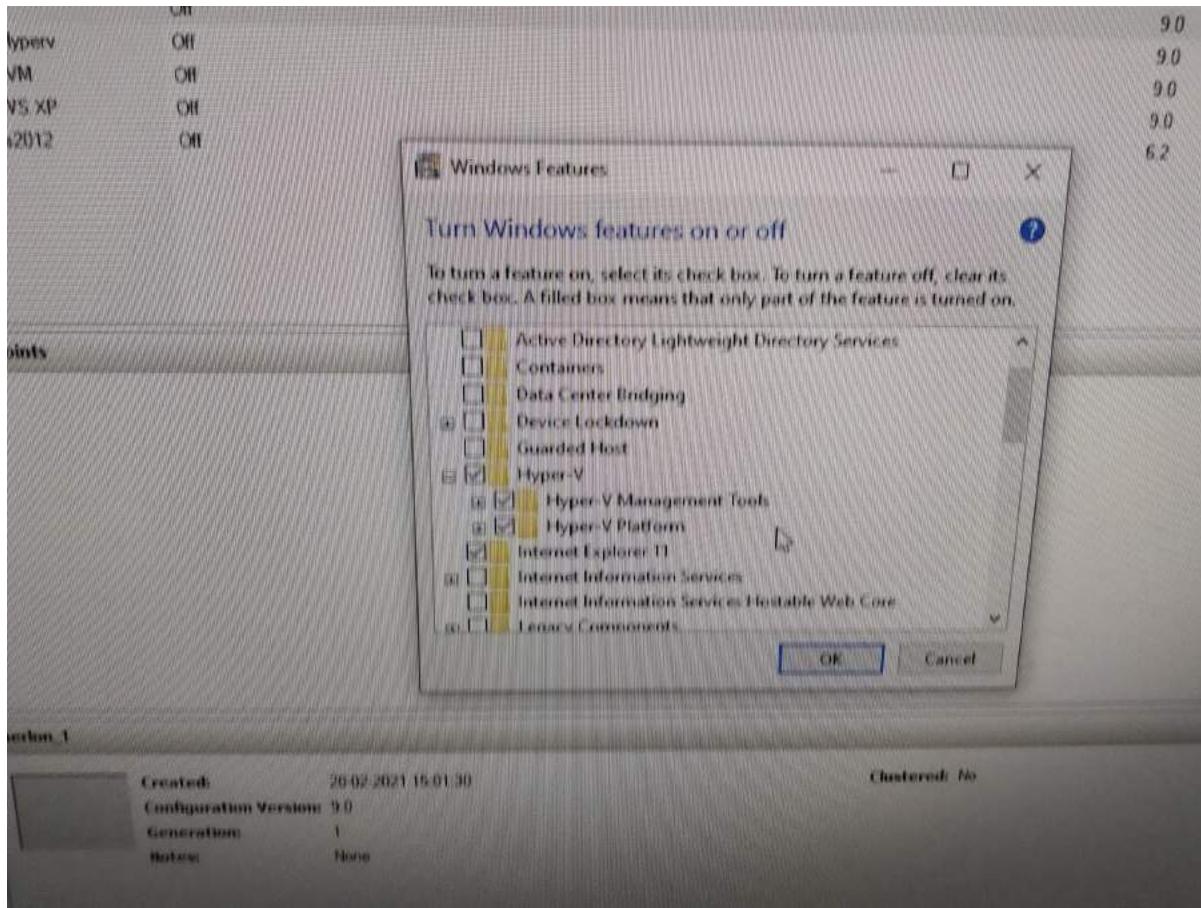


Practical 7

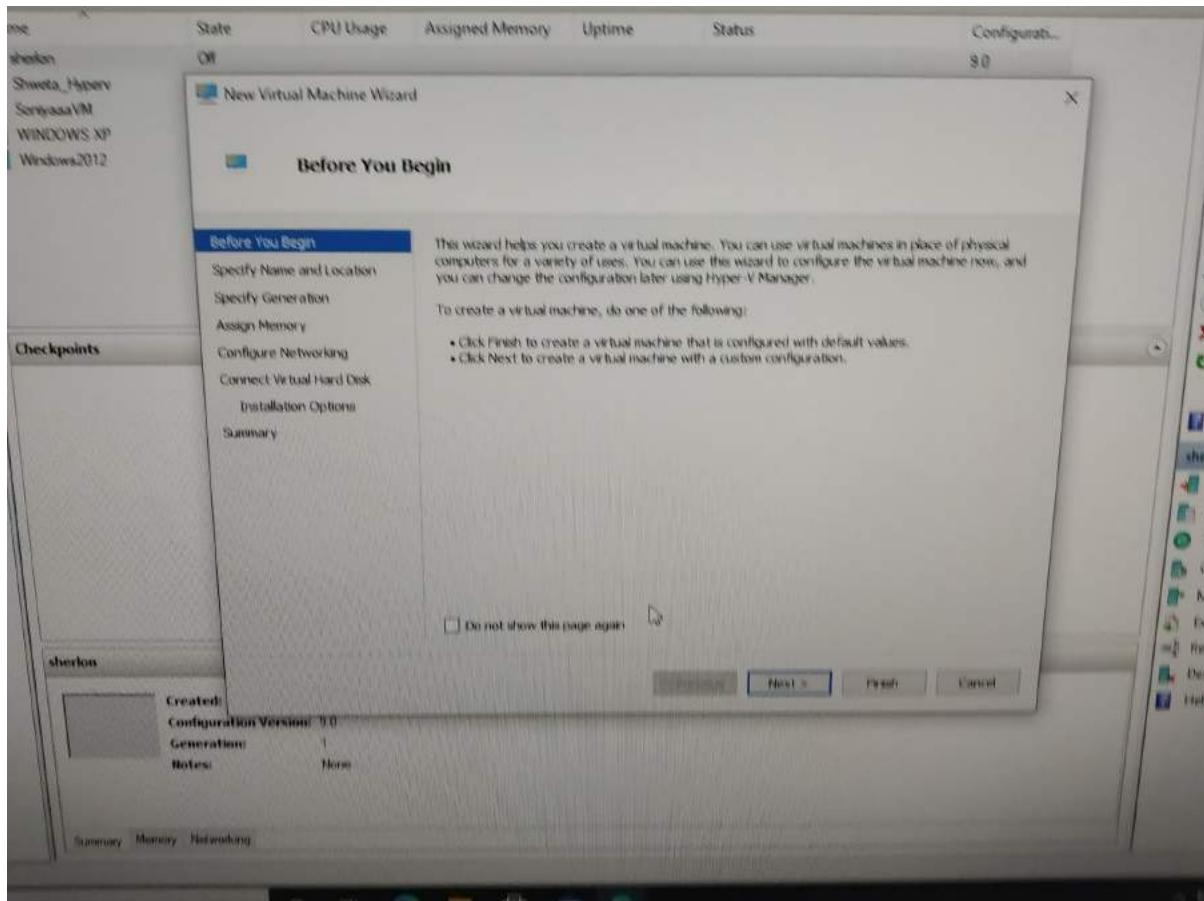
Native Virtualization using Hyper-V



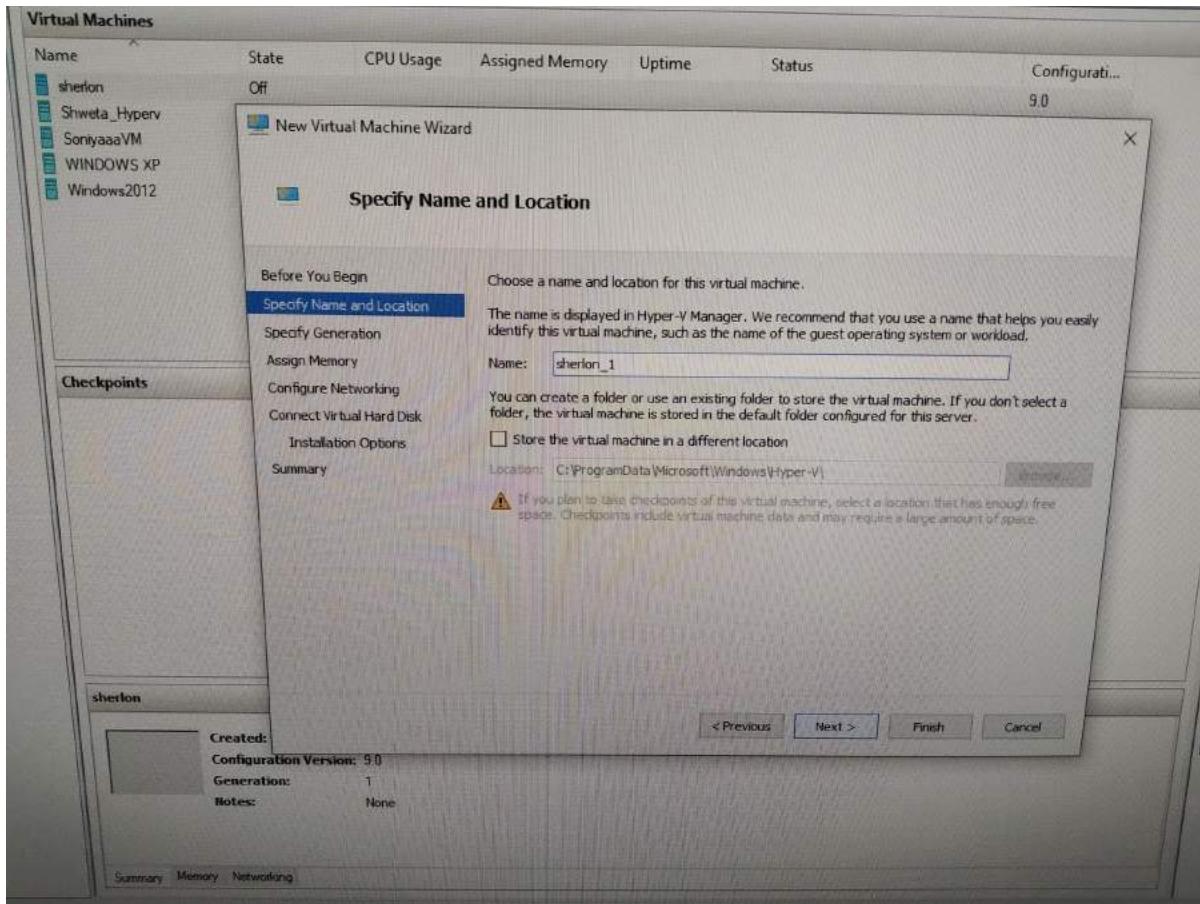
Open the hyper-v if not getting option like this then how to get it lets check.

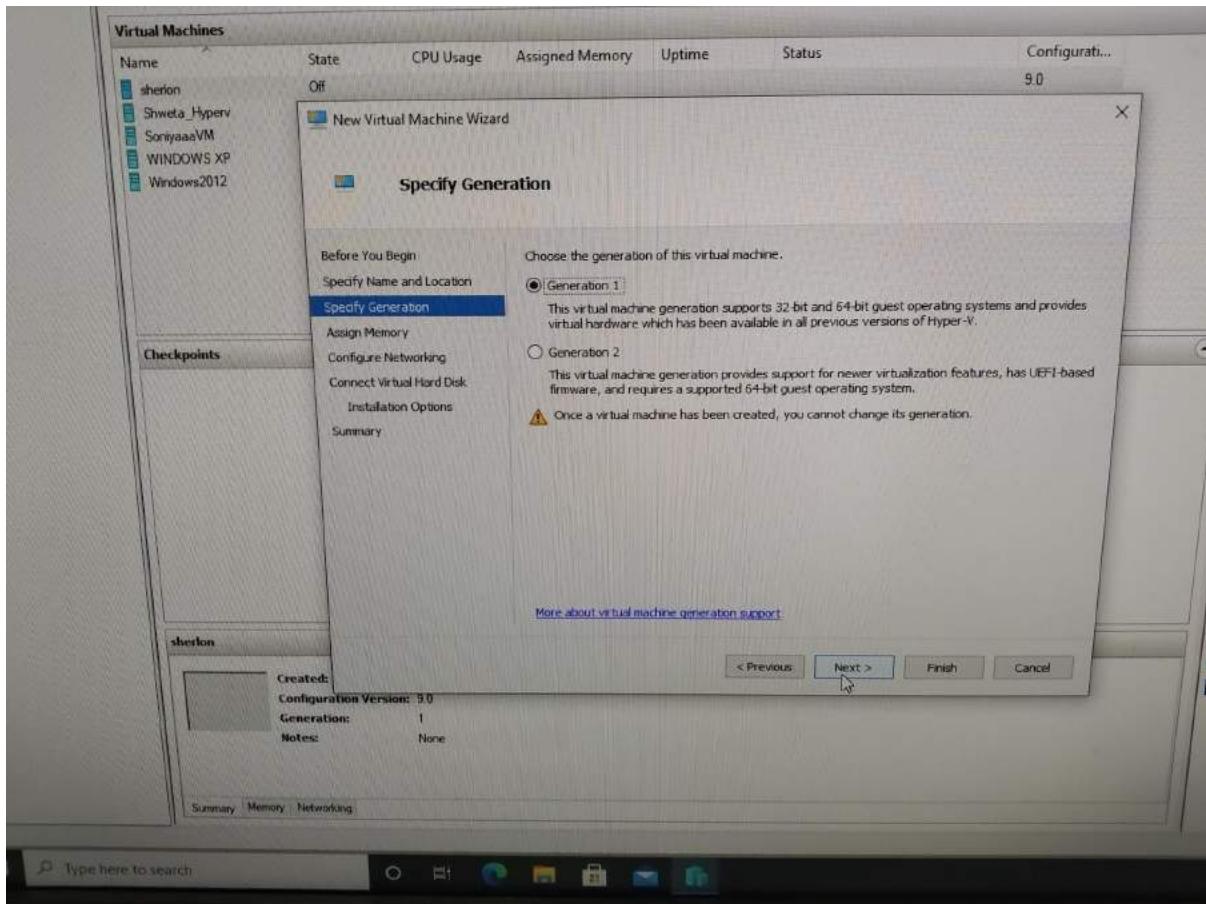


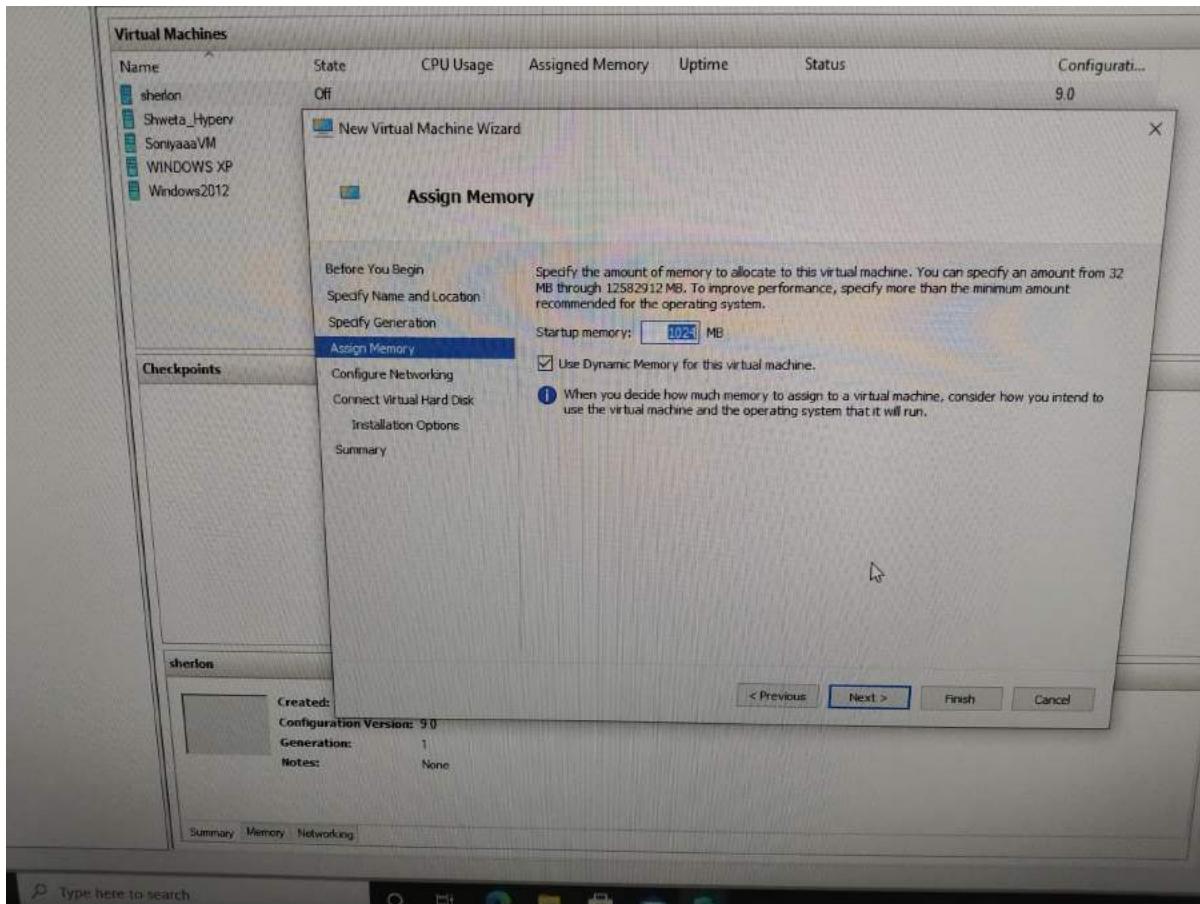
Open Turn Windows features on or off then unclick Hyper-V options then reinstall Hyper-V then again click on this option.

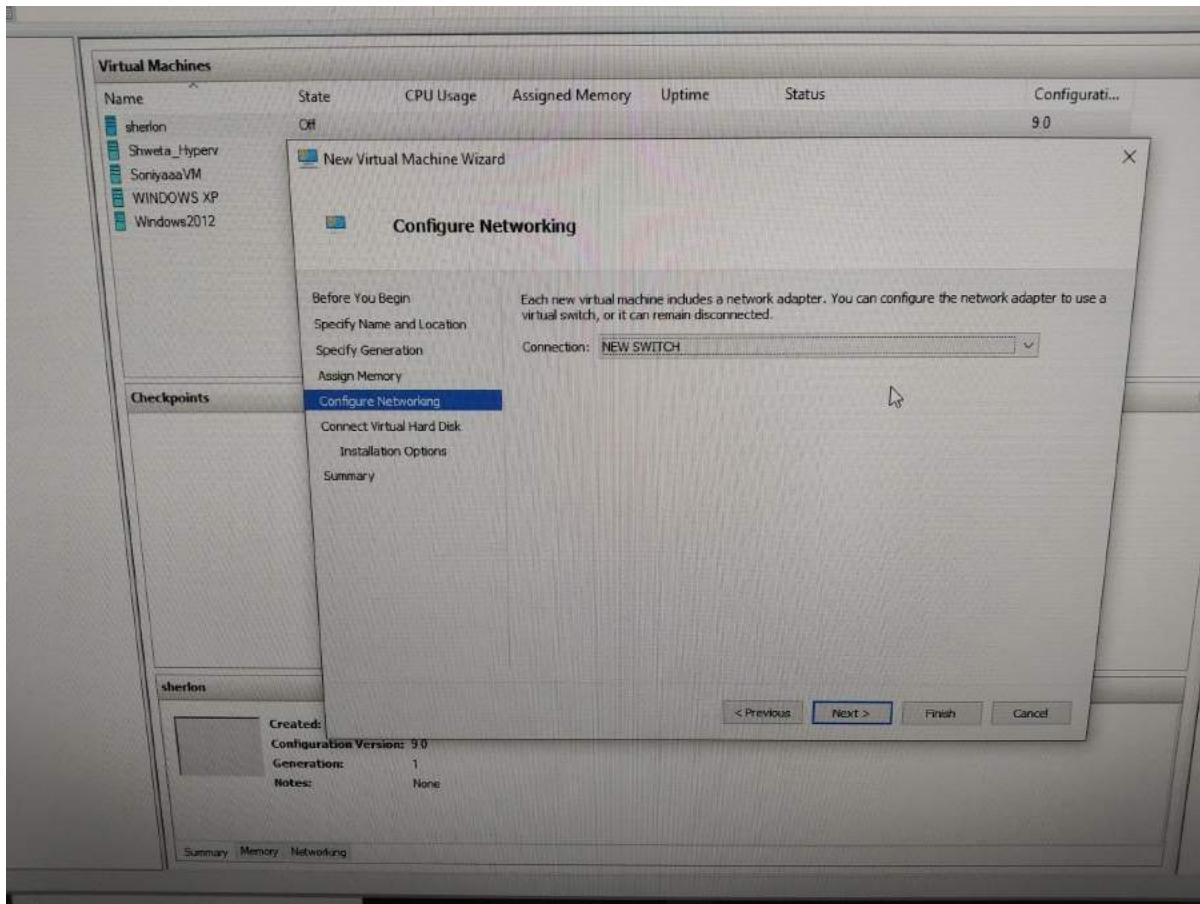


Create new virtual machine.

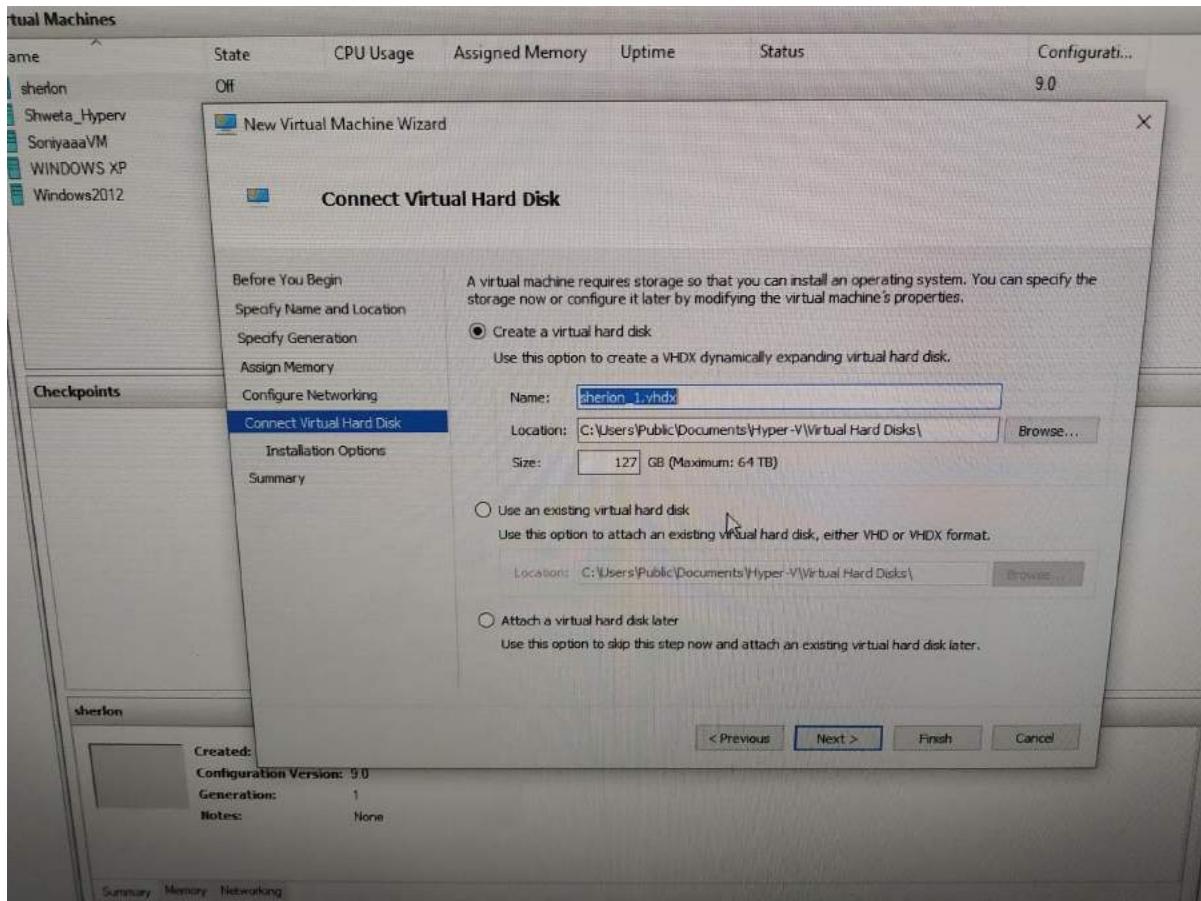


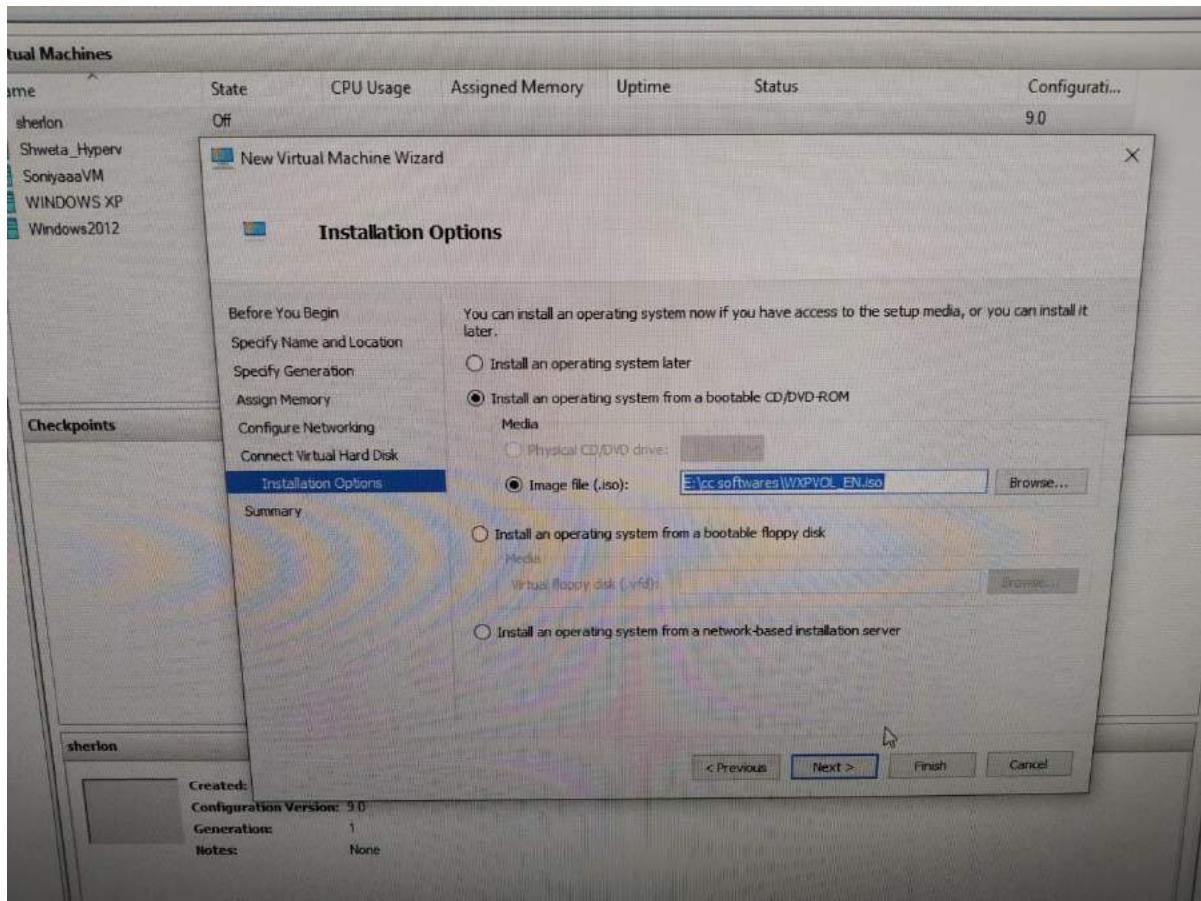


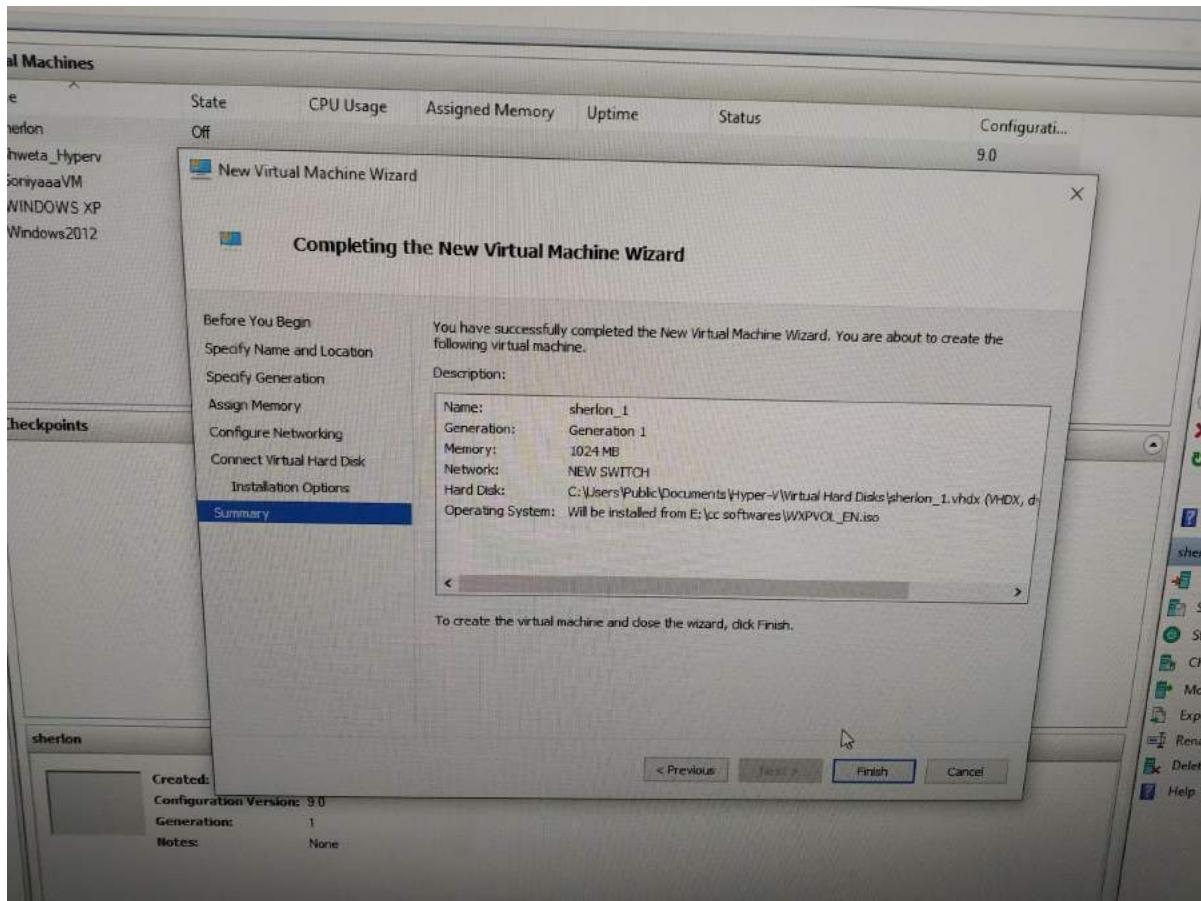


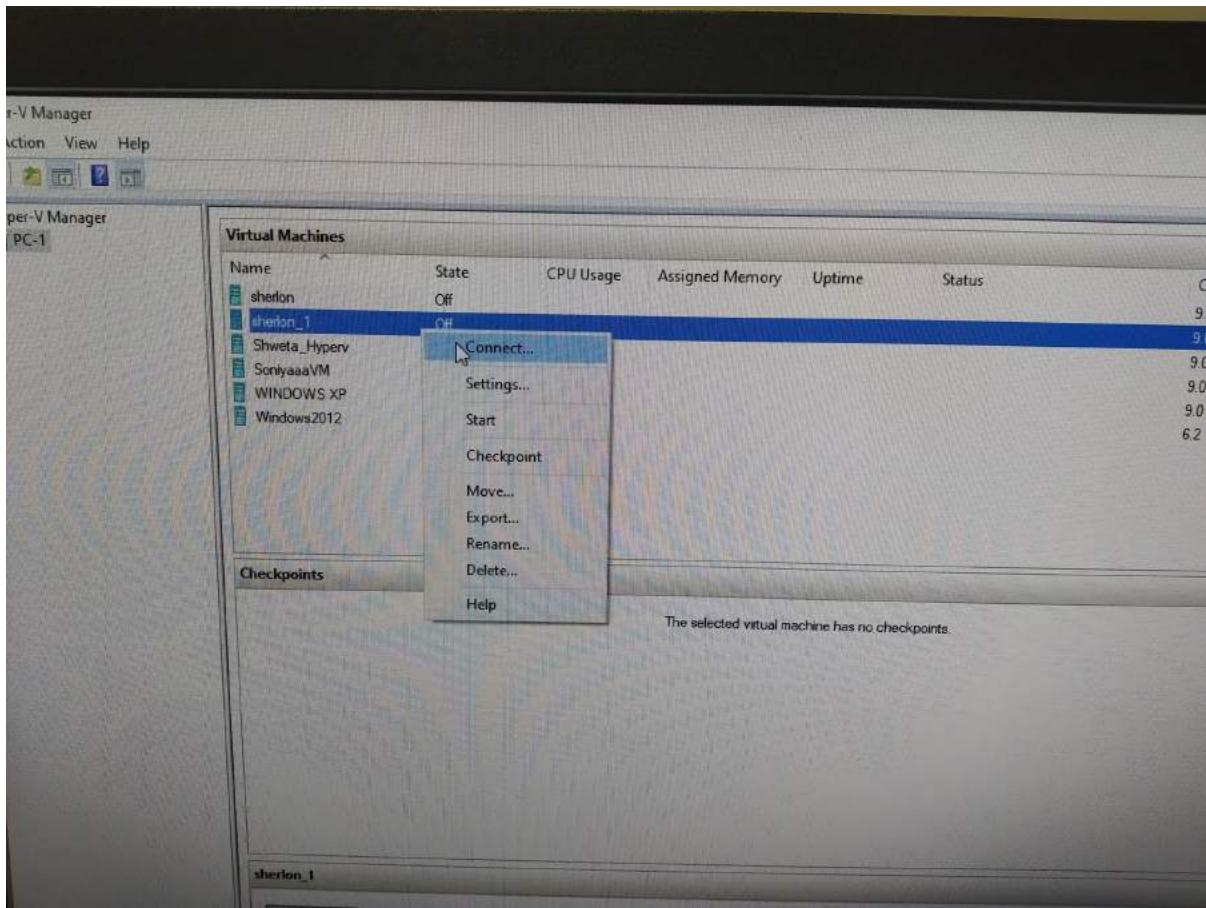


Select new switch.

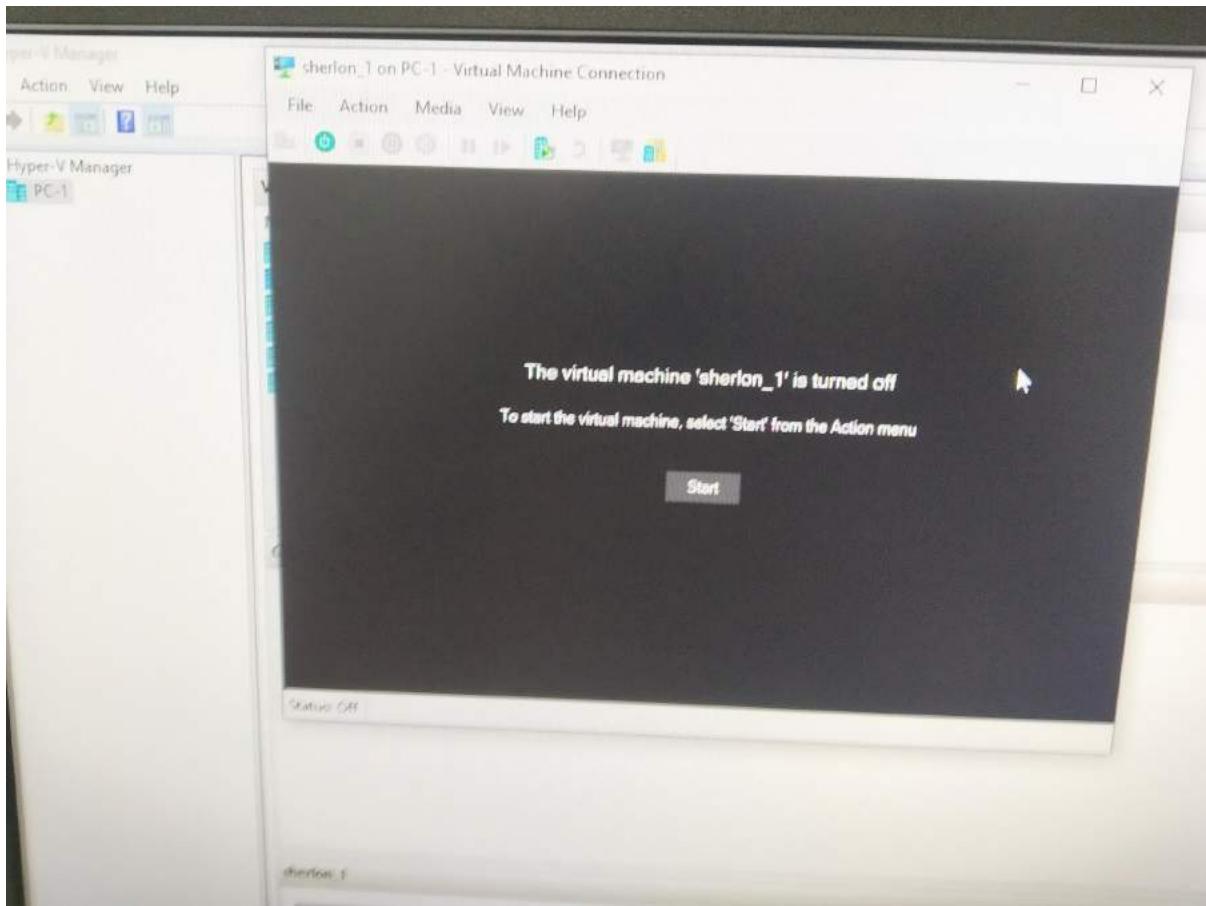




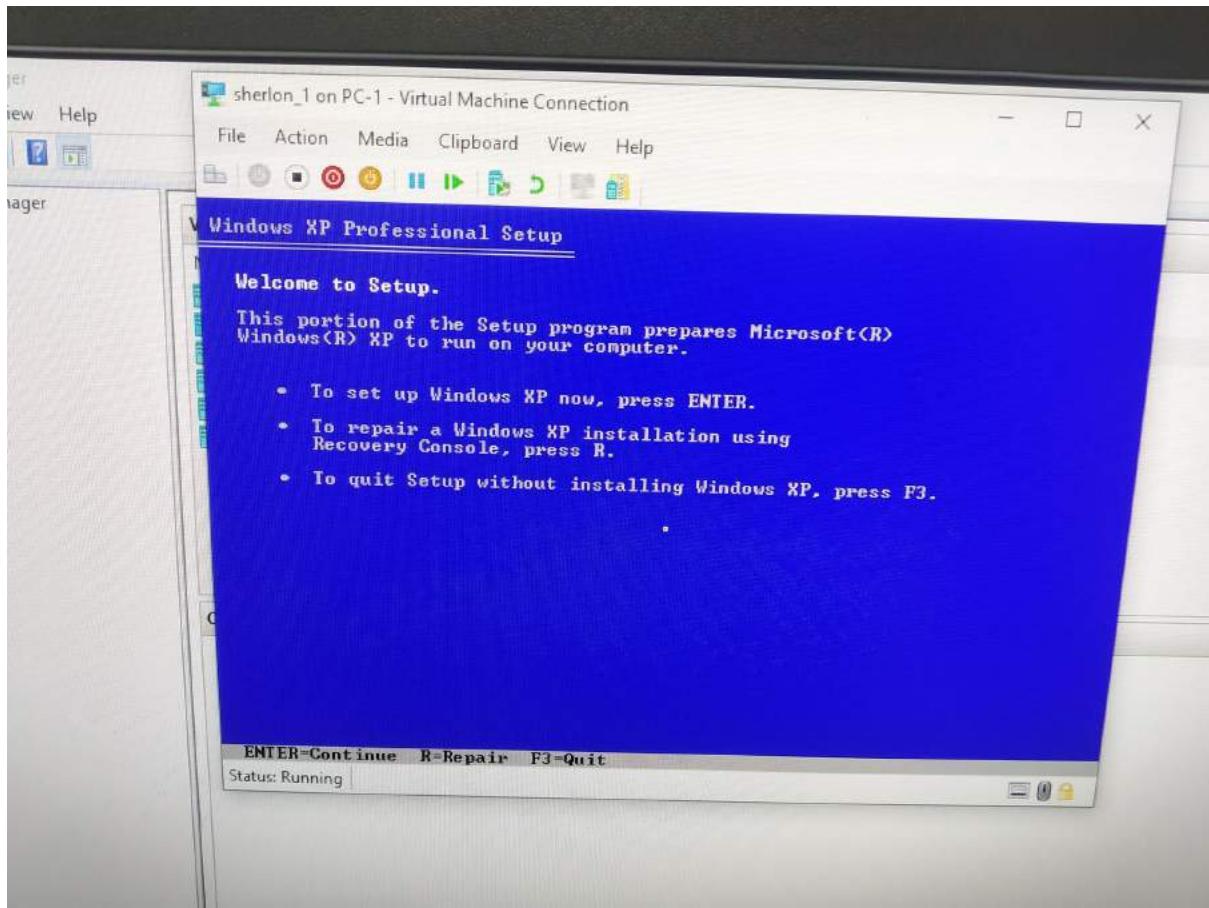




Then connect.



Start and few seconds output is out.



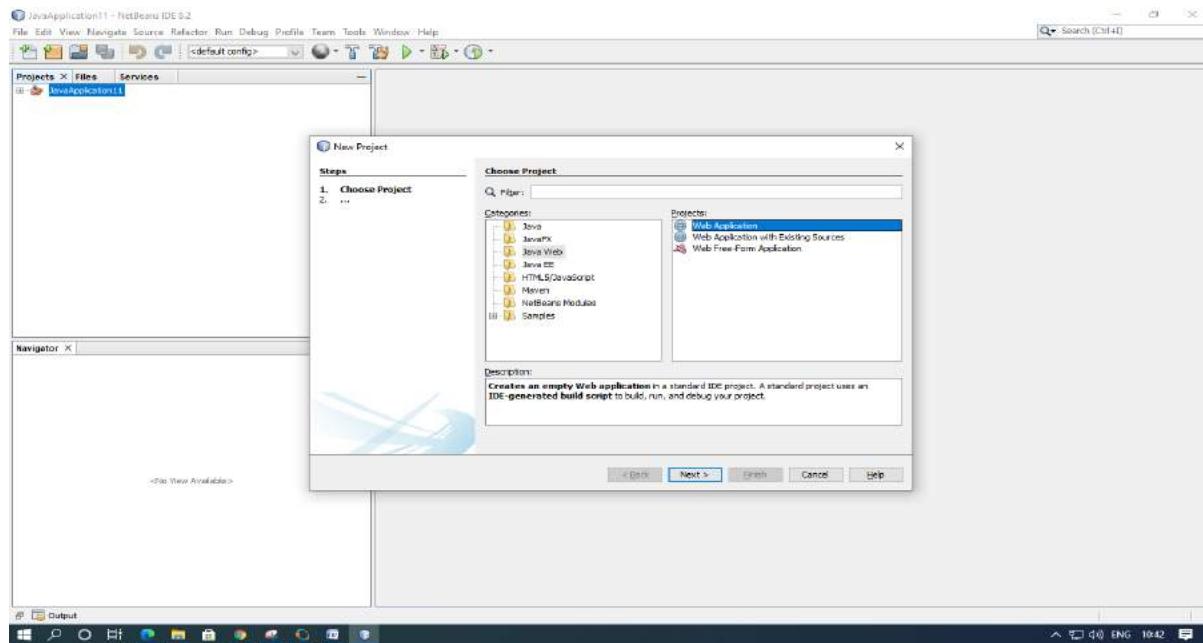
Practical 8:

Implementing “Big” Web Service.

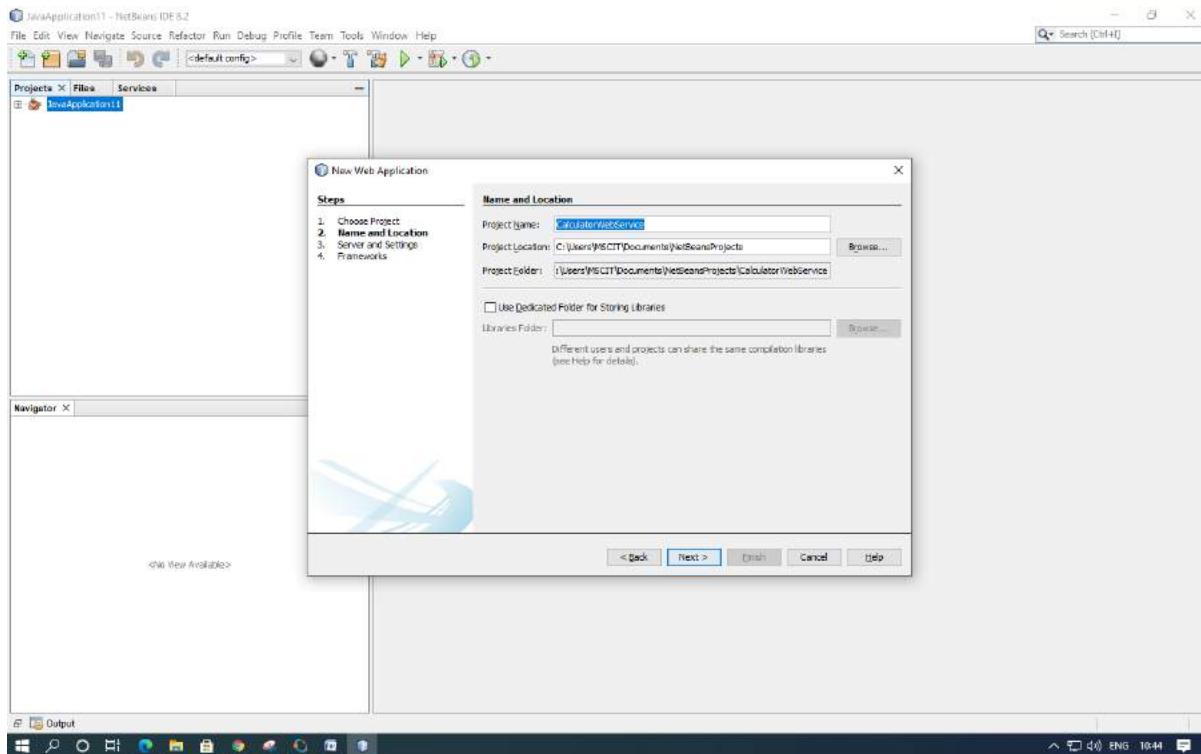
1) Creating a Web Service

A. Choosing a Container: Open NetBeans IDE 8.2

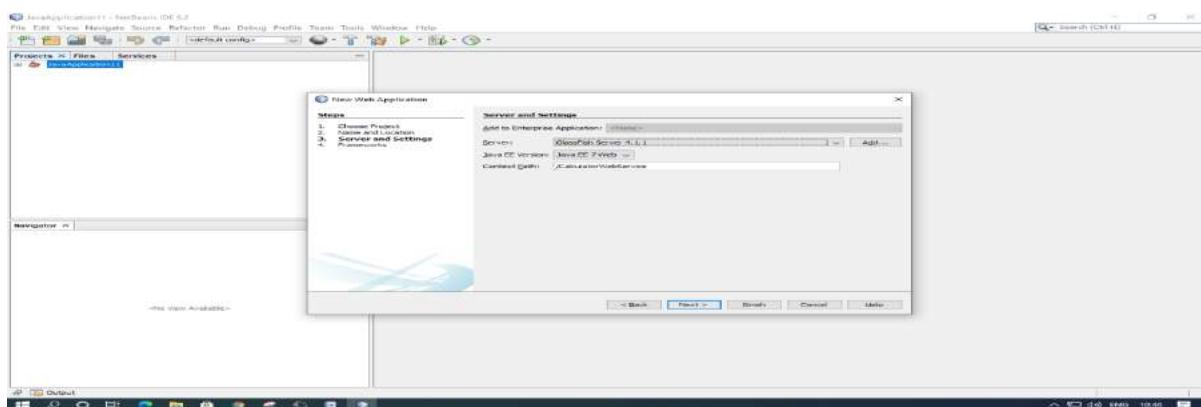
1. Choose File > New Project. Select Web Application from the Java Web.



2. Name the project “CalculatorWebService”. Select a location for the project.
Click Next.

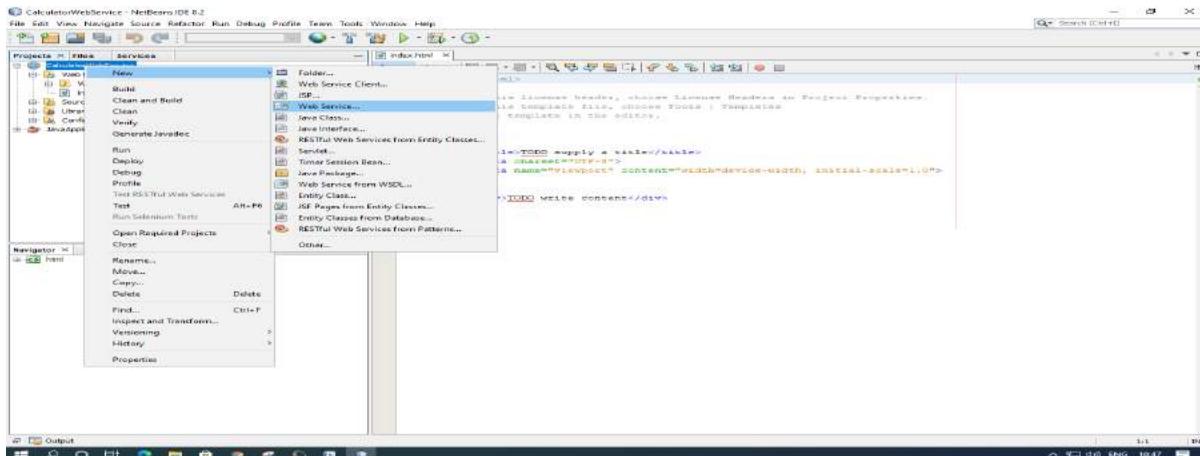


3. Select your server and Java EE version and click Finish. (Do not do anything in Framework)

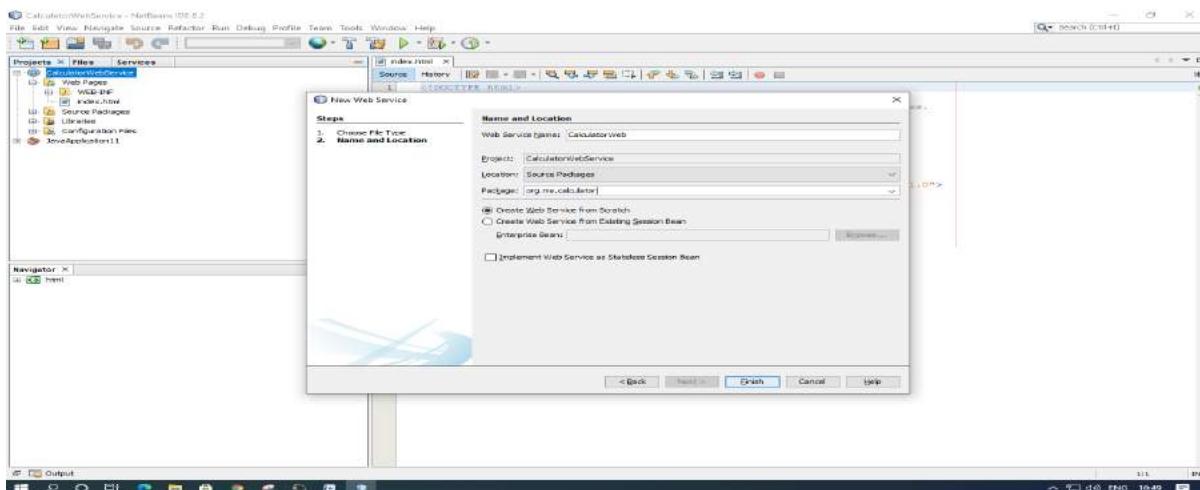


B. Creating a Web Service from a Java Class

1. Right-click the "CalculatorWebService" node and choose New > Web Service.



2. Name the web service “CalculatorWeb” and type org.me.calculator in Package. Leave Create Web Service from Scratch selected.

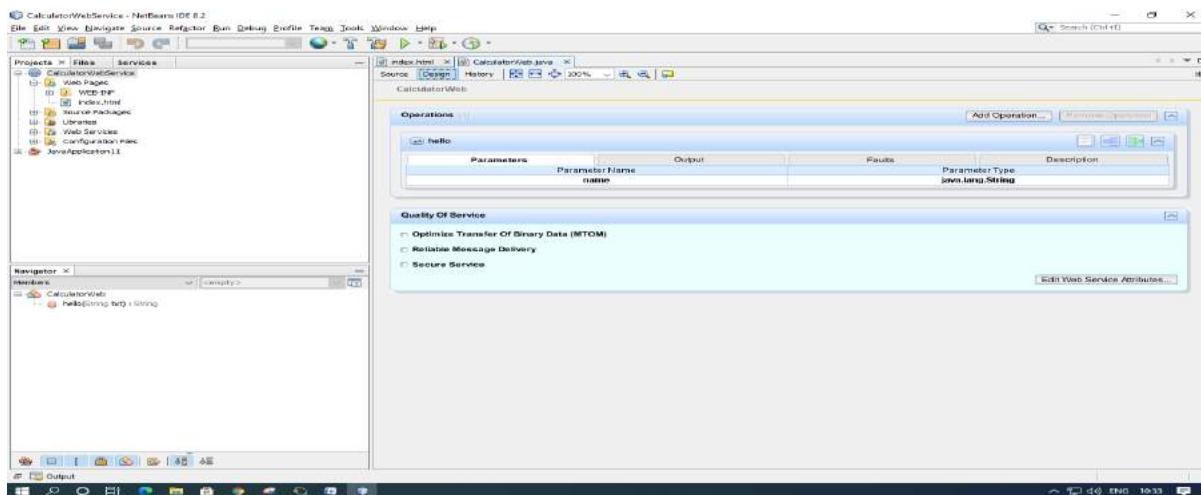


3. Click Finish. The Projects window displays the structure of the new web service and the source code is shown in the editor area.

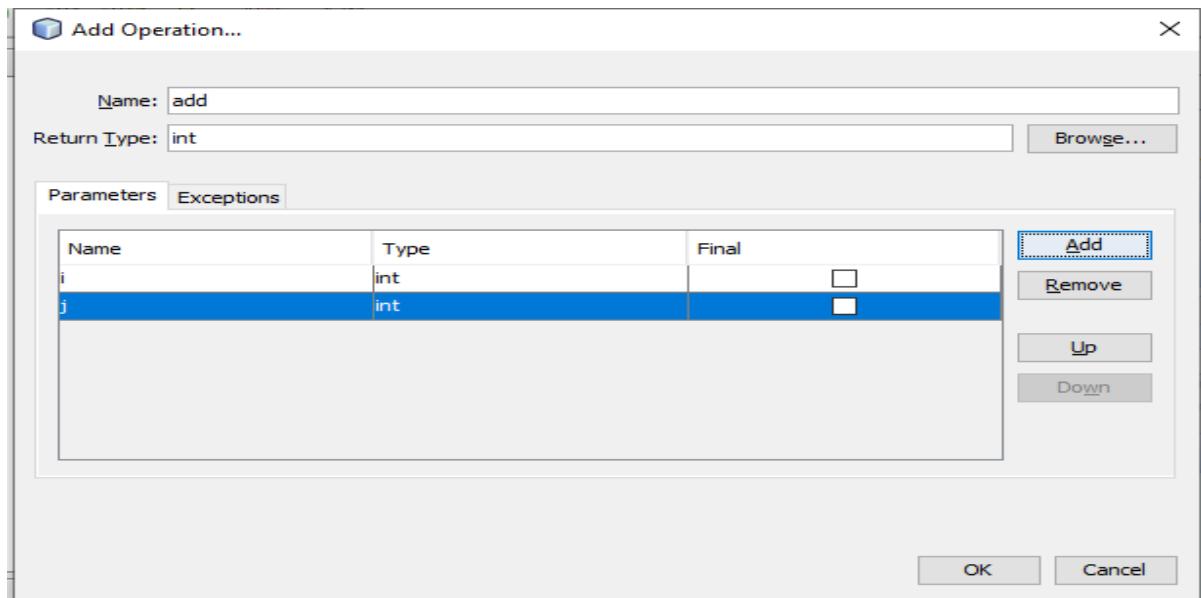
2) Adding an Operation to the Web Service : The goal of this exercise is to add to the web service an operation that adds two numbers received from a client. The NetBeans IDE provides a dialog for adding an operation to a web service. You can open this dialog either in the web service visual designer or in the web service context menu.

A. To add an operation to the web service:

1. Change to the Design view in the editor.

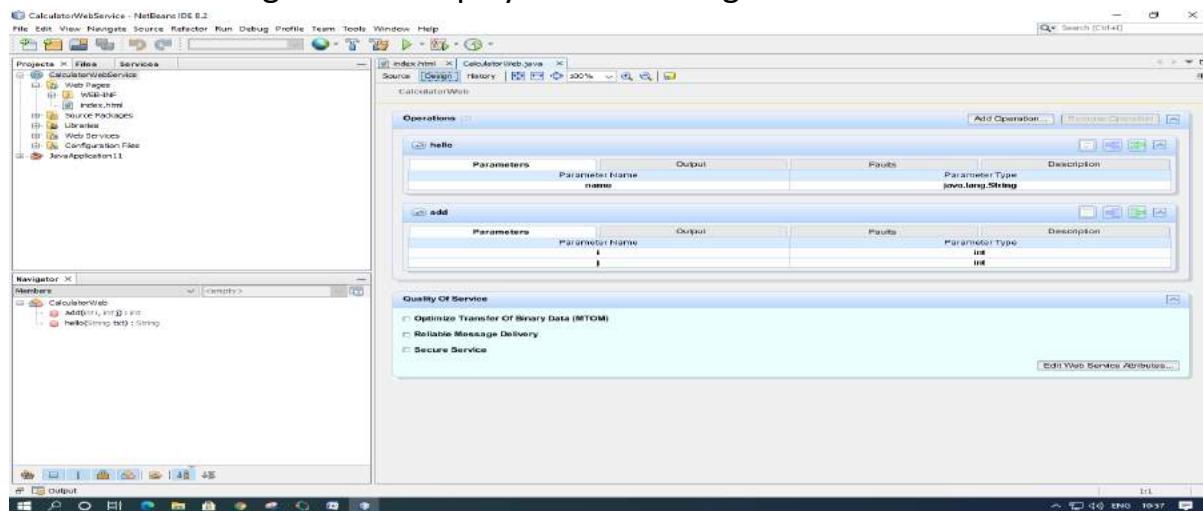


2. Click Add Operation in either the visual designer or the context menu. The Add Operation dialog opens.
3. In the upper part of the Add Operation dialog box, type add in Name and type int in the Return Type drop-down list.
4. In the lower part of the Add Operation dialog box, click Add and create a parameter of type int named i.
5. Click Add again and create a parameter of type int called j. You now see the following:



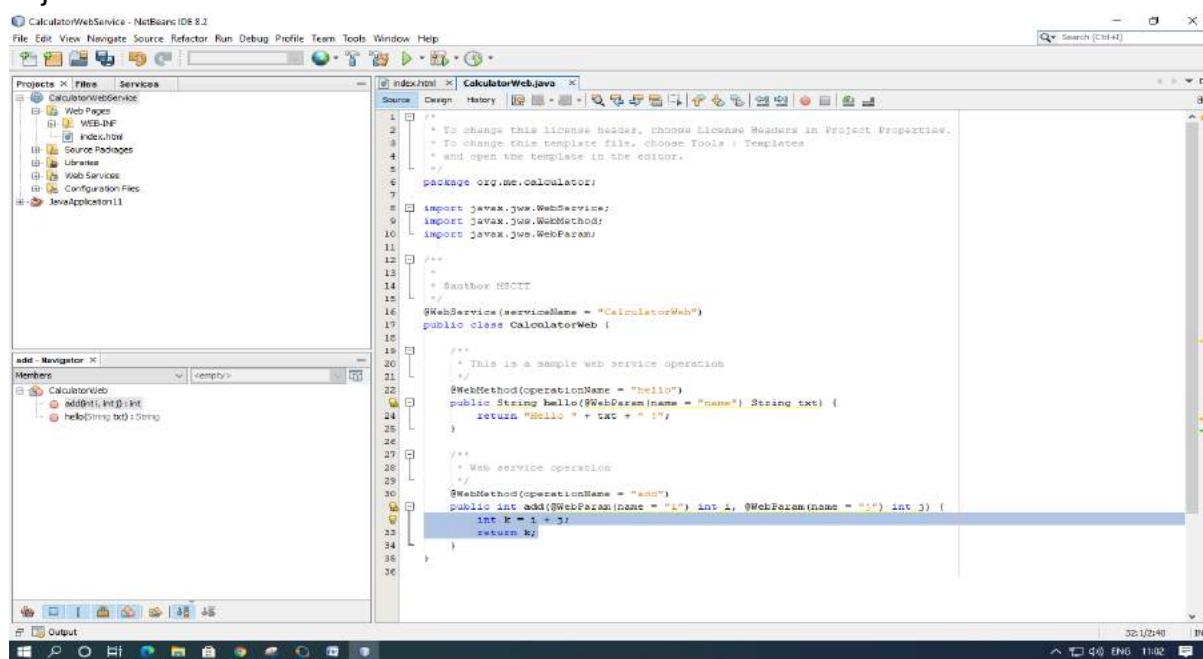
6. Click OK at the bottom of the Add Operation dialog box. You return to the editor.

7. The visual designer now displays the following:



8. Click Source. And code the following.

```
@WebMethod(operationName = "add")
public int add(@WebParam(name = "i") int i, @WebParam(name = "j") int j) {
    int k = i + j;
    return k;
}
```

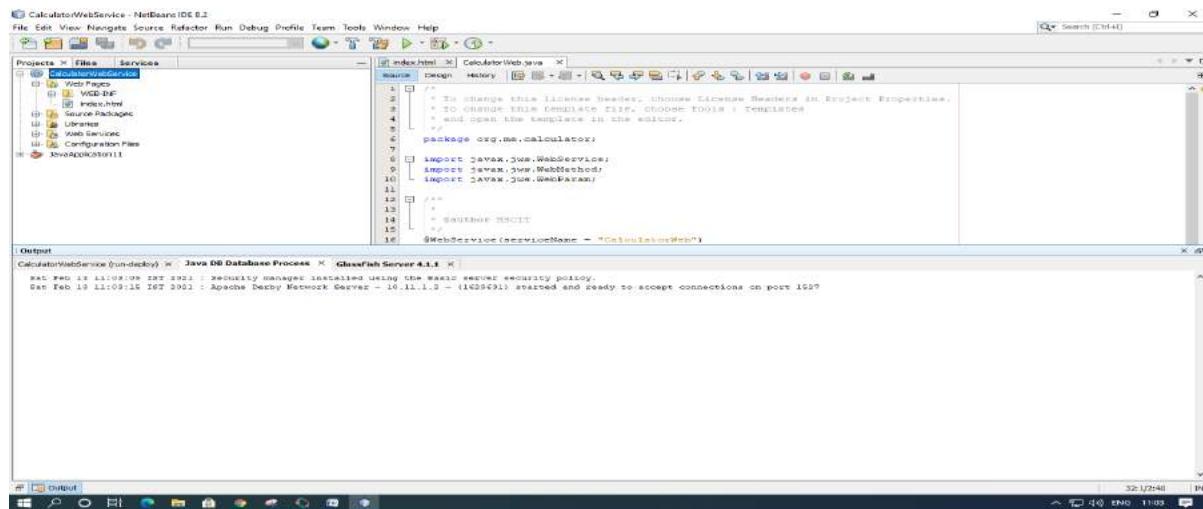
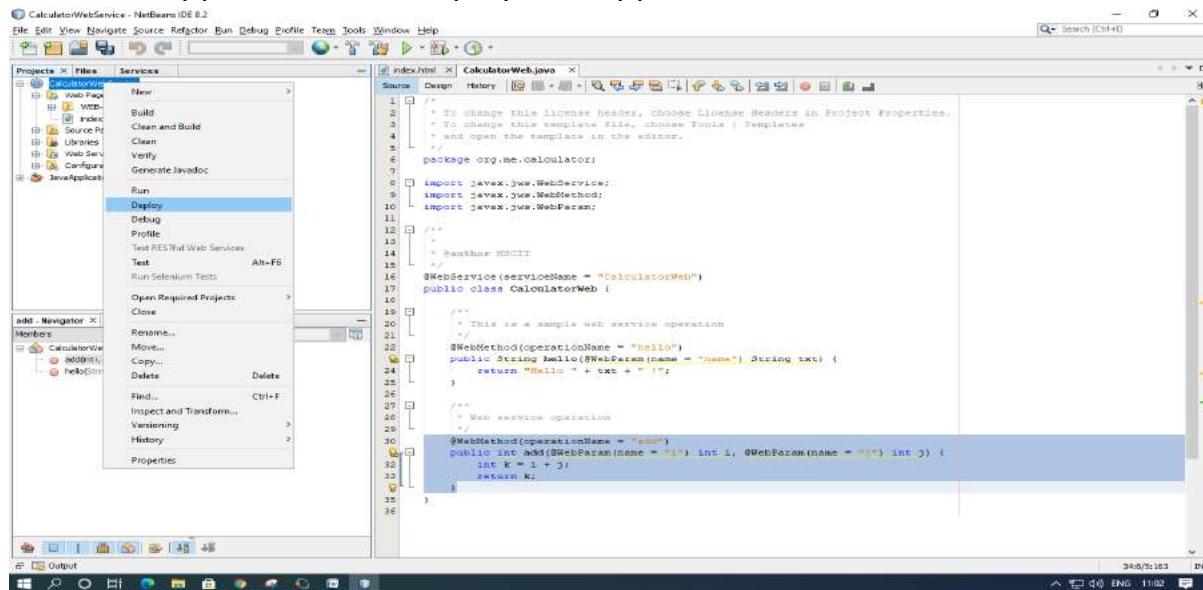


3) Deploying and Testing the Web Service

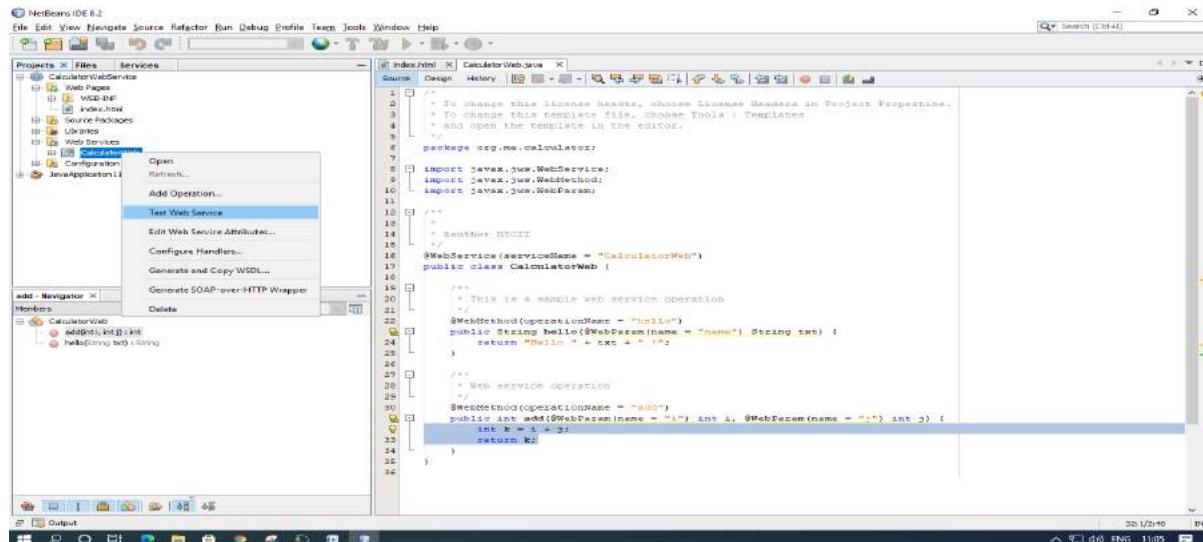
After you deploy a web service to a server, you can use the IDE to open the server's test client, if the server has a test client. The GlassFish and WebLogic servers provide test clients.

A. To test successful deployment to a GlassFish or WebLogic server:

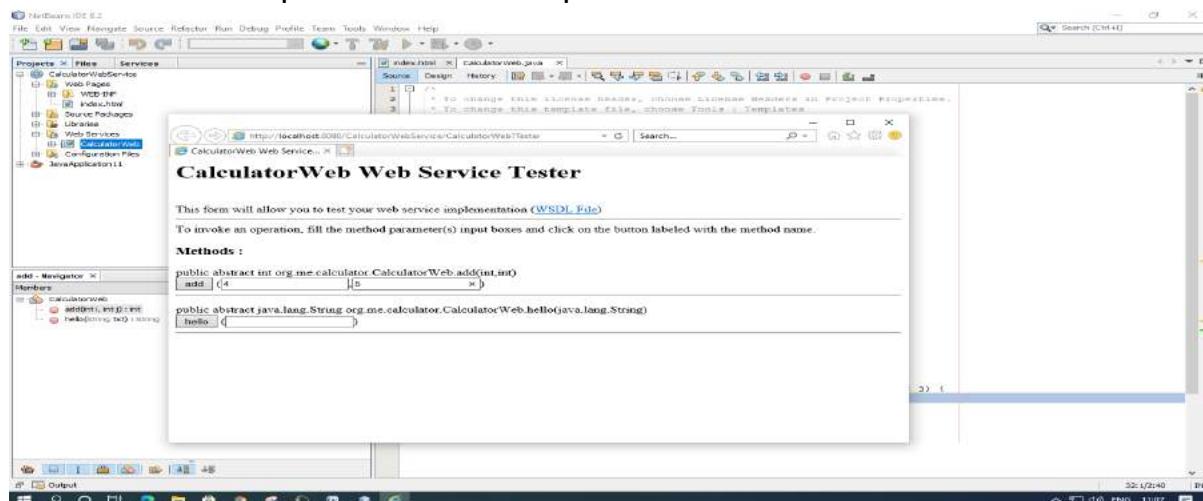
1. Right-click the project and choose Deploy. The IDE starts the application server, builds the application, and deploys the application to the server



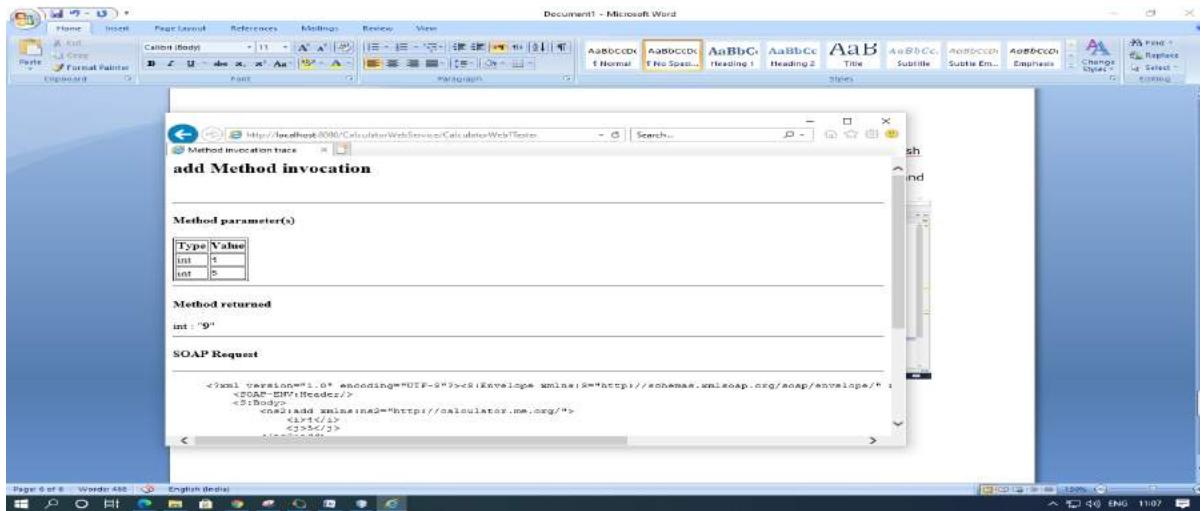
2. In the IDE's Projects tab, expand the Web Services node of the “CalculatorWebService” project. Right-click the “CalculatorWeb” node, and choose Test Web Service.



3. The IDE opens the tester page in your browser, if you deployed a web application to the GlassFish server.
4. If you deployed to the GlassFish server, type two numbers in the tester page, as shown below and press enter for output.



5. The sum of the two numbers is displayed:

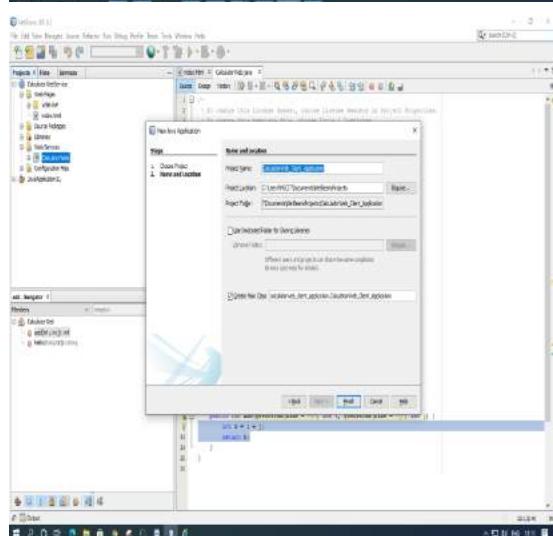
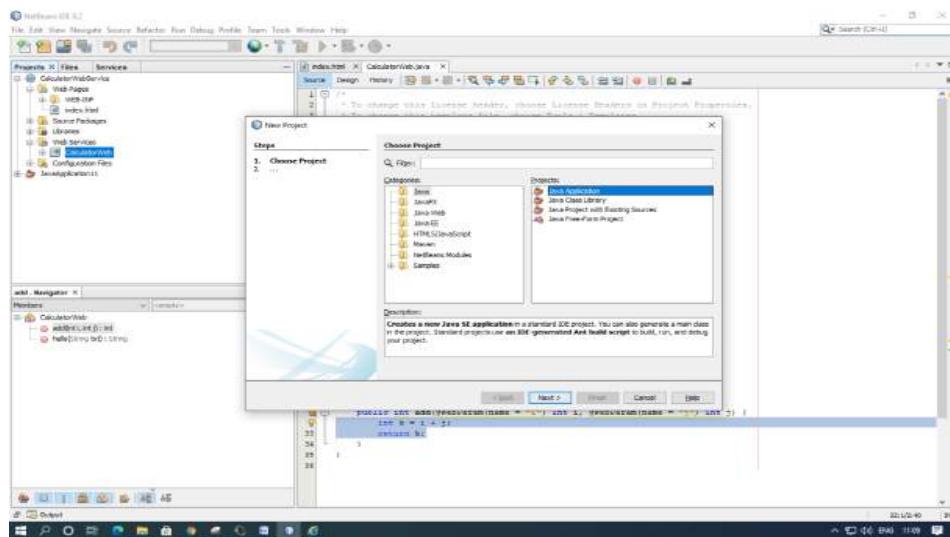


4) Consuming the Web Service

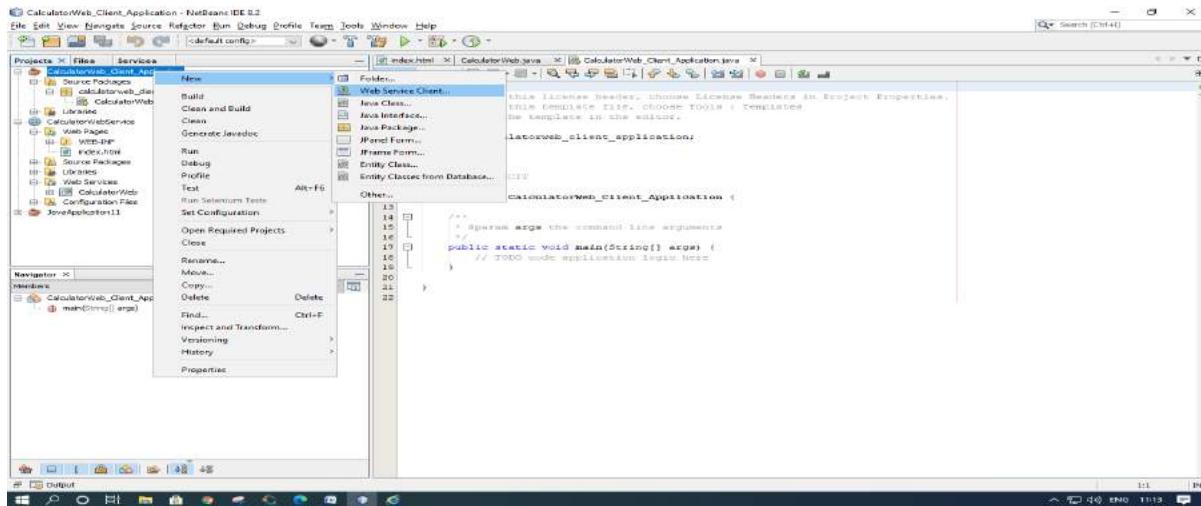
Now that you have deployed the web service, you need to create a client to make use of the web service's add method.

1. Client: Java Class in Java SE Application

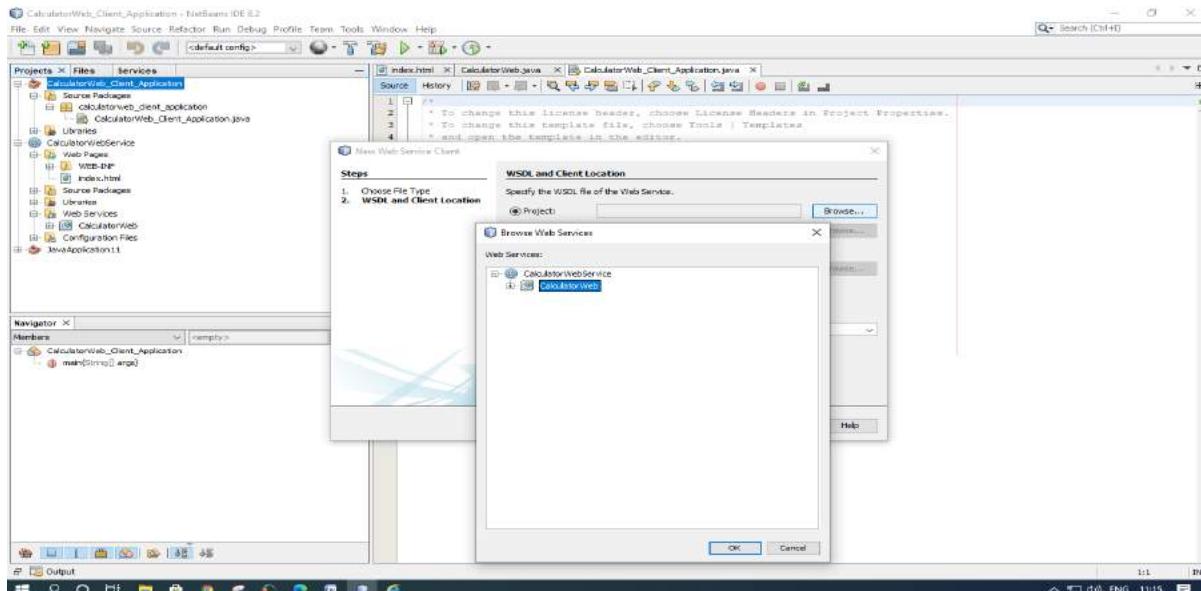
1. Choose File > New Project. Select Java Application from the Java category. Name the project “CalculatorWeb_Client_Application”. Leave Create Main Class selected and accept all other default settings. Click Finish.



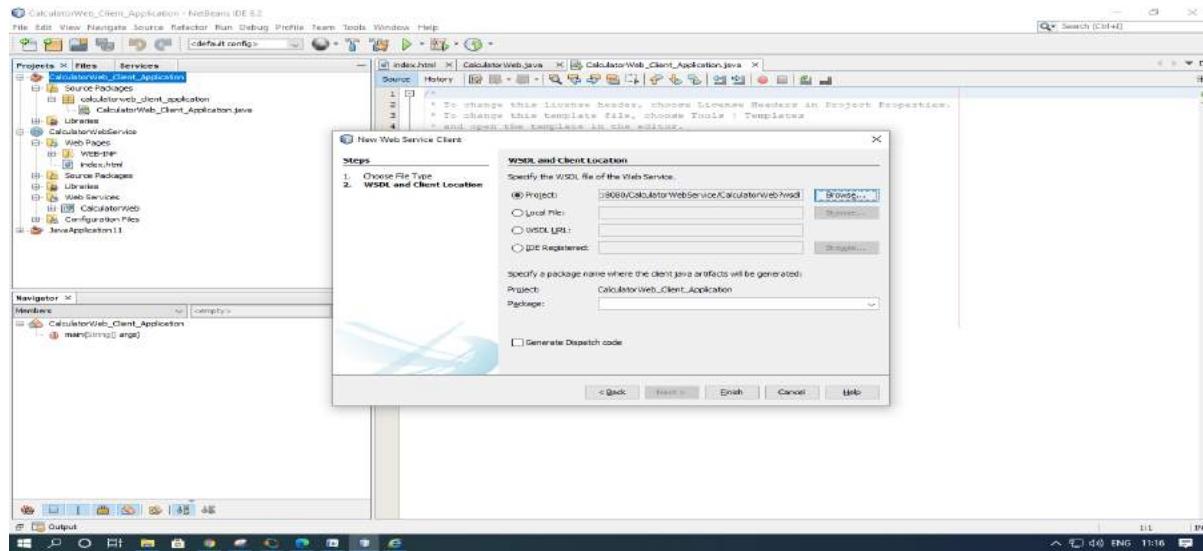
2. Right-click the “CalculatorWeb_Client_Application” node and choose New > Web Service Client. The New Web Service Client wizard opens.



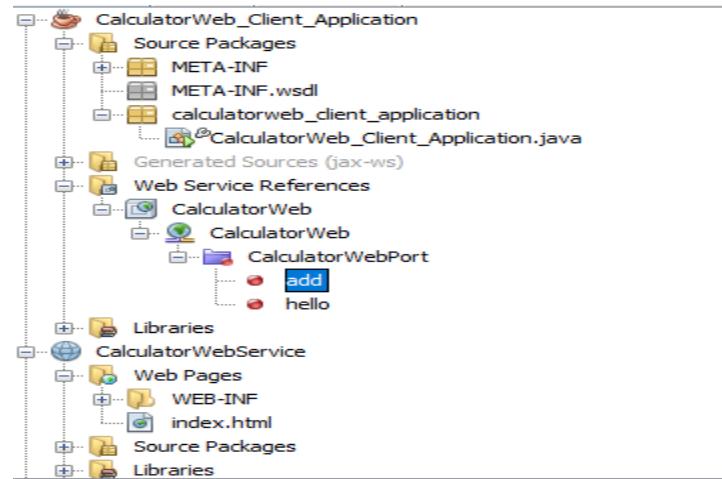
3. Select Project as the WSDL source. Click Browse. Browse to the “CalculatorWeb” web service in the “CalculatorWebService” project. When you have selected the web service, click OK.



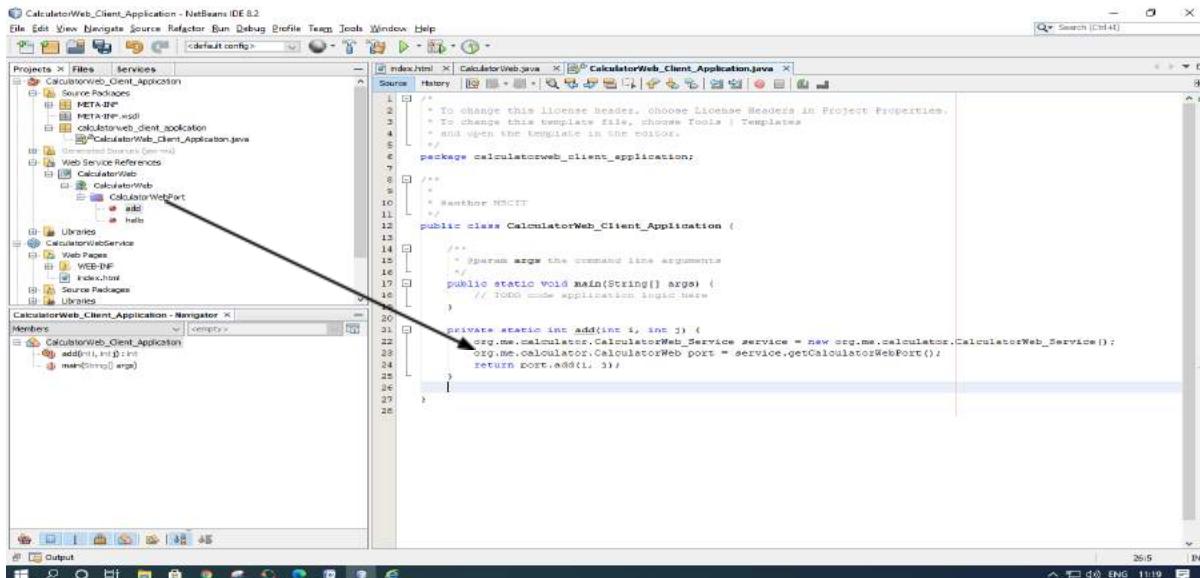
4. Do not select a package name. Leave this field empty. Leave the other settings at default and click Finish.



5. The Projects window displays the new web service client, with a node for the add method that you created:



6. Double-click your main class so that it opens in the Source Editor. Drag the add node below the main() method.



7. In the main() method body, replace the TODO comment with code that initializes values for i and j, calls add(), and prints the result.

```
try
{
    int i = 3;
    int j = 4;
    int result = add(i, j);
    System.out.println("Result = " + result);
}
catch (Exception ex)
{
    System.out.println("Exception: " + ex);
}
```

```

CalculatorWeb_Client_Application - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects > Files > Services index.html CalculatorWeb.java CalculatorWeb_Client_Application.java
CalculatorWeb_Client_Application
  META-INF
    META-INF.wsdl
    calculatorweb_client_application
      calculatorWeb_Client_Application.java
  Generated Sources (src)
  Web Service References
    CalculatorWeb
      CalculatorWeb
        add
        help
  Libraries
    CalculatorWebService
      Web Pages
        WSDL-INF
          index.html
        Source Packages
        Libraries
main - Navigator <empty>
Members <empty>
CalculatorWeb_Client_Application
  add(int, int)
  nonStringEng()

```

```

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package calculatorweb_client_application;

/**
 * Author: MHCIT
 */
public class CalculatorWeb_Client_Application {

    /**
     * Sparms args the command line arguments
     */
    public static void main(String[] args) {
        try {
            int i = 3;
            int j = 4;
            int result = add(i, j);
            System.out.println("Result = " + result);
        } catch (Exception ex) {
            System.out.println("Exception: " + ex);
        }
    }

    private static int add(int i, int j) {
        org.mslcalculator.CalculatorWeb_Service service = new org.mslcalculator.CalculatorWeb_Service();
        org.mslcalculator.CalculatorWeb port = service.getCalculatorWebPort();
        return port.add(i, j);
    }
}

```

8. Right-click the project node and choose Run.

The Output window now shows the sum:

compile: run: Result = 7 BUILD SUCCESSFUL (total time: 1 second)

```

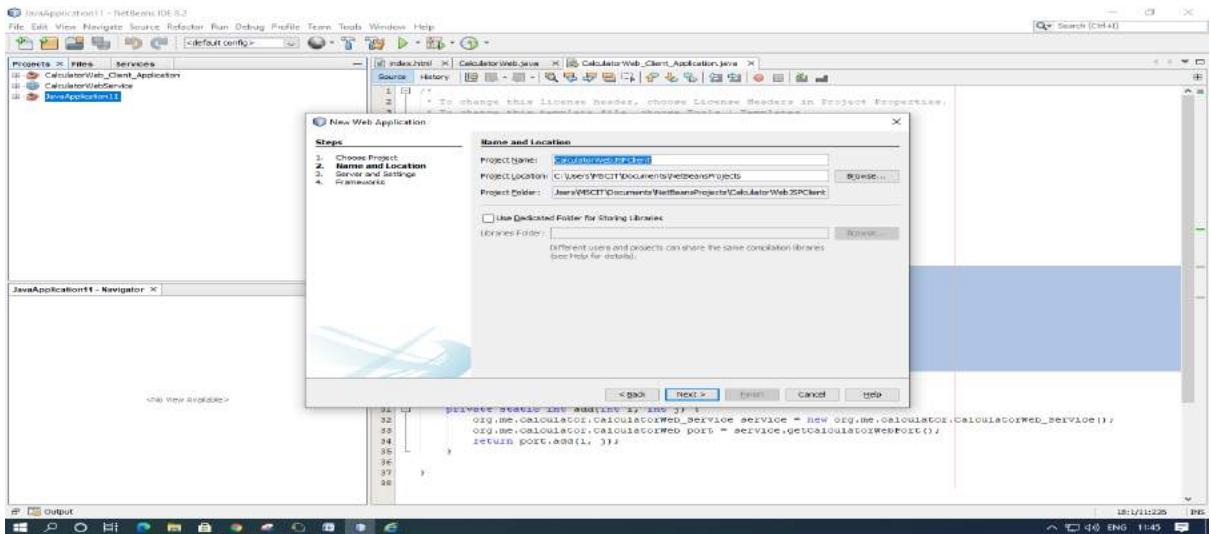
CalculatorWeb_Client_Application - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects > Files > Services index.html CalculatorWeb.java CalculatorWeb_Client_Application.java
CalculatorWeb_Client_Application
  META-INF
    META-INF.wsdl
    calculatorweb_client_application
      calculatorWeb_Client_Application.java
  Generated Sources (src)
  Web Service References
    CalculatorWeb
      CalculatorWeb
        add
        help
  Libraries
    CalculatorWebService
      Web Pages
        WSDL-INF
          index.html
        Source Packages
        Libraries
Output
Java DB Database Process > GlassFish Server 4.1.1 > Retainer Output > CalculatorWeb_Client_Application(run) >
ant -f C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application -DbnInternal.action.name=run run
Buildfile: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\build-jar.properties
Updating property file: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\build-jar.properties
Imported: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\build-jar.properties
files are up to date
Deleting old classes
Deleted dir: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\classes
Created dir: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\empty
Created dir: C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\generated-sources\ap-source-output
Compiling 2 source files to C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\classes
Copied 2 empty directories to 1 empty directory under C:\Users\MSHICIT\Documents\NetBeansProjects\CalculatorWeb_Client_Application\build\classes
compile
Result = 7
BUILD SUCCESSFUL (total time: 1 second)


```

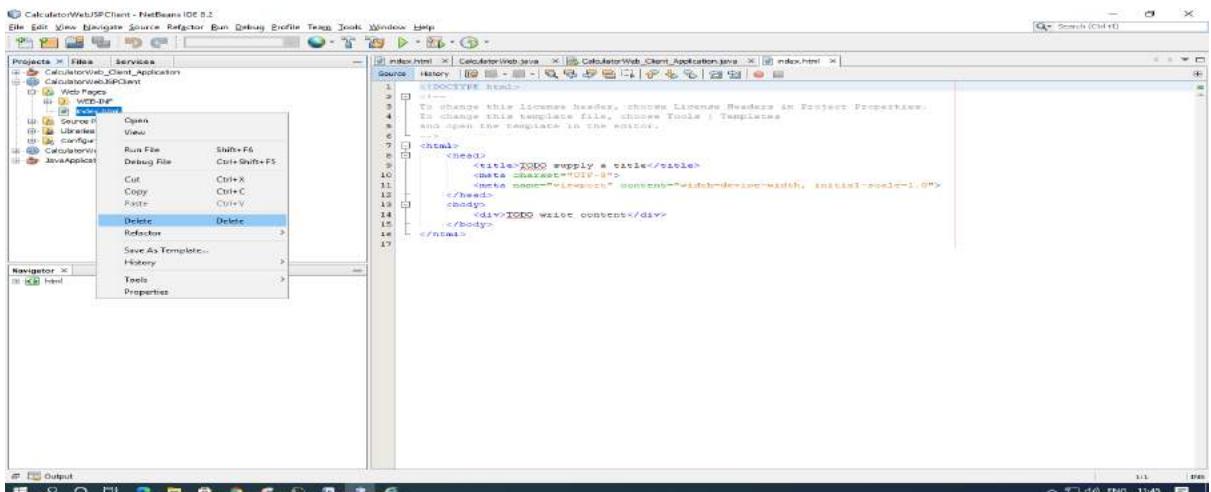
Client : JSP Page in Web Application

In this section, you create a new web application and then consume the web service in the default JSP page that the Web Application wizard creates.

1. Choose File > New Project. Select Web Application from the Java Web category. Name the project CalculatorWebJSPClient. Click Next and then click Finish.

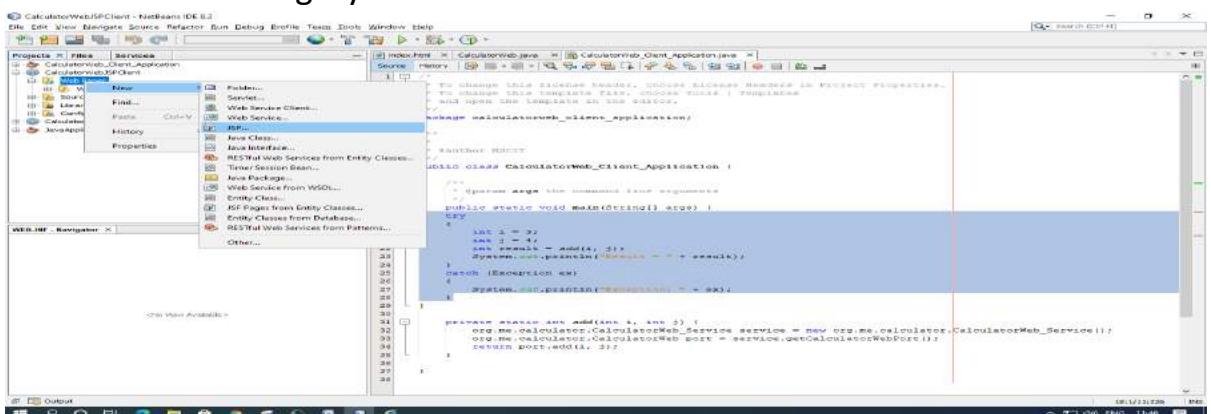


2. Expand the Web Pages node under the project node and delete index.html.

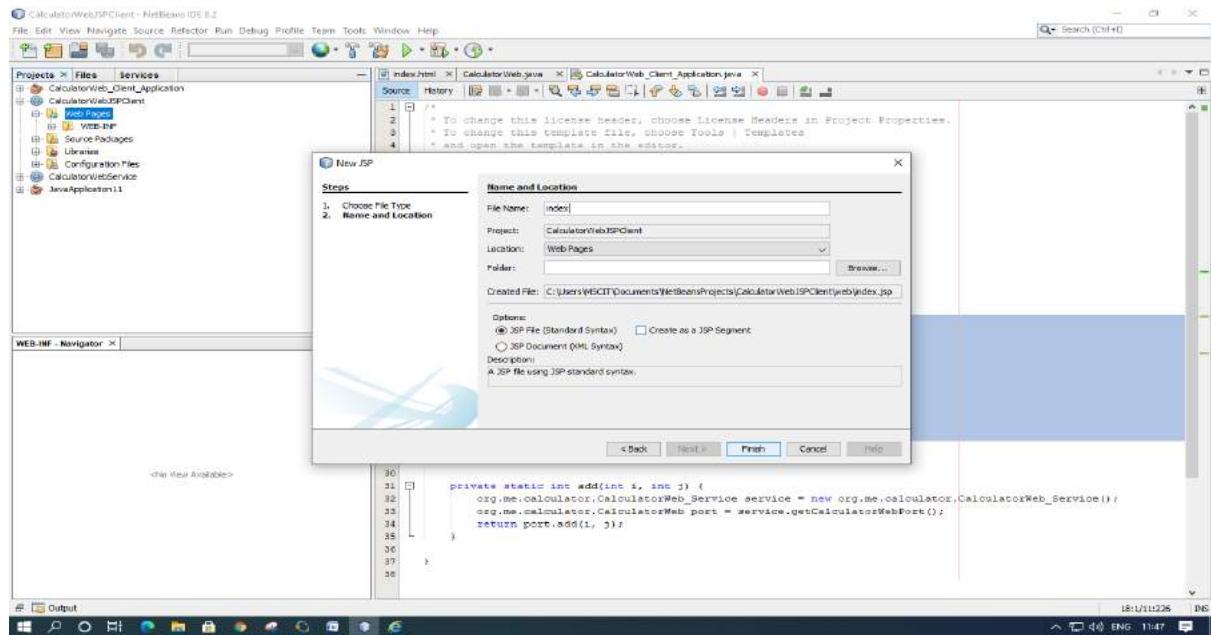


3. Right-click the Web Pages node and choose New > JSP in the popup menu.

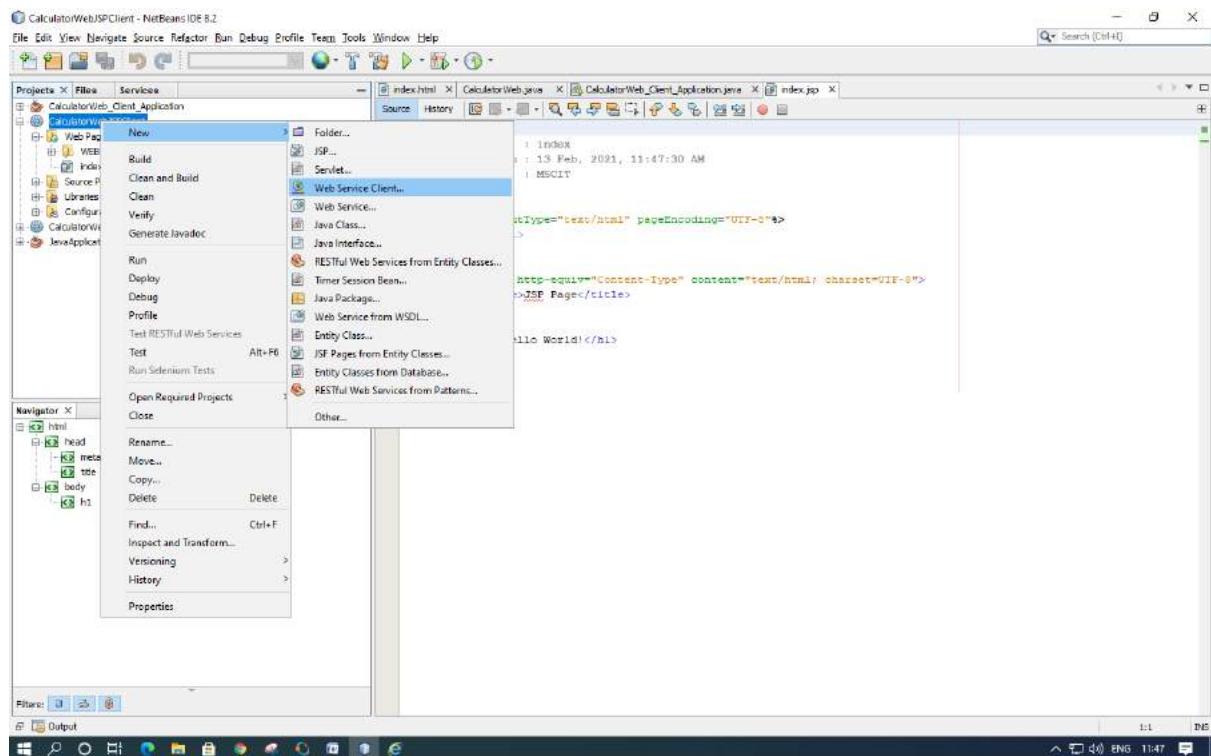
If JSP is not available in the popup menu, choose New > Other and select JSP in the Web category of the New File wizard.



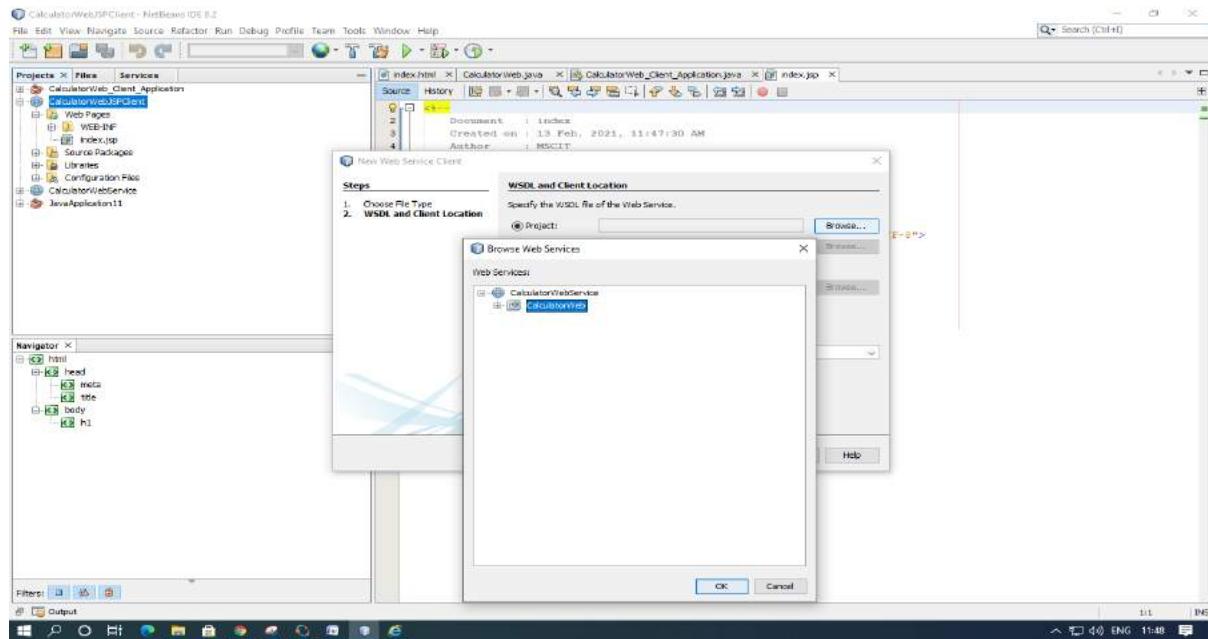
4. Type index for the name of the JSP file in the New File wizard. Click Finish.



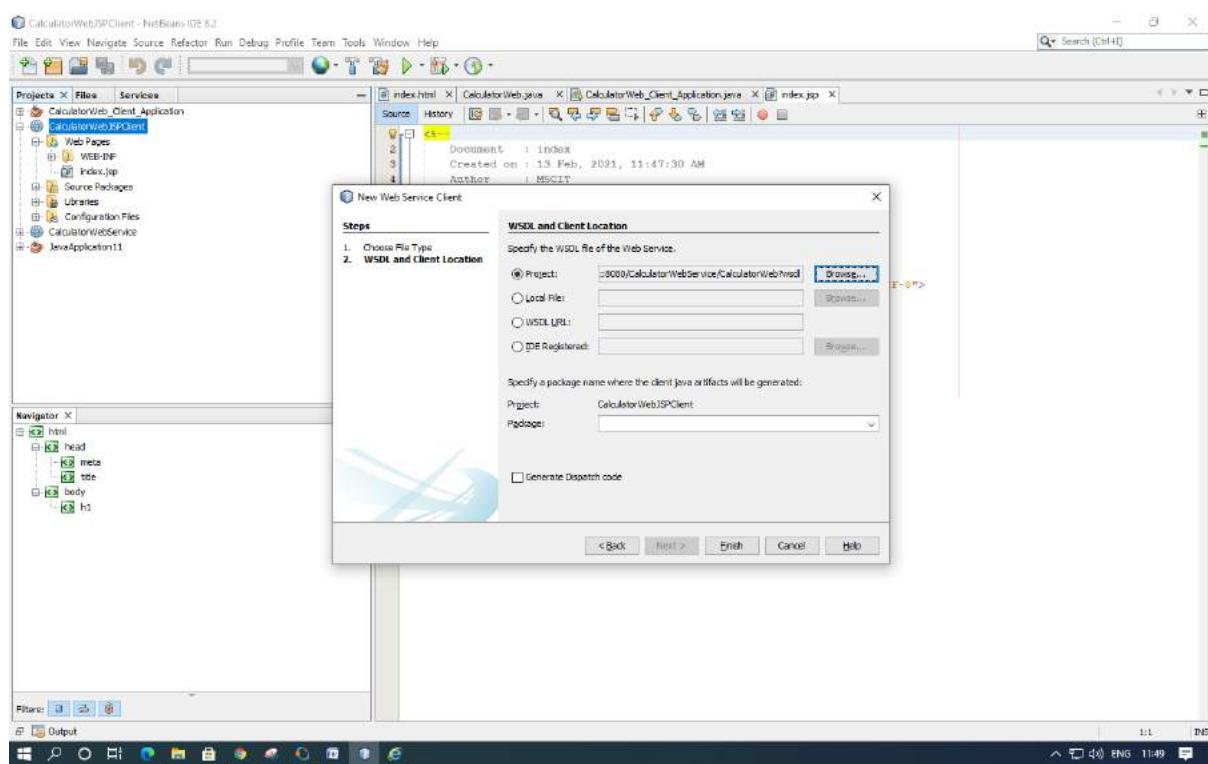
5. Right-click the CalculatorWebJSPClient node and choose New > Web Service Client.



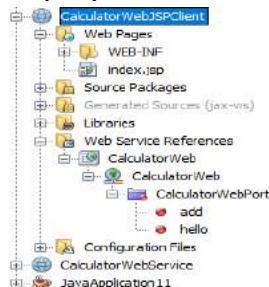
- Select Project as the WSDL source. Click Browse. Browse to the CalculatorWeb web service in the CalculatorWebService project. When you have selected the web service, click OK.



- Do not select a package name. Leave this field empty.
- Leave the other settings at default and click Finish.



The Projects window displays the new web service client, as shown below:



9. In the Web Service References node, expand the node that represents the web service. The add operation, which you will invoke from the client, is now exposed.
10. Drag the add operation to the client's index.jsp page, and drop it below the H1 tags. The code for invoking the service's operation is now generated in the index.jsp page, as you can see here:

```
<%-- start web service invocation --><hr/>
<% try {
    org.webservices.CalculatorWeb_Service service = new org.webservices.CalculatorWeb_Service();
    org.webservices.CalculatorWeb port = service.getCalculatorWebPort();
    // TODO initialize WS operation arguments here
    int i = 0;
    int j = 0;
    // TODO process result here
    int result = port.add(i, j);
    out.println("Result = " + result);
} catch (Exception ex) {
    // TODO handle custom exceptions here
}
<%-- end web service invocation --><hr/>
</h1>
</body>
</html>
```

Change the value for i and j from 0 to other integers, such as 3 and 4. Replace the commented out TODO line in the catch block with `out.println("exception" + ex);`

```

<%-- Start web service invocation --%><hr/>
try {
    org.me.calculator.CalculatorWeb_Service service = new org.me.calculator.CalculatorWeb_Service();
    org.me.calculator.CalculatorWeb port = service.getCalculatorWebPort();
    // TODO initialize WS operation arguments here
    int i = 3;
    int j = 4;
    // TODO process result here
    int result = port.add(i, j);
    out.println("Result = "+result);
} catch (Exception ex) {
    out.println("exception" + ex);
}
<%-- end web service invocation --%><hr/>
```

11.Right-click the project node and choose Run.

The server starts, if it wasn't running already. The application is built and deployed, and the browser opens, displaying the calculation result:

