

SUBMITTED by: JAGDISH GANESH NAIKAR

Roll.no: TCS2425101

Cloud Computing Journal



S.I.E.S College of Arts, Science and Commerce
Sion(W), Mumbai - 400 022.

CERTIFICATE

This is to certify that Mr / ~~Miss~~ JAGDISH NAIKAR Roll No.
TCS242501 Has successfully completed the necessary course of
experiments in the subject of CLOUD COMPUTING during
the academic year 2024 - 2025 complying with the requirements of
University of Mumbai, for the course of T.Y.BSc. Computer Science
[Semester-6]

Prof. In-Charge

Prof. Aditi Prajapati

Examination Date:
Examiner's Signature & Date:

Head of the Department
Prof. Manoj Singh

College Seal
And Date

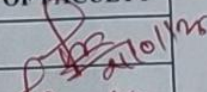
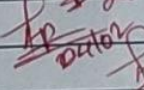
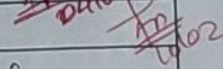
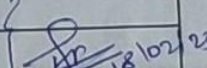
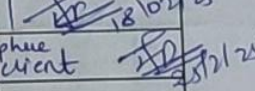
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SIES COLLEGE OF ARTS SCIENCE AND COMMERCE (EMPOWERED AUTONOMOUS)
SION - WEST , MUMBAI-22

Name of the Student: Naikan Jagdish Ganesh
Class : ITBSc(Cs) Roll No: TC52425101
Subject: Cloud Computing Semester: VI

Year: 2024-25

INDEX

Sr.No	DATE	TITLE OF PRACTICAL	SIGNATURE OF FACULTY
01	21/1/25	web feed RSS	
02	4/2/25	Study and implement of IaaS (EC2, S3)	
03	10/2/25	Implementing a Web Services	
04	17/02/25	Developing Application using for Google App Engine	?
05	18/02/25	Implement fail over clustering on windows server.	
06	25/02/25	Implement of virtualization using sphere VMware / REXIServer & managing with client	
		Study of CC and its architecture	
		Case study on amazon ec2, Microsoft hyperv, Microsoft azure, Google cloud platform	
		(Research paper analysis)	

Name & Signature of Subject Incharge.
Examiner

Name & Signature of



Cloud Computing

Practical No. 1

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	Web Feed	Batch	2
Date:	21/01/2025	Practical No	1

A) AIM:

Write a program for web feed

B) DESCRIPTION:

A web feed is a data format used to provide users with frequently updated content from websites, blogs, podcasts, and more. It allows users to subscribe to updates and receive new content automatically. Common formats for web feeds include RSS, Atom, and JSON Feed.

C) CODE & OUTPUT

```
<p> Choose a Category </p>
<form method = "post" id = "myform">
  <select required name = "rssurl">
    <option value = "https://auto.hindustantimes.com/rss/auto/cars">Cars</option>
    <option value = "https://auto.hindustantimes.com/rss/auto/electric-vehicles"> EV
  </option>
  <option value =
"https://www.hindustantimes.com/feeds/rss/entertainment/bollywood/rssfeed.xml">Bollywood</opt
ion>
  </select>
  <input type = "submit" value = "Load"/>
</form>

<?php
if(isset($_POST['rssurl'])) {
  echo '<h1> Search Result for RSS url: ' . $_POST['rssurl'] . '</h1>';
  $rssurl = $_POST['rssurl'];
  $rss = new DOMDocument();
  $rss -> load($rssurl);
  $feed = array();

  foreach ($rss -> getElementsByTagName('item') as $node) {
    $item = array(
      'title' => $node -> getElementsByTagName('title') -> item(0) -> nodeValue,
      'desc' => $node -> getElementsByTagName('description') -> item(0) -> nodeValue,
      'link' => $node -> getElementsByTagName('link') -> item(0) -> nodeValue,
      'date' => $node -> getElementsByTagName('pubDate') -> item(0) -> nodeValue
    );
    array_push($feed, $item);
  }
  $limit = 5;
  for ($x = 0; $x < $limit; $x++) {
    $title = str_replace('&', '&amp;', ($feed[$x]['date'])); //Formatting the date
    $link = $feed[$x]['link'];
    $description = $feed[$x]['desc'];
    $date = date('l F d, Y', strtotime($feed[$x]['date']));

    echo '<p><strong><a href = "' . $link . '" title="' . $title . '"> . $title .
'</a></strong></p>';
    echo '<p>' . $description . '</p>';
    echo '<small><em>Posted on ' . $date . '</em></small>';
  }
}
?>
```

Choose a Category
Cars Load

Search Result for RSS url: <https://auto.hindustantimes.com/rss/auto/cars>

[Sun, 19 Jan 2025 11:32:33 +0530](#)

The BYD Sealion 6 PHEV is sold in countries such as Australia, with a 1.5-liter petrol engine combined with an 18.3 kWh battery. Both of these power sources allow the hybrid SUV to go up to 1,092 km on a full charge and a full refill of its 60-liter fuel tank.

Posted on Sunday January 19, 2025

[Sun, 19 Jan 2025 10:04:04 +0530](#)

The Stealth Editions of Tata Safari and Harrier EV gets a matte black treatment on the outside. Meanwhile, these models also sport an all-black interior theme

Posted on Sunday January 19, 2025

[Sat, 18 Jan 2025 18:36:49 +0530](#)

Honda Amaze was first introduced back in 2013 and it recently entered in its third-generation.

Posted on Saturday January 18, 2025

[Sat, 18 Jan 2025 18:12:14 +0530](#)

VinFast has taken covers off its VF6 and VF7 electric SUVs in India, marking the company's entry into the Indian market.

Posted on Saturday January 18, 2025

[Sat, 18 Jan 2025 18:12:13 +0530](#)

Maruti Suzuki has unveiled seven different concept models based on existing vehicles which include Swift, Invicto, Brezza, Grand Vitara, Jimny, Fronx and Dzire.

Posted on Saturday January 18, 2025

Choose a Category
Cars Load

Search Result for RSS url: <https://auto.hindustantimes.com/rss/auto/electric-vehicles>

[Tue, 21 Jan 2025 15:13:34 +0530](#)

Ola Roadster will be offered in three variants - X, Standard and Pro. The bookings are already open.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 11:54:54 +0530](#)

The iM 5 electric sedan made its debut for the first time at the Bharat Mobility Global Expo 2025, part of MG's lineup. Earlier, the electric car was revealed to the public at the 2024 Geneva Auto Show and will go for sale in Europe next year.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 11:44:31 +0530](#)

Union Environment Minister Bhupender Yadav stated that electric vehicles could significantly reduce CO2 emissions and emphasised the need for the auto industry to aim for 50 per cent of EV sales by 2030 to meet net zero emission targets.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 09:39:48 +0530](#)

Shares of Japanese automakers and South Korean battery manufacturers dropped after Trump announced potential tariffs on Canada and Mexico.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 08:37:53 +0530](#)

Toyota plans to enhance production capacity in India, aiming for carbon neutrality through a multi-technology approach, including hybrids.

Posted on Tuesday January 21, 2025

Choose a Category
Cars Load

Search Result for RSS url: <https://www.hindustantimes.com/feeds/rss/entertainment/bollywood/rssfeed.xml>

[Tue, 21 Jan 2025 14:08:49 +0530](#)

Unlike Vicky Kaushal's first look, Rashmika Mandanna's first look from Chhaava has failed to impress the internet. Here's what fans think

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 13:52:54 +0530](#)

A look back at Sushant Singh Rajput's best films that displayed his acting brilliance which impressed critics and also made waves at the box office

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 13:14:21 +0530](#)

In the posters, Rashmika Mandanna wore a saree and heavy jewellery. She covered her head and smiled in the first poster. See post here.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 12:57:48 +0530](#)

Salman and Aamir humorously discussed their past relationships during a playful phone check on Bigg Boss 18, leaving everyone in splits.

Posted on Tuesday January 21, 2025

[Tue, 21 Jan 2025 12:46:49 +0530](#)

In a picture, Aadar Jain's parents, Rima Jain and Manoj Jain were seen seated near the ceremony venue. See post here.

Posted on Tuesday January 21, 2025

Name of Instructor: Prof. Aditi Prajapati



Cloud Computing

Practical No. 2

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	IaaS	Batch	2
Date:	28/01/2025	Practical No	2

A) AIM:

Study and implement infrastructure as a cloud.

B) DESCRIPTION:

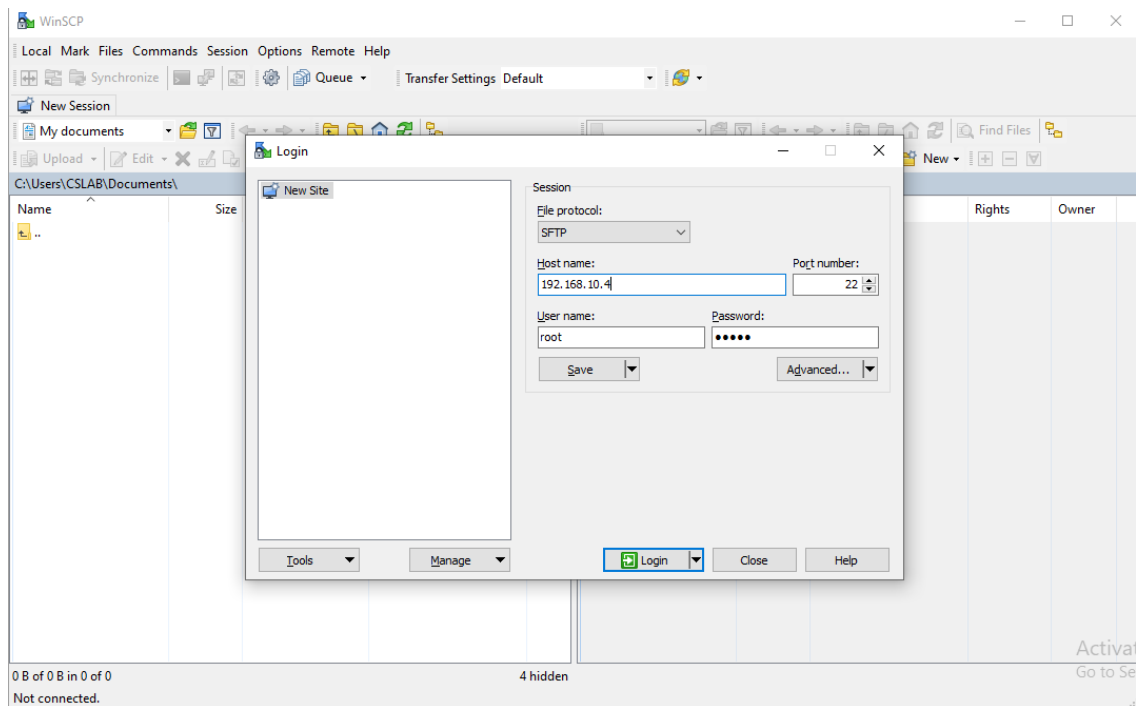
FOSS-Cloud is an open-source platform that provides Infrastructure as a Service (IaaS) capabilities. It allows users to create and manage virtualized resources such as virtual machines, storage, and networking using open-source technologies. Here are some key features of FOSS-Cloud:

1. Virtualization and Cloud Services: It supports both Windows and Linux-based SaaS, Terminal Server, and Virtual Desktop Infrastructure (VDI) environments.
2. Redundant Server Infrastructure: FOSS-Cloud offers an integrated and redundant server setup, ensuring high availability and reliability.
3. Flexibility and Cost Savings: Being open-source, it provides flexibility and cost savings by avoiding vendor lock-in compared to proprietary cloud solutions.
4. Web-Based Management: It includes a web-based management console for easy administration and deployment of virtual machines.

STEPS:

1. To create FOSS cloud server
2. Enter IP Address on client browser 192.168.10.4
3. Login Credentials – admin and admin
4. Download WinSCP
5. Create new file with hostname as **192.168.10.4**, user as **root** and password as **admin**
6. Copy the Ubuntu ISO file in your local machine.
7. In FOSS Cloud (192.168.10.4) create a VM profile by Virtual Machine > Profiles > Create
8. Create a VM Template by Virtual Machine > VM Templates > Create

C) OUTPUT



Create VmTemplate

Fields with * are required.

Step I

Please select a profile first!

Profile

- linux
 - ubuntu_aditi
 - ubuntu_abina
 - test
 - ubuntu_saurabh
 - abijah
 - test1
 - ubuntu_003
 - i686
 - multi
 - ubuntu_34
 - ubuntu_aishu
 - praveen
 - ubuntu_016
 - ubuntu_ash
 - ubuntu_72
 - ubuntu_surya
 - Bhushan 005
 - ubuntu_47
 - Aditya_044
 - ubuntu_ali
 - ubuntu_tarik
 - ubuntu_om
 - ubuntu_vencie
 - ubuntu_sapna
 - ubuntu_soham
 - abhiraj
 - ubuntu_keertana
 - ubuntu_Angel
 - ubuntu_firoz
 - Ubuntu24
 - ash
 - ubuntu_Deepa
 - test_nik
 - ubuntu_vjsethupathi
 - test_rohittt
 - Hari

Step II

Please choose a node and overwrite the default values if necessary!

Vmpool *

Node *

Name *

ubuntu_003

Description *

This is the ubuntu_003 VM-Profile subtree (operating system nar

Memory *

128 MB128 GB128 MB

Volume Capacity *

10 GB2048 GB10 GB

CPU *

1

Clock Offset *

utc

Number of displays

Create

Create VM Profile

Fields with * are required.

Step I

Please select a profile first!

BaseProfile

- linux
 - default
 - i686
 - ☒ multi
 - ☐ de-DE
 - ☐ de-AT
 - ☐ de-CH
 - ☐ en-US
 - ☐ en-GB
 - ☐ fr-CH
 - ☐ fr-FR
 - ☐ it-CH
 - ☐ it-IT
 - x86_64
 - ubuntu_aditi
 - ubuntu_abina
 - test
 - ubuntu_saurabh
 - abijah
 - test1
 - ubuntu_003
 - ubuntu_34
 - ubuntu_aishu
 - praveen
 - ubuntu_016
 - ubuntu_ash
 - ubuntu_72
 - ubuntu_surya
 - Bhushan 005
 - ubuntu_47

Step II

Overwrite the default values if necessary!

Isofile *

ubuntu-16.10-desktop-i386.iso

Name *

Description *

Memory *

128 MB 128 GB 128 MB

Volume Capacity *

10 GB 2048 GB 10 GB

CPU *

1 ▾

Clock Offset *

utc ▾

Create



Cloud Computing

Practical No. 3

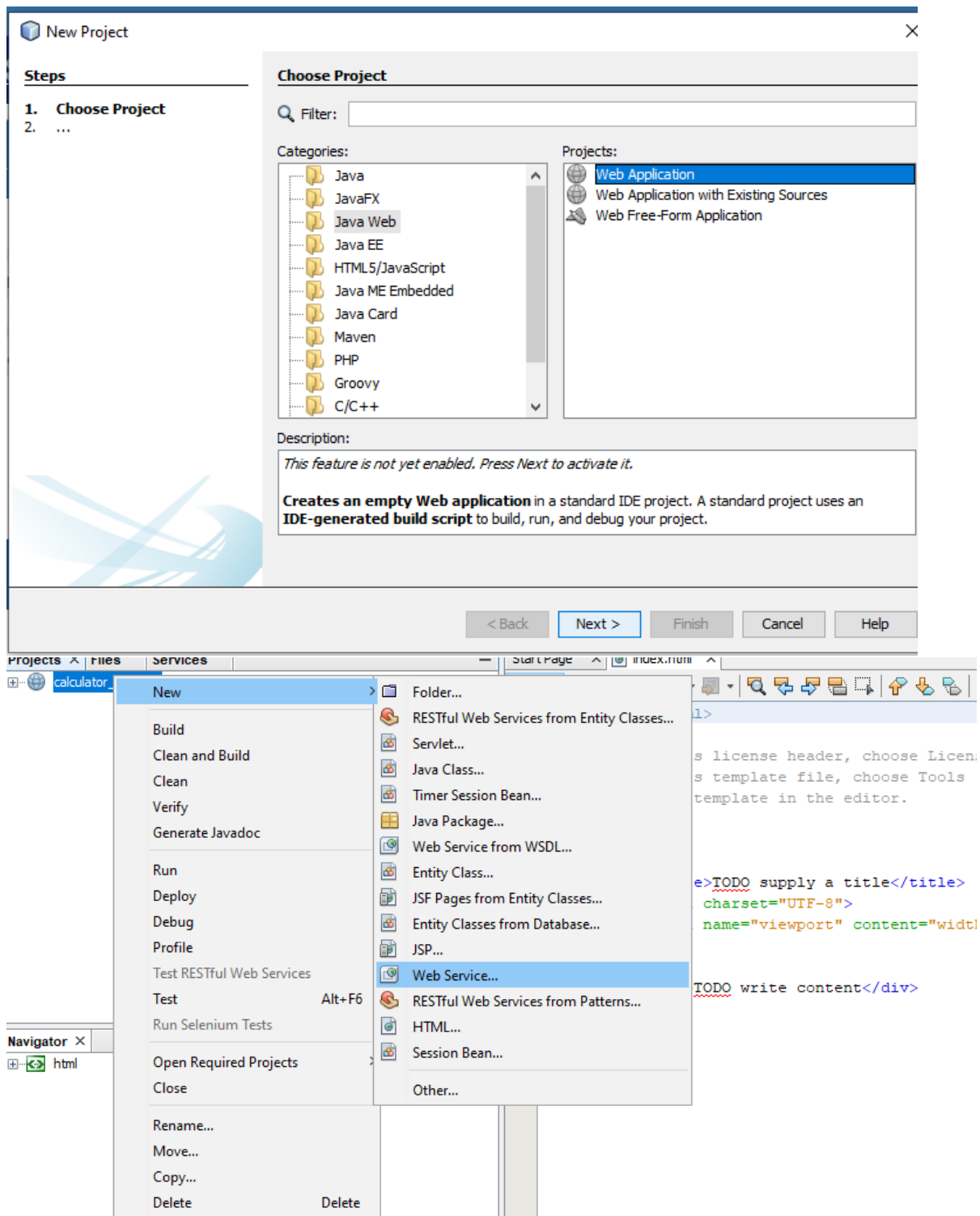
DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	WS App	Batch	2
Date:	11/02/2025	Practical No	3

A) AIM:

Implement Webservices Application (Calculator).

C) OUTPUT



New Web Service

×

Steps

1. Choose File Type

2. Name and Location

Name and Location

Web Service Name: calc_ws

Project: calculator_ws_app

Location: Source Packages

Package: calc

☒ Create Web Service from Scratch

☐ Create Web Service from Existing Session Bean

Enterprise Bean:

☐ Implement Web Service as Stateless Session Bean

< Back

Next >

Finish

Cancel

Help

calculator_ws_app - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects | Files | Services

calculator_ws_app

Web Pages

Source Packages

calc

calc_ws.java

Libraries

Web Services

Configuration Files

Members

calc_ws

hello(String txt): String

Source

Design

History

1

2

3

4

5

6

7

8

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10

11

12

13

14

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23

24

25

26

27

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package calc;
7
8  import javax.jws.WebService;
9  import javax.jws.WebMethod;
10 import javax.jws.WebParam;
11
12 /**
13  *
14  * @author CSLAB
15  */
16 @WebService(serviceName = "calc_ws")
17 public class calc_ws {
18
19     /**
20      * This is a sample web service operation
21      */
22     @WebMethod(operationName = "hello")
23     public String hello(@WebParam(name = "name") String txt) {
24         return "Hello " + txt + " !";
25     }
26 }
27
```

The image displays the NetBeans IDE interface for a web service project named 'calculator_ws_app'. The top pane shows the 'Design' view of the 'calc_ws' web service. It features two operations: 'add' and 'sub'. Each operation has a table defining its parameters and output.

Operations (2)

add

Parameters	Output	Faults	Description
Parameter Name			Parameter Type
num1			double
num2			double

sub

Parameters	Output	Faults	Description
Parameter Name			Parameter Type
num1			double
num2			double

Quality Of Service

- ☐ Optimize Transfer Of Binary Data (MTOM)
- ☐ Reliable Message Delivery
- ☐ Secure Service

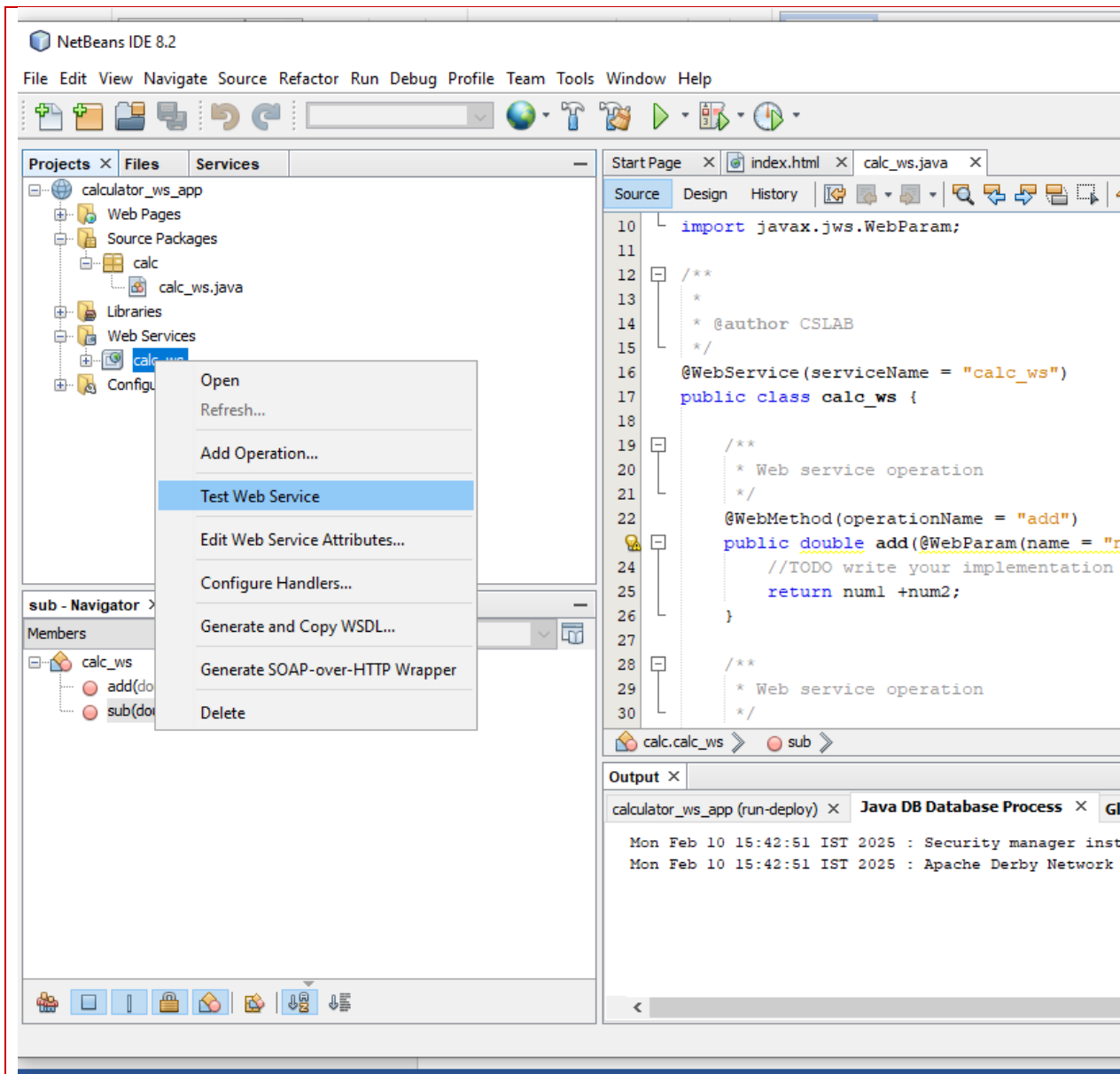
[Edit Web Service Attributes...](#)

The bottom pane shows the 'Source' view of the 'calc_ws.java' file. The code defines a web service class with two methods: 'add' and 'sub'.

```

10 import javax.ws.WebParam;
11
12 /**
13  *
14  * @author CSLAB
15  */
16 @WebService(serviceName = "calc_ws")
17 public class calc_ws {
18
19     /**
20      * Web service operation
21      */
22     @WebMethod(operationName = "add")
23     public double add(@WebParam(name = "num1") double num1, @WebParam(name = "num2") double num2) {
24         //TODO write your implementation code here:
25         return num1 + num2;
26     }
27
28     /**
29      * Web service operation
30      */
31     @WebMethod(operationName = "sub")
32     public double sub(@WebParam(name = "num1") double num1, @WebParam(name = "num2") double num2) {
33         //TODO write your implementation code here:
34         return num1 - num2;
35     }
36 }
37

```



calc_ws Web Service Tester

This form will allow you to test your web service implementation ([WSDL File](#))

To invoke an operation, fill the method parameter(s) input boxes and click on the button la

Methods :

public abstract double calc.CalcWs.add(double,double)

add (10 , 5)

public abstract double calc.CalcWs.sub(double,double)

sub (10 , 5)

Method invocation trace

localhost:8080/c

add Method invocation

Method parameter(s)

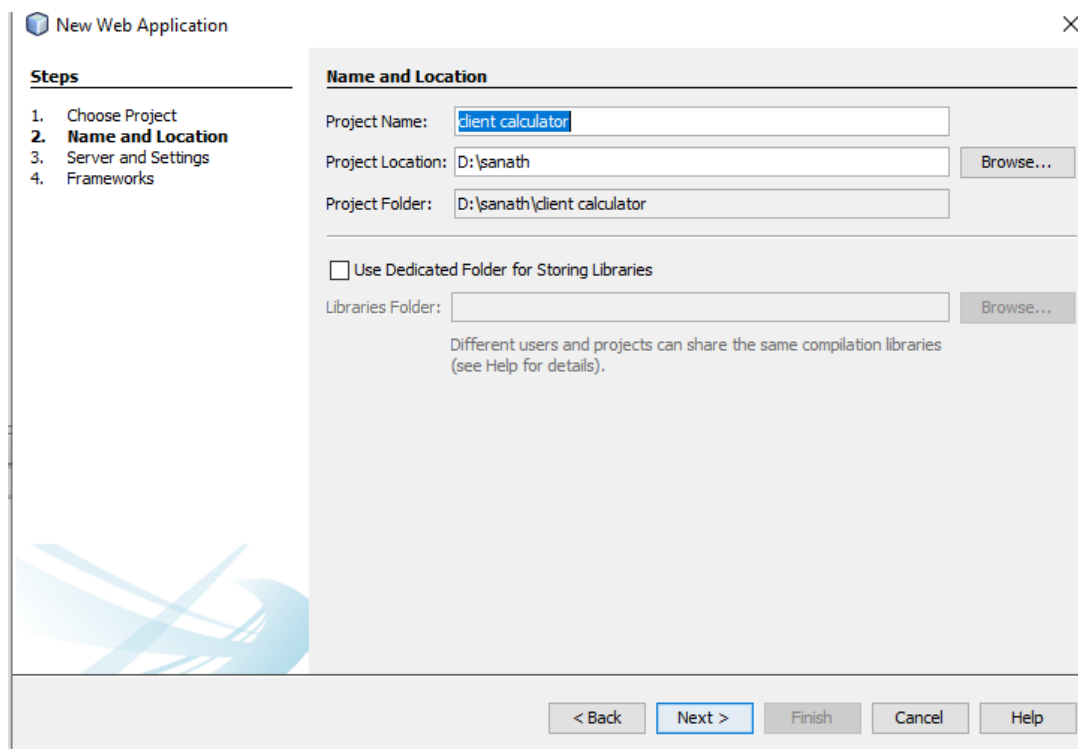
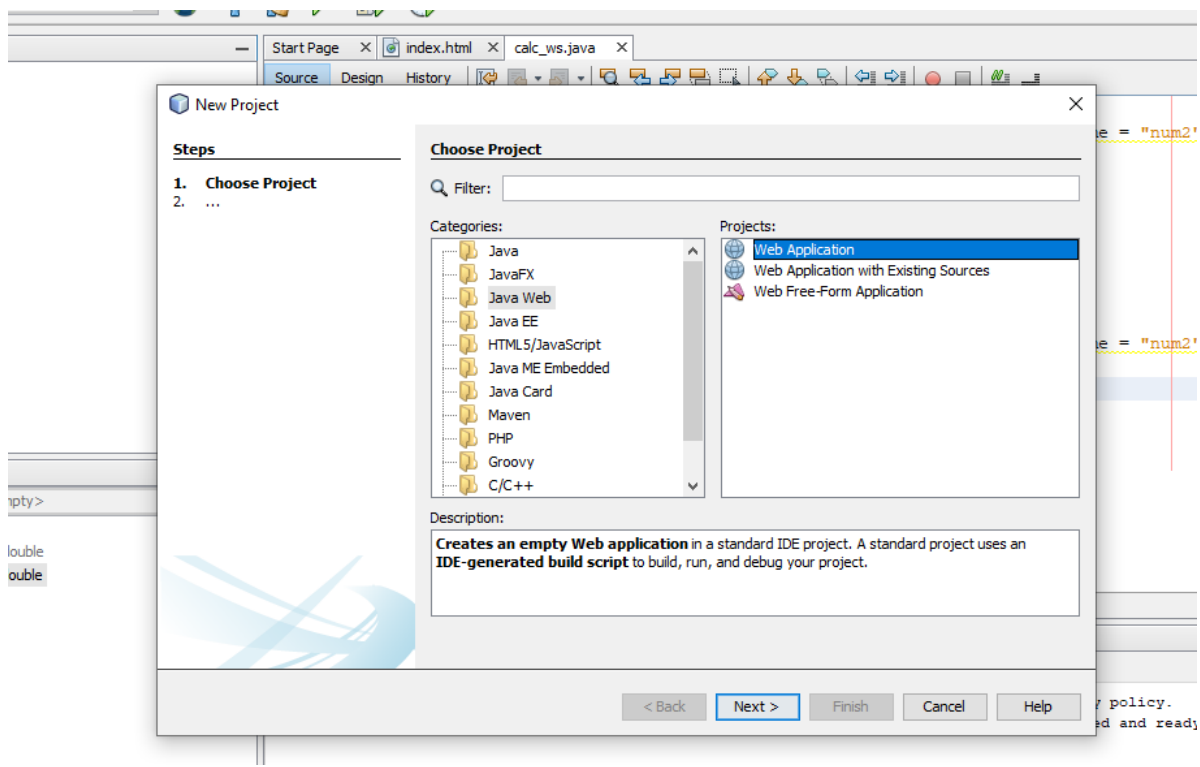
Type	Value
double	10
double	5

Method returned

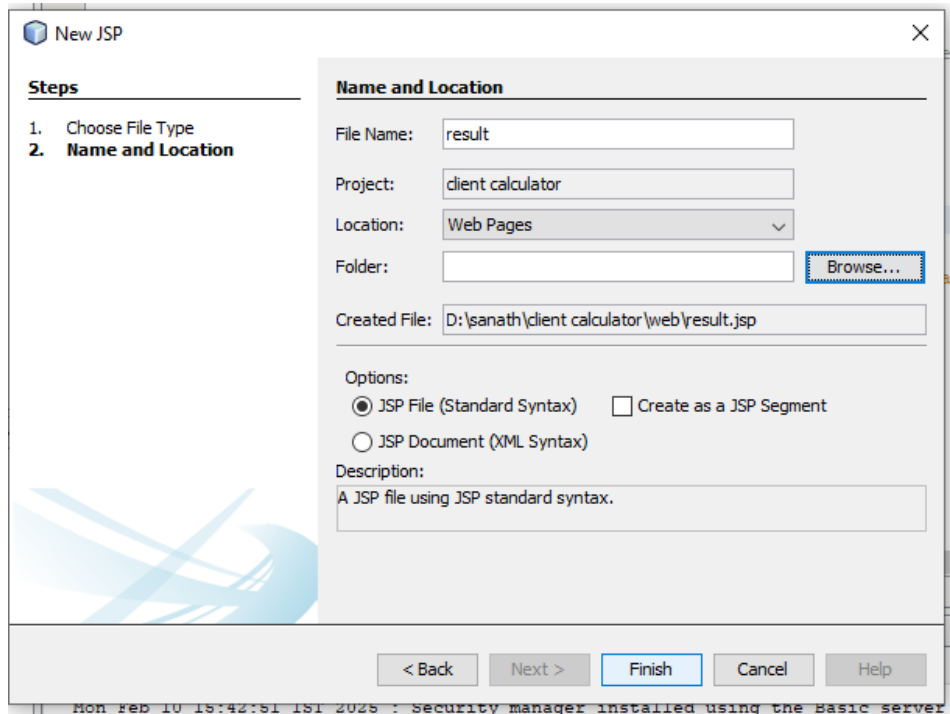
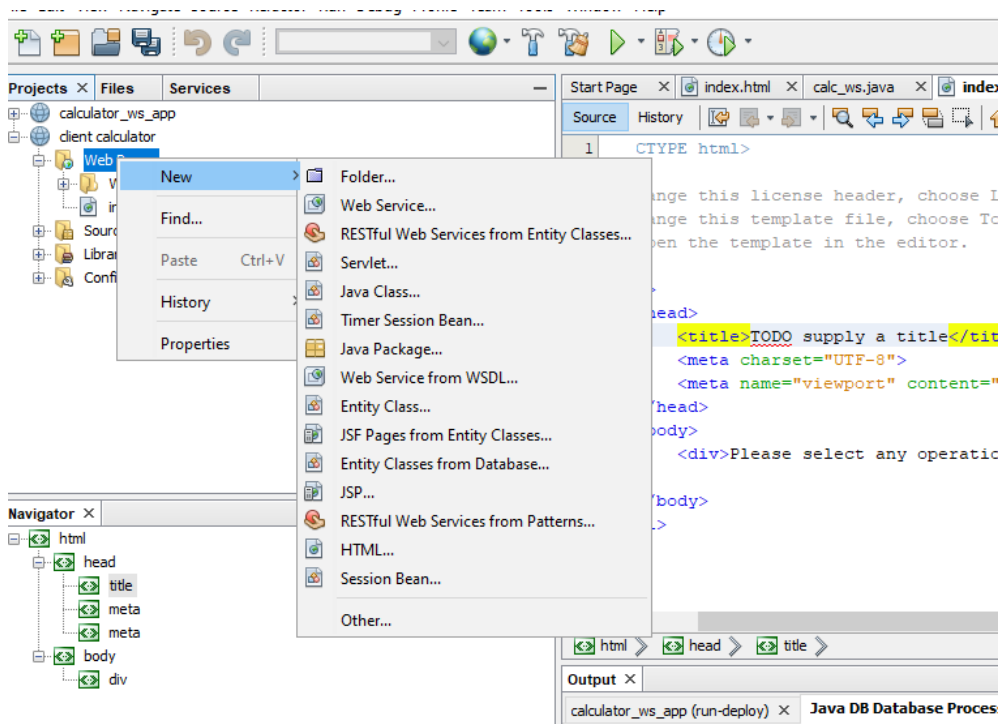
double : "15.0"

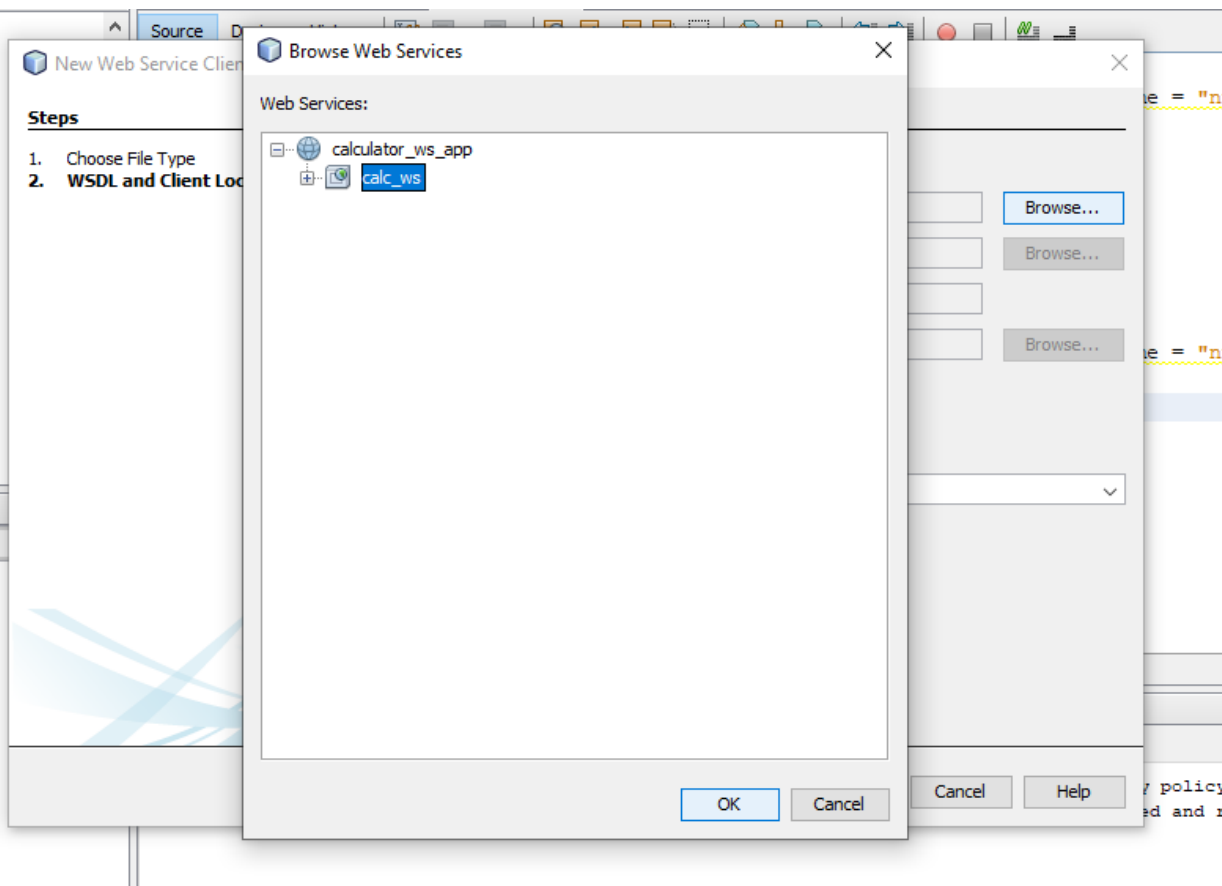
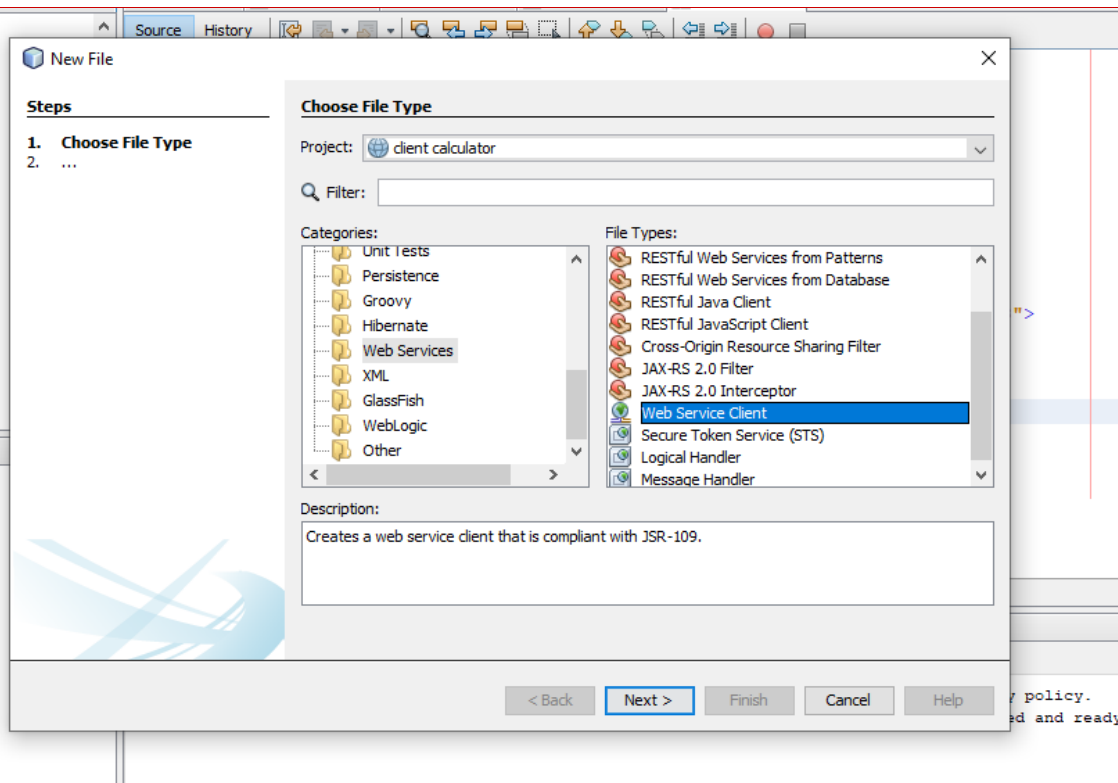
SOAP Request

Web service Client



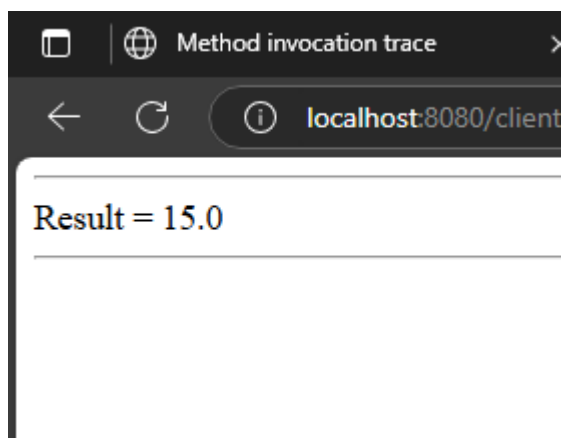
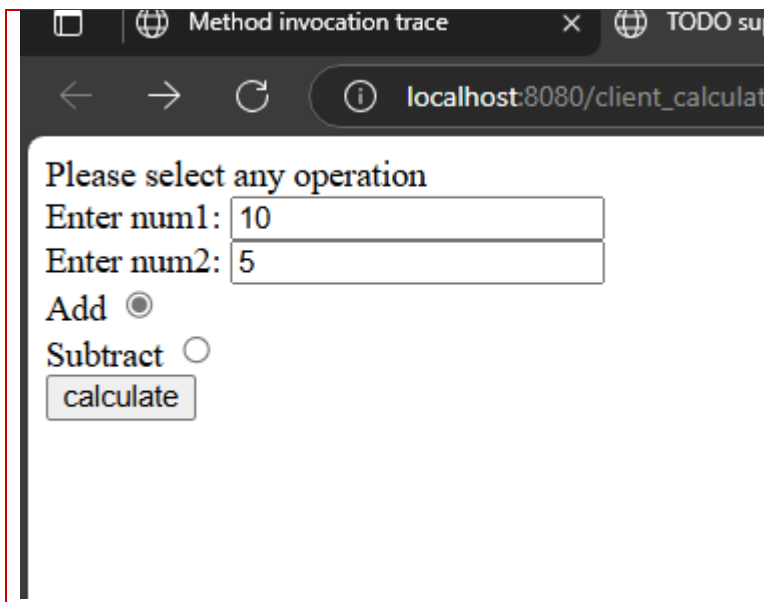
Add jsp webpage\





```
StartPage x index.html x calc_ws.java x index.html x result.jsp x
Source History
2 <!--
3 To change this license header, choose License Headers in Project Properties.
4 To change this template file, choose Tools | Templates
5 and open the template in the editor.
6 -->
7 <html>
8 <head>
9 <title>TODO supply a title</title>
10 <meta charset="UTF-8">
11 <meta name="viewport" content="width=device-width, initial-scale=1.0">
12 </head>
13 <body>
14 <div>Please select any operation </div>
15 <form name="f1" action="result.jsp">
16 Enter num1: <input type="text" name="n1" value="" /> <br>
17 Enter num2: <input type="text" name="n2" value="" /> <br>
18 Add <input type="radio" name="calc" value="1" /><br>
19 Subtract <input type="radio" name="calc" value="2" /><br>
20 <input type="submit" value="calculate" name="cal" />
21 </form>
22 </body>
23 </html>
24
```

```
StartPage x index.html x calc_ws.java x index.html x result.jsp x
Source History
13 </head>
14 <body>
15 <!-- start web service invocation --%><hr/>
16 <%
17 try {
18 String op;
19 double result;
20 calc.CalcWs_Service service = new calc.CalcWs_Service();
21 calc.CalcWs port = service.getCalcWsPort();
22 // TODO initialize WS operation arguments here
23 double num1 = Double.parseDouble(request.getParameter("n1"));
24 double num2 = Double.parseDouble(request.getParameter("n2"));
25 op= request.getParameter("calc");
26 if (op.equals("1")){
27 result = port.add(num1, num2);
28 } else { result = port.sub(num1, num2); }
29 out.println("Result = "+result);
30 } catch (Exception ex) {
31 // TODO handle custom exceptions here
32 }
33 %>
34 <!-- end web service invocation --%><hr/>
35
36 </body>
37 </html>
38
```





Cloud Computing

Practical No. 4

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	App with Google App Engine	Batch	2
Date:	11/02/2025	Practical No	4

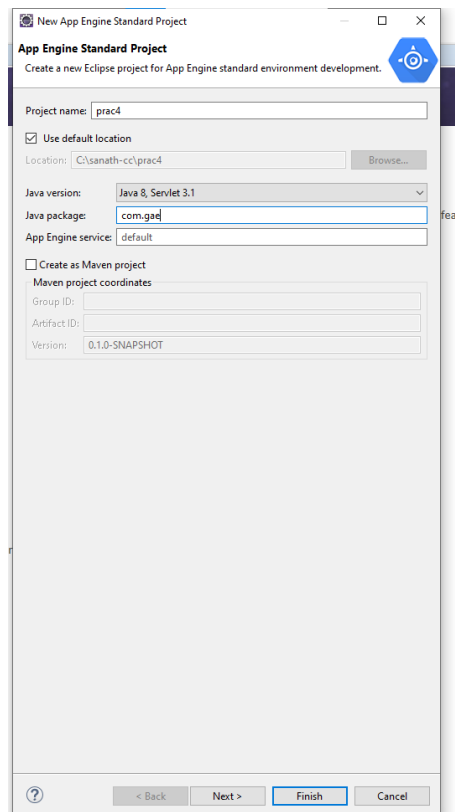
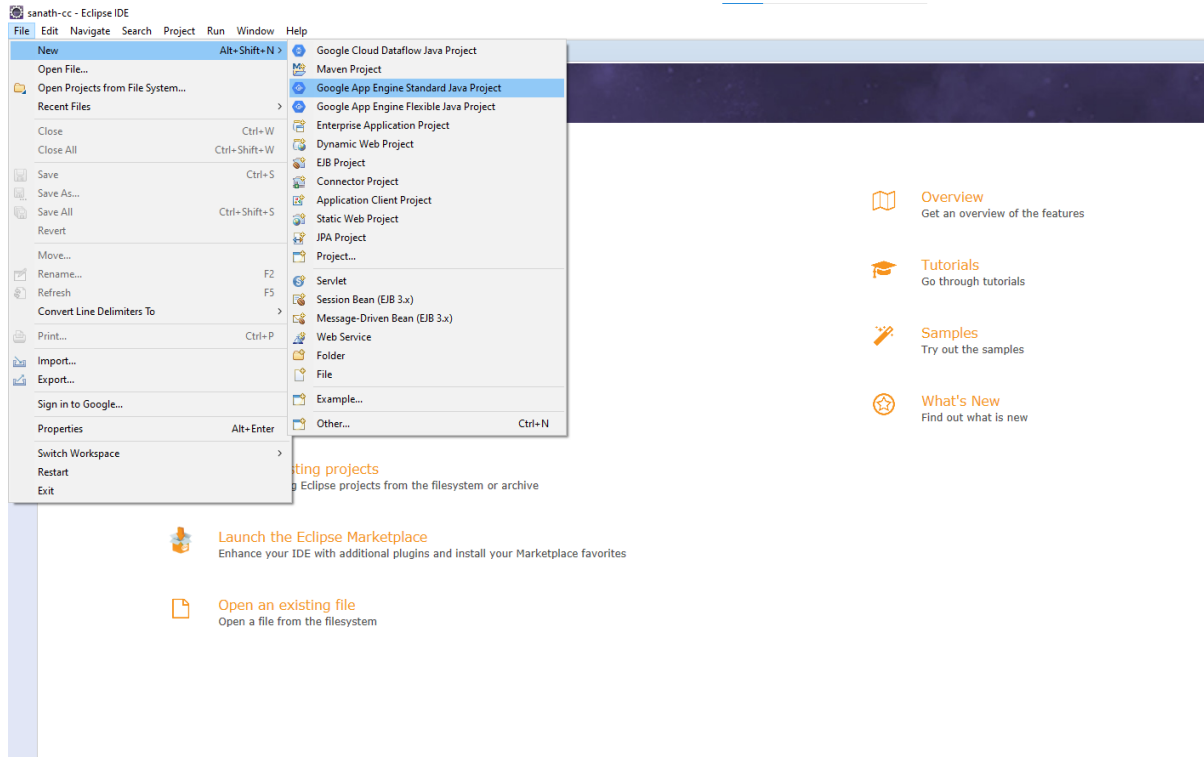
A) AIM:

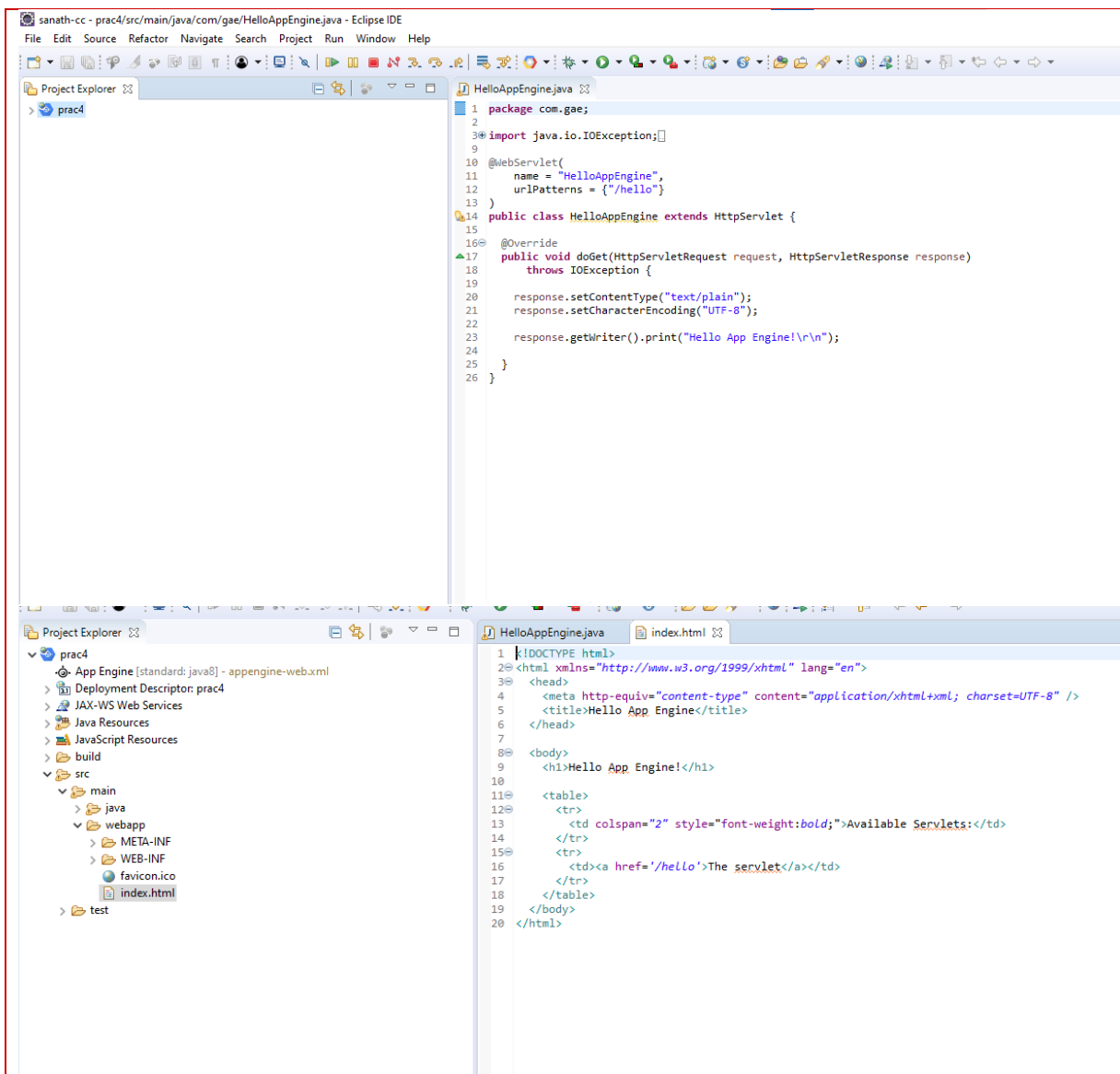
Developing application for Google App Engine.

B) DESCRIPTION:

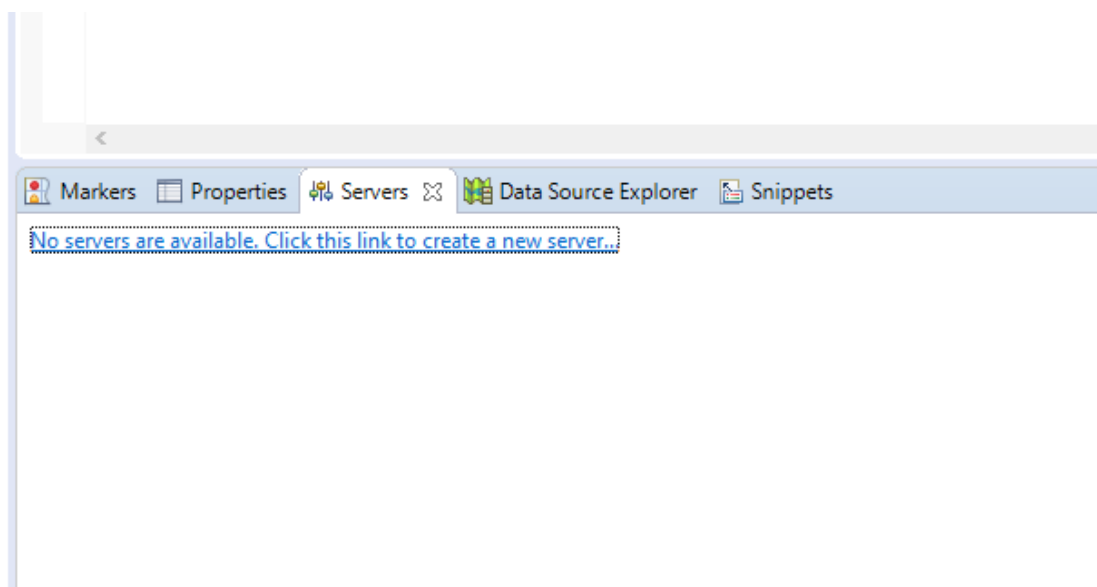
C) OUTPUT

1) Choose your own workspace





Go to servers



New Server

Define a New Server

Choose the type of server to create

Select the server type:

type filter text

- > Apache
- > Basic
- > Cloud Foundry
- ▼ Google
 - App Engine Standard

Publishes and runs projects on a local App Engine server

Server's host name: localhost

Server name: App Engine Standard at localhost

Server runtime environment: App Engine Standard Runtime [Add...](#)
[Configure runtime environments...](#)

Server port: 8080

[?](#) < Back Next > **Finish** Cancel

New Server

Add and Remove

Modify the resources that are configured on the server

Move resources to the right to configure them on the server

Available: Configured:

prac4

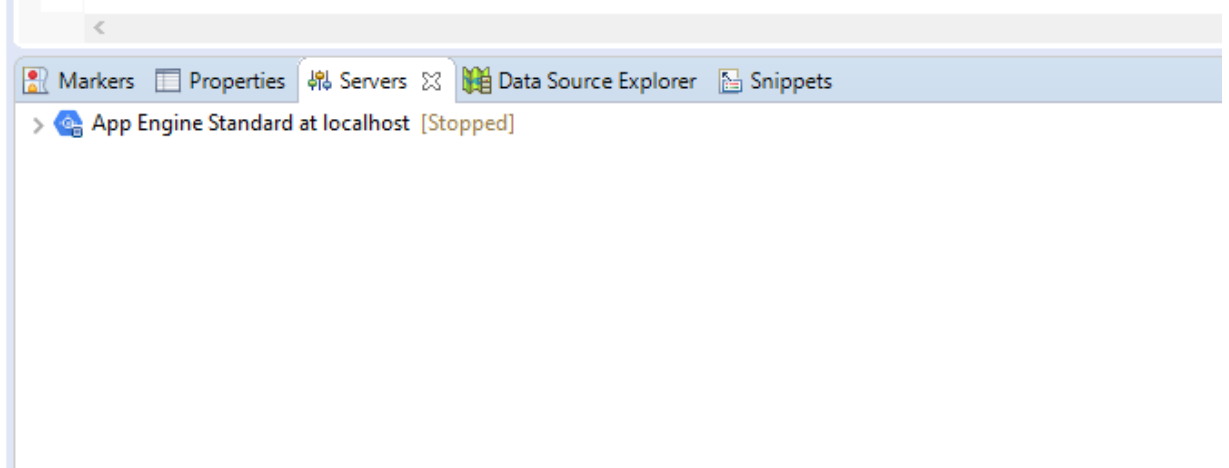
Add >

< Remove

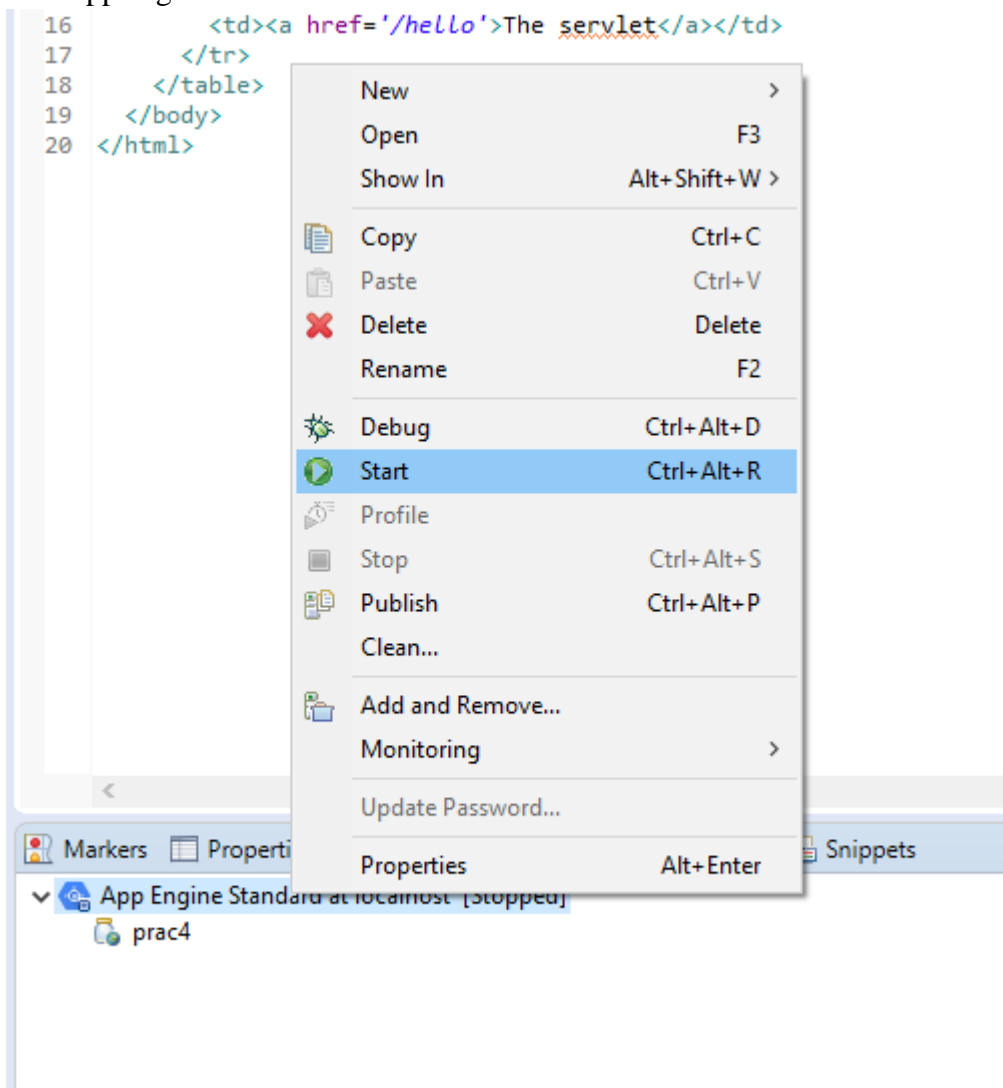
Add All >>

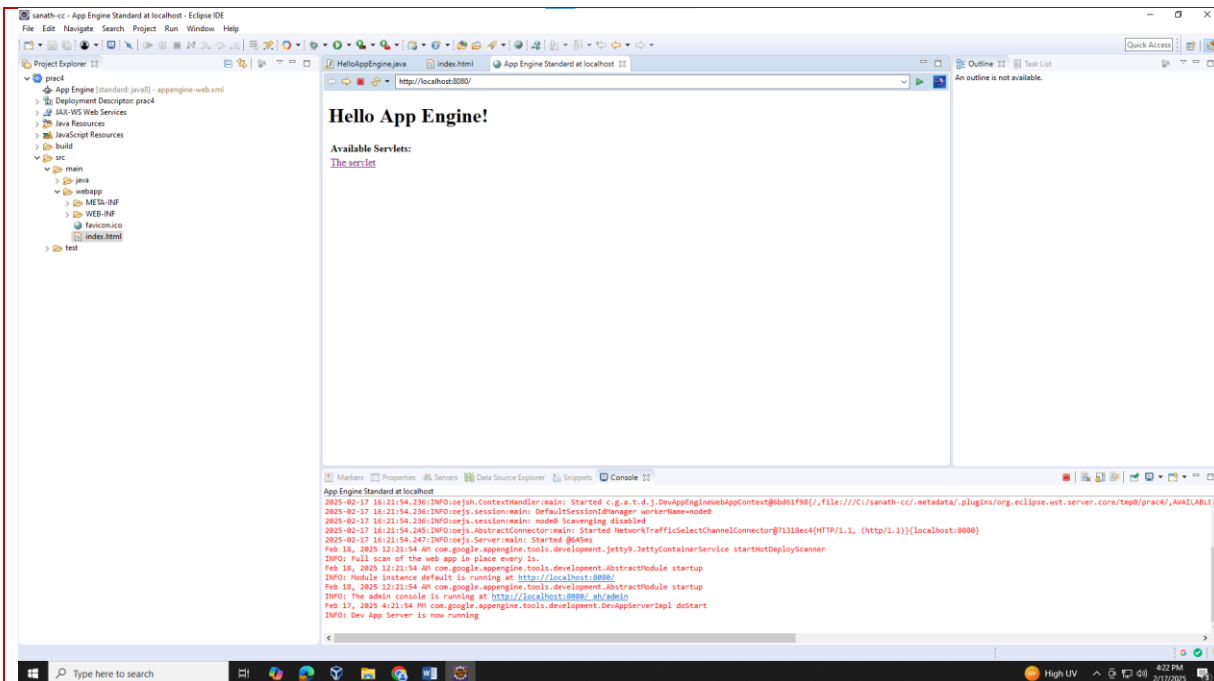
<< Remove All

[?](#) < Back Next > **Finish** Cancel

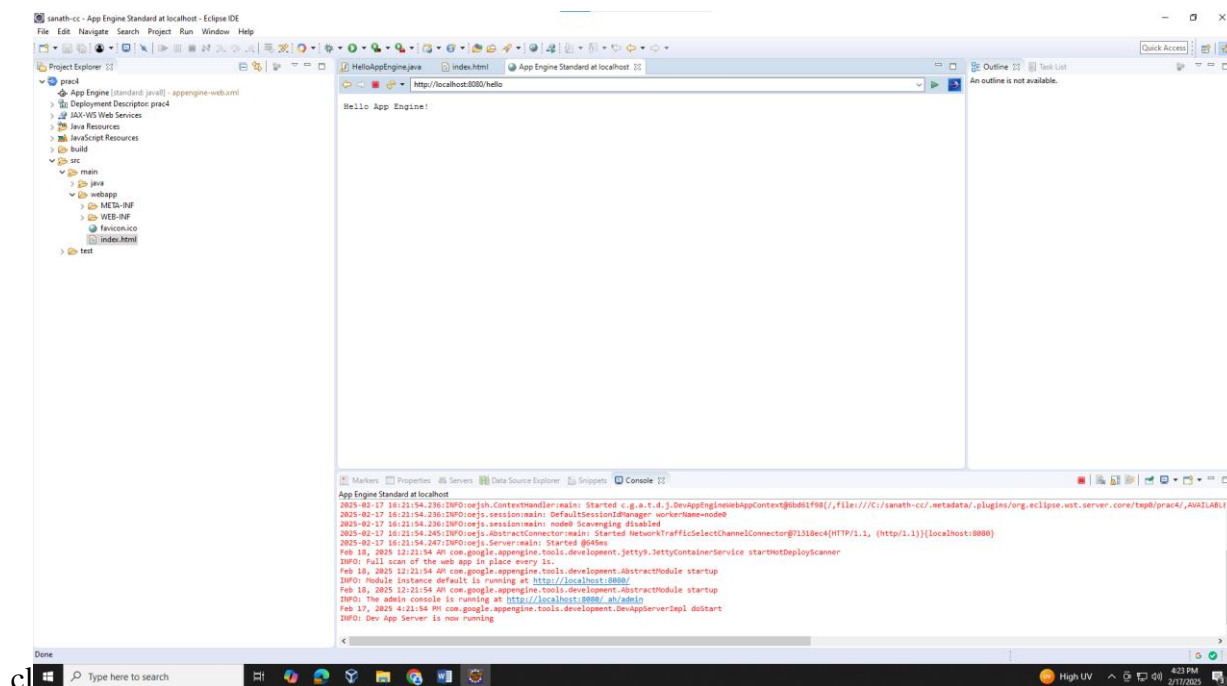


Right click on app engine in server





Click on servers



hw: factorial and palindrome



Cloud Computing

Practical No. 5

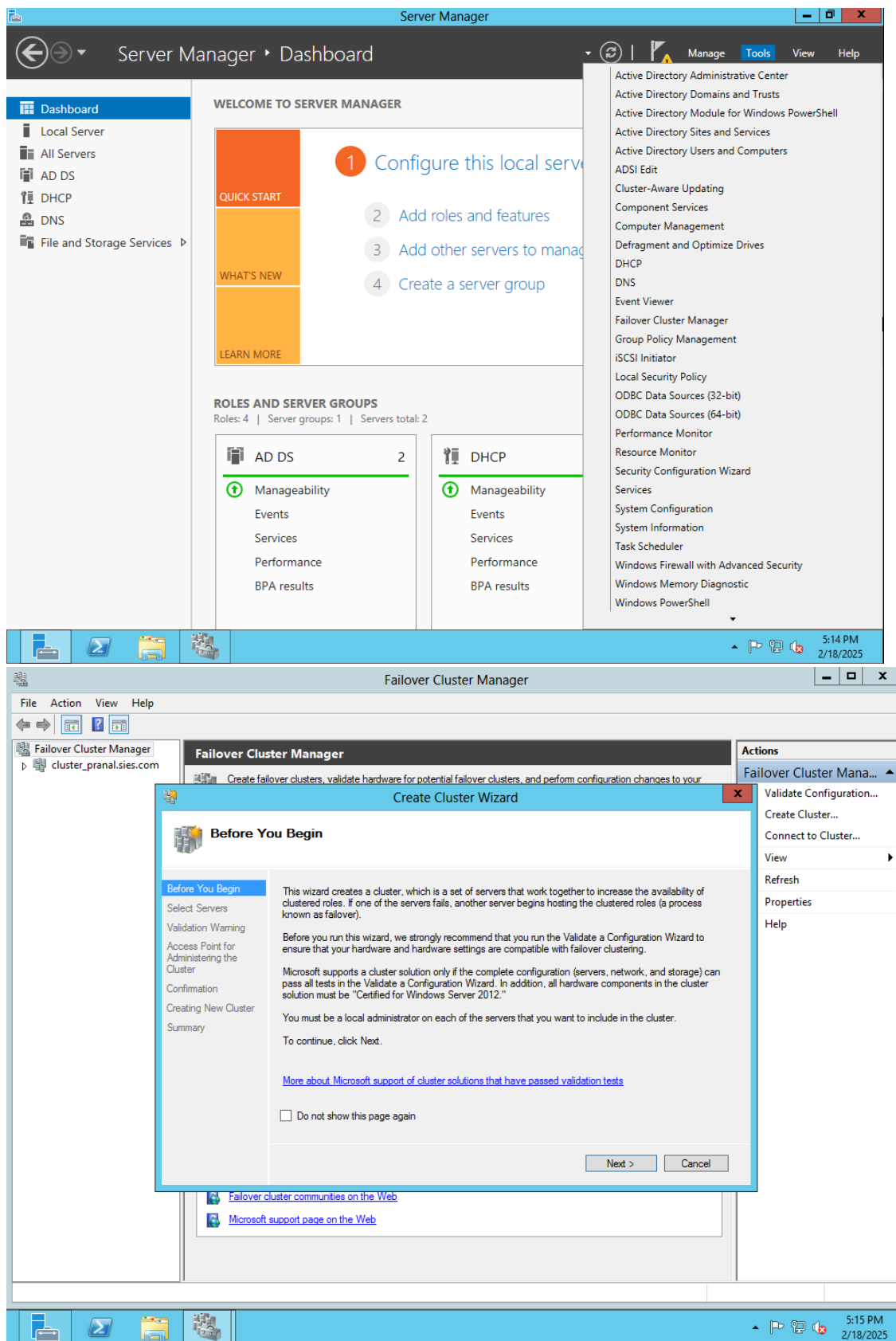
DEPARTMENT OF COMPUTER SCIENCE

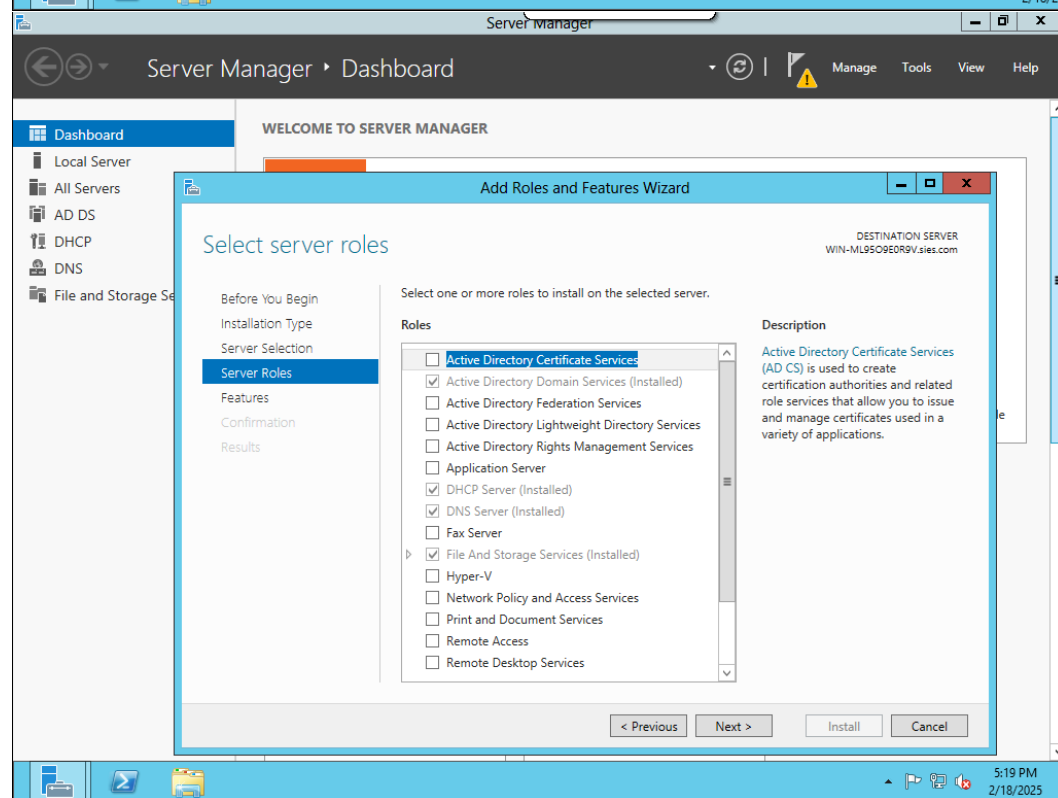
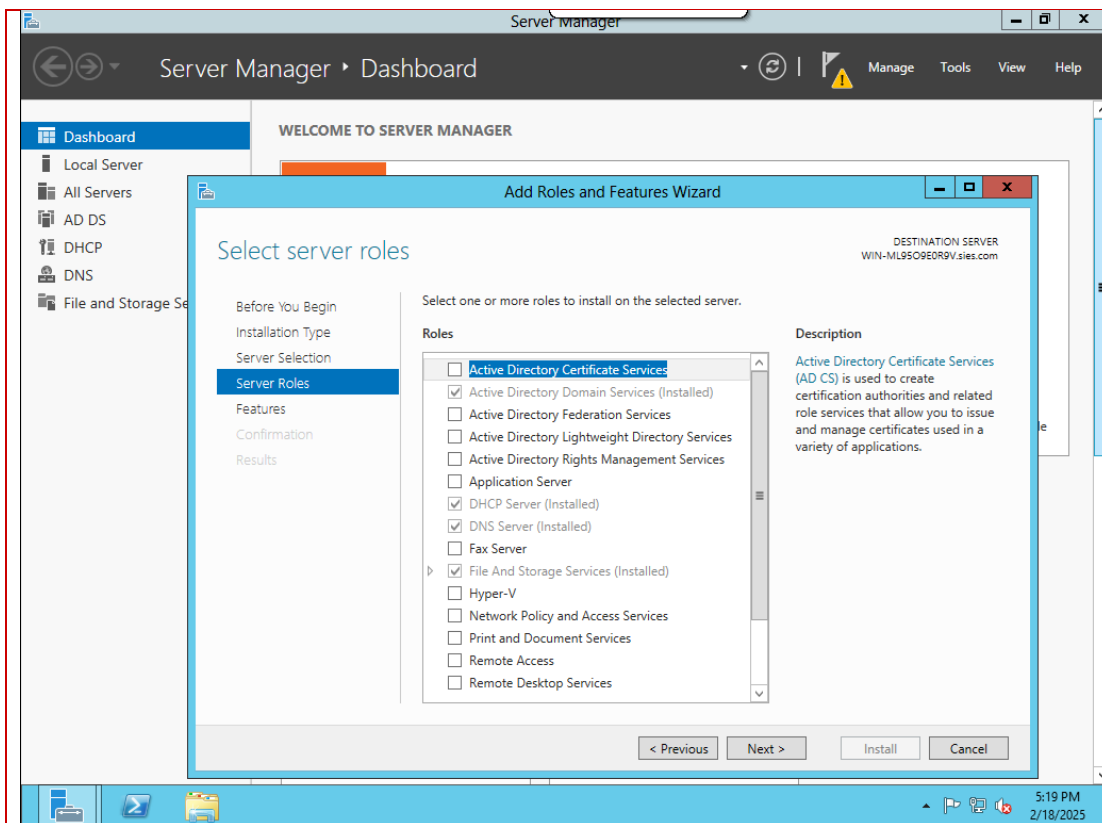
Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	Failover Cluster	Batch	2
Date:	18/02/2025	Practical No	5

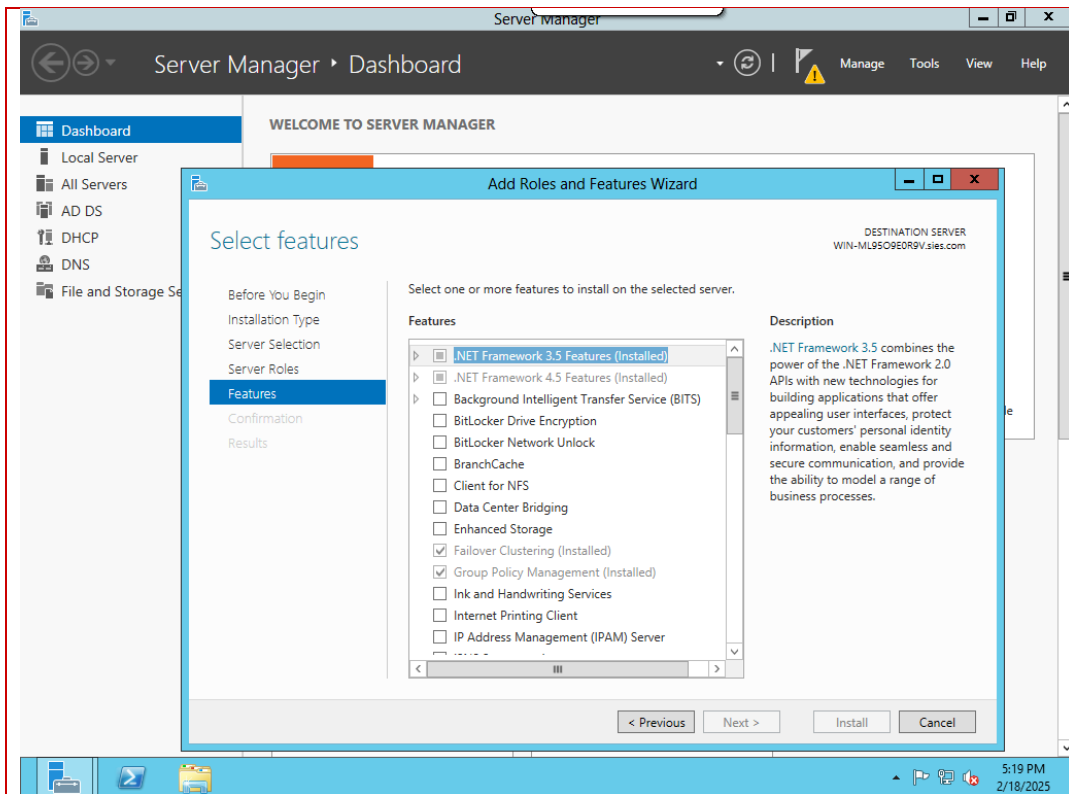
A) AIM:

Implementing Failover Cluster on Windows Server.

B) STEPS









Cloud Computing

Practical No. 6

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	Virtualization using VMWare ESXI Server	Batch	2
Date:	04/03/2025	Practical No	6

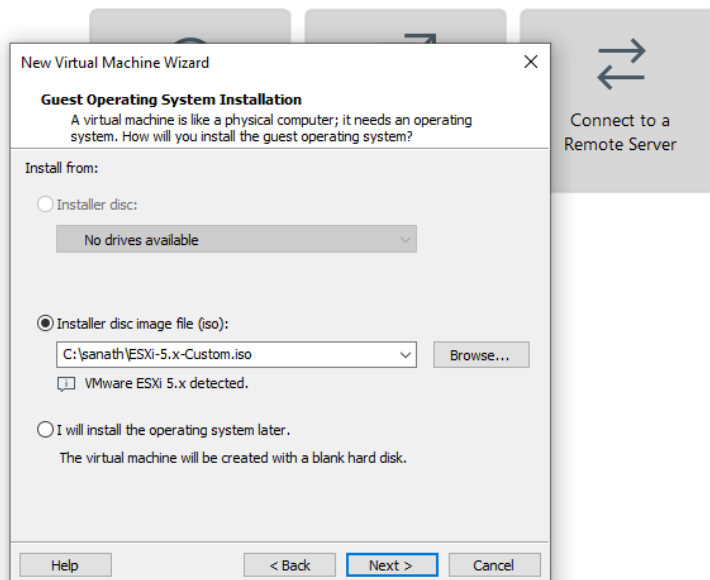
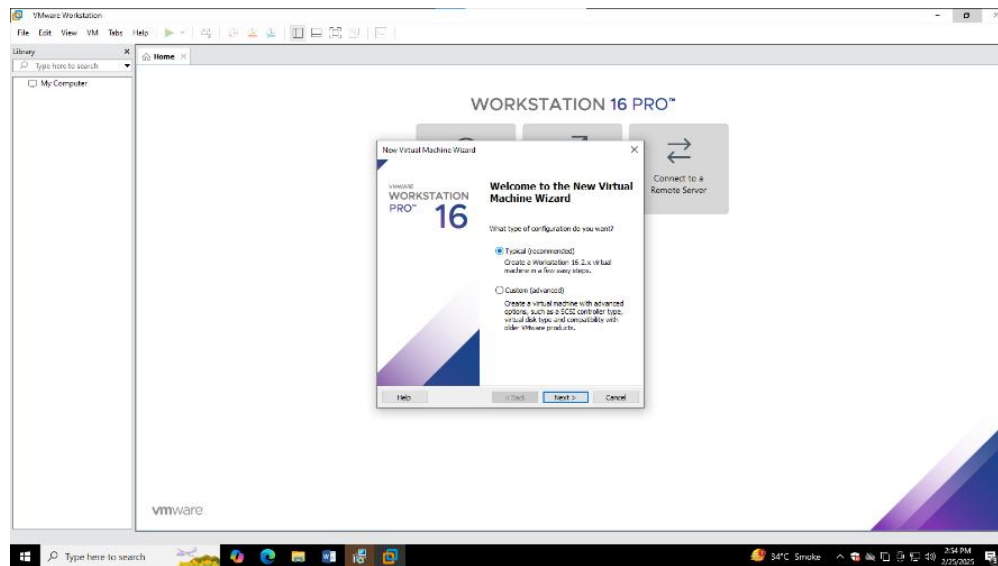
A) **AIM:**

Virtualization using VMWare ESXI Server and managing with vSphere Client.

B) STEPS

Create Server, Create Client, Upload Iso File and Create Server Inside VM Through Client

Create new virtual machine in VMware workstation



New Virtual Machine Wizard

Name the Virtual Machine
What name would you like to use for this virtual machine?

Virtual machine name:
VMware ESXi 5.x

Location:
C:\sanath [Browse...](#)

The default location can be changed at Edit > Preferences.

< Back Next > Cancel

Connect to
Remote Server

WORKSTATION 16 PRO

New Virtual Machine Wizard

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB): 80

Recommended size for VMware ESXi 5.x: 40 GB

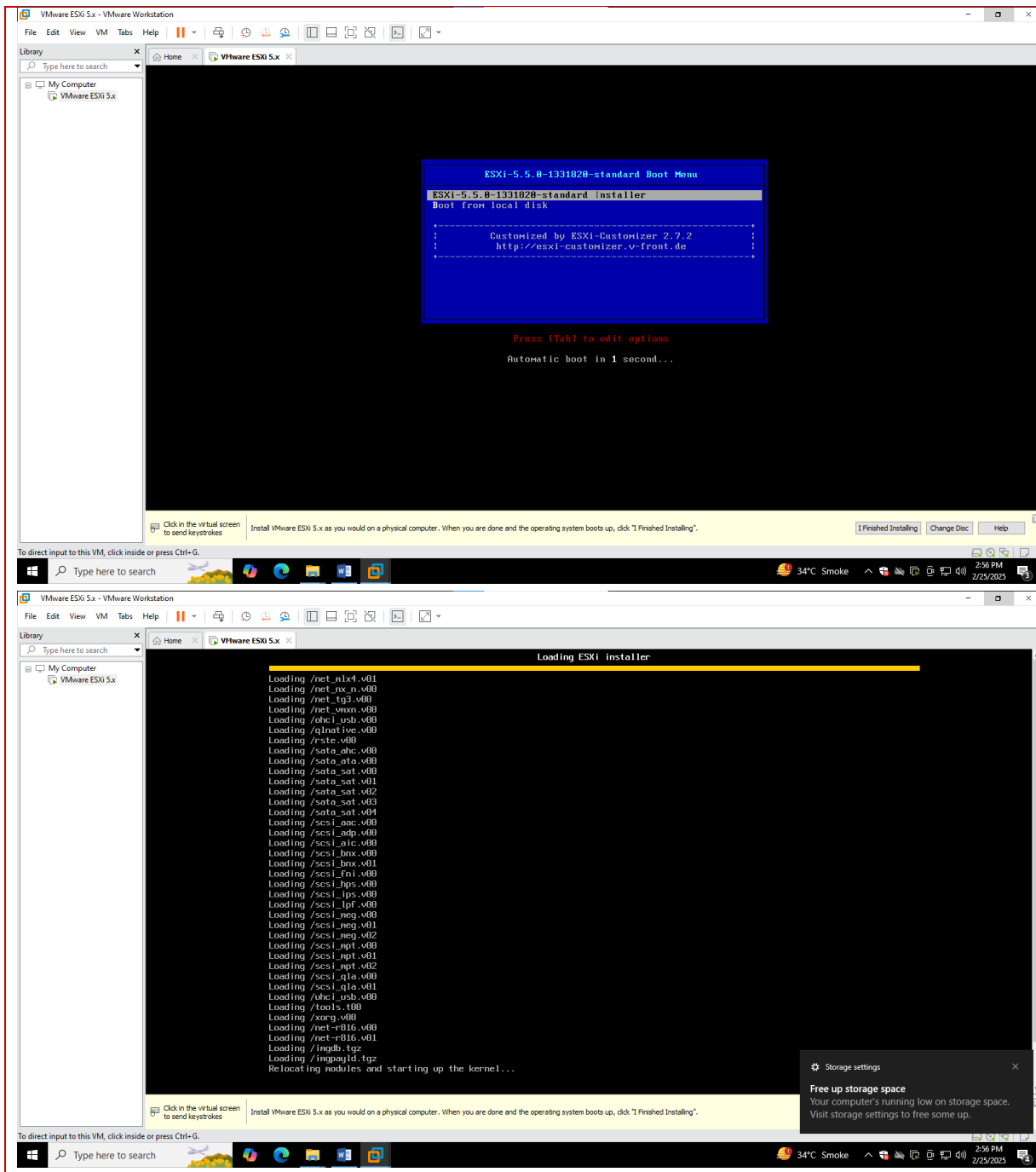
☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

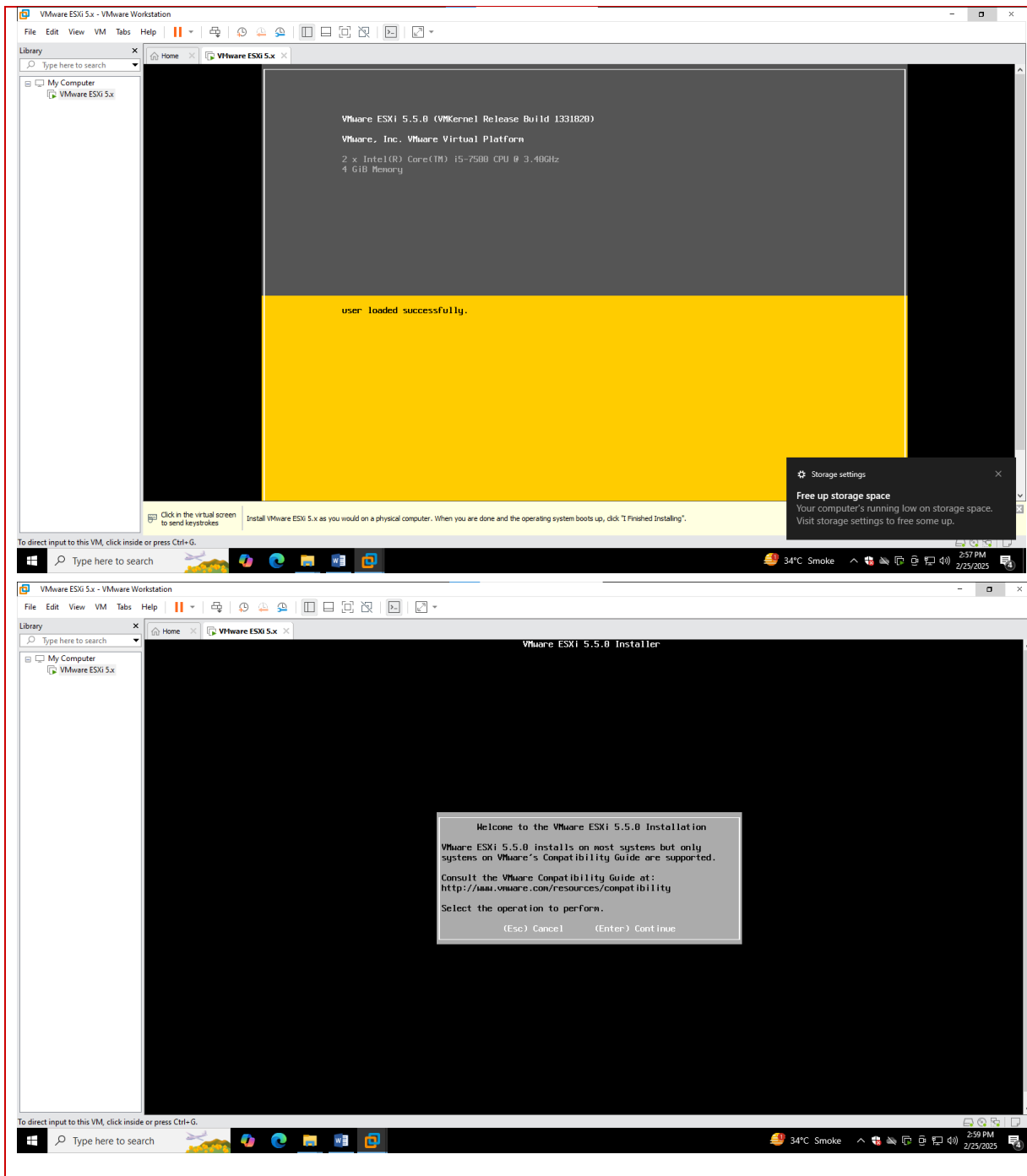
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help < Back Next > Cancel

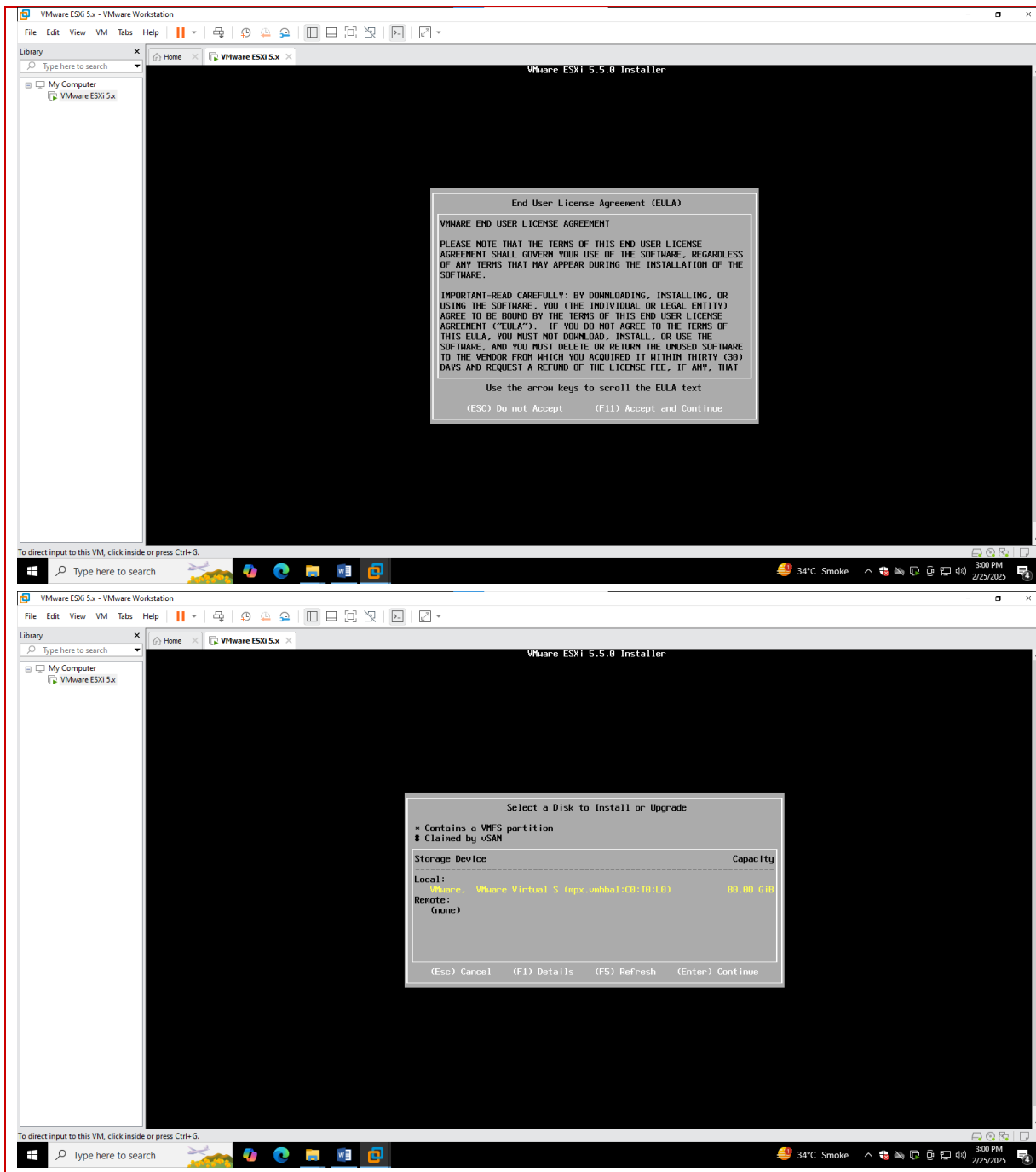
Connect to a
Remote Server



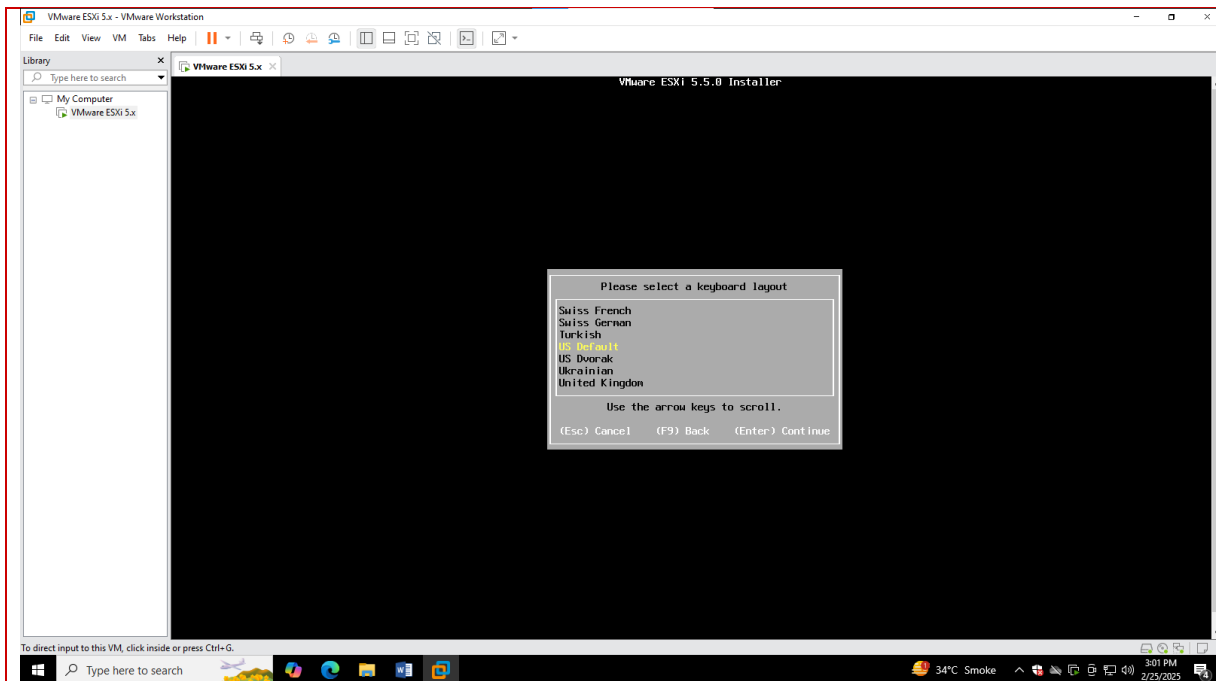
Name of Instructor: Prof. Aditi Prajapati



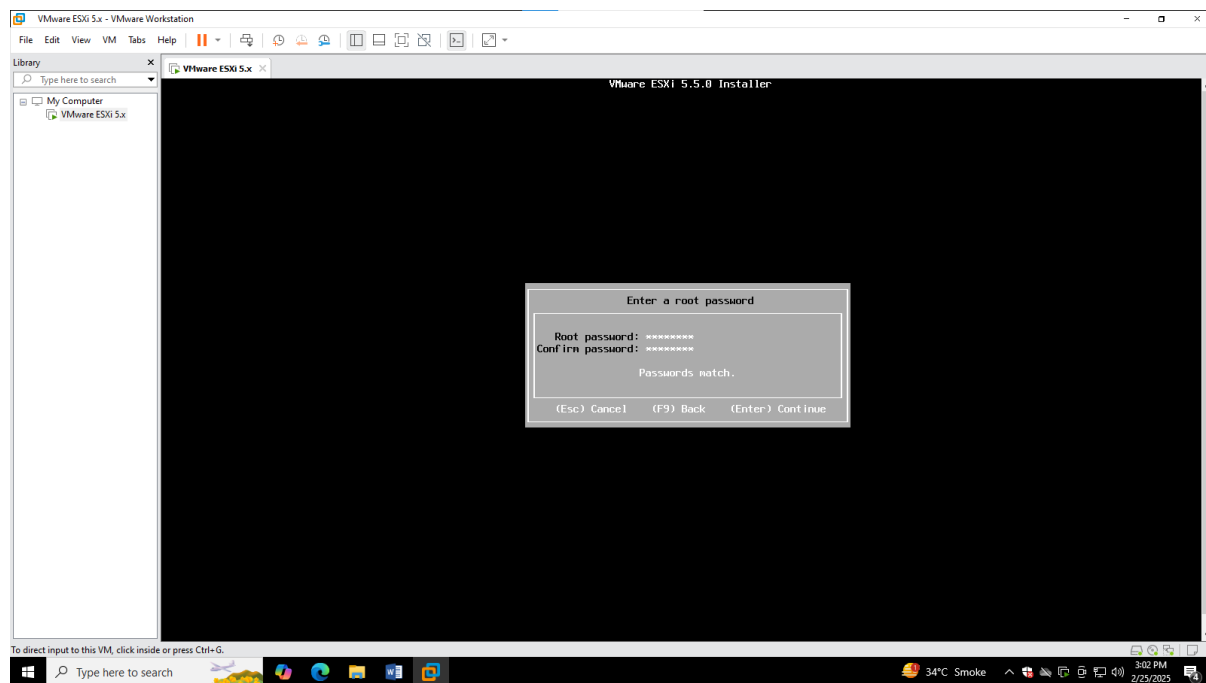
Name of Instructor: Prof. Aditi Prajapati



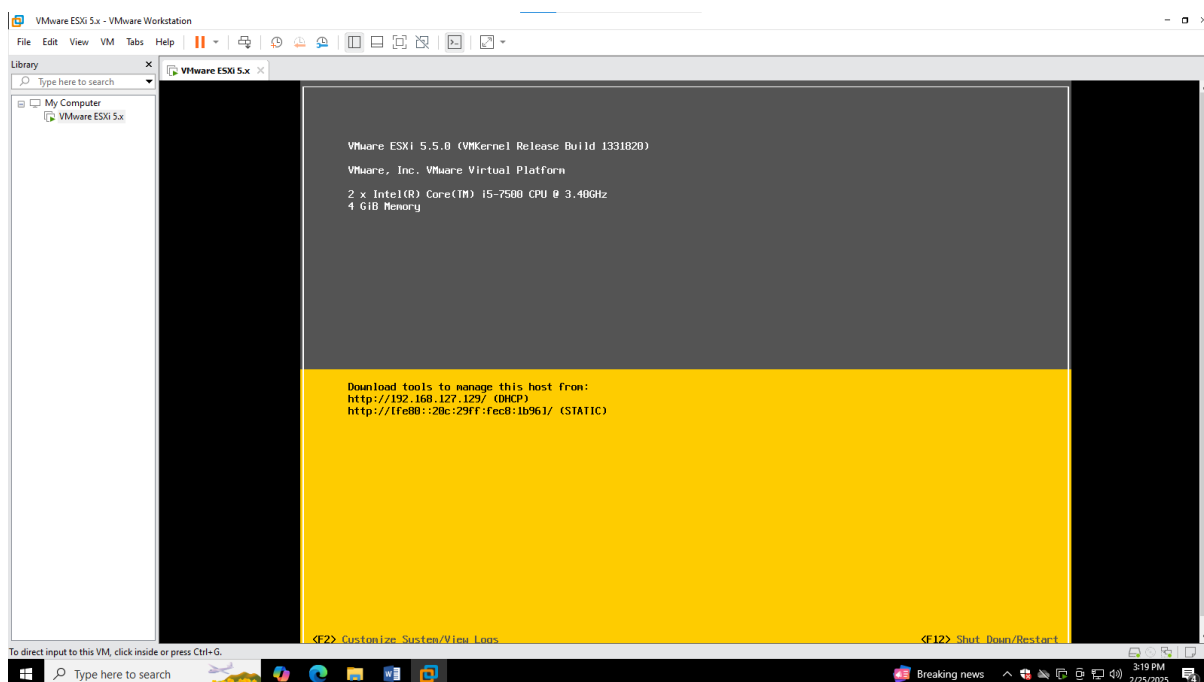
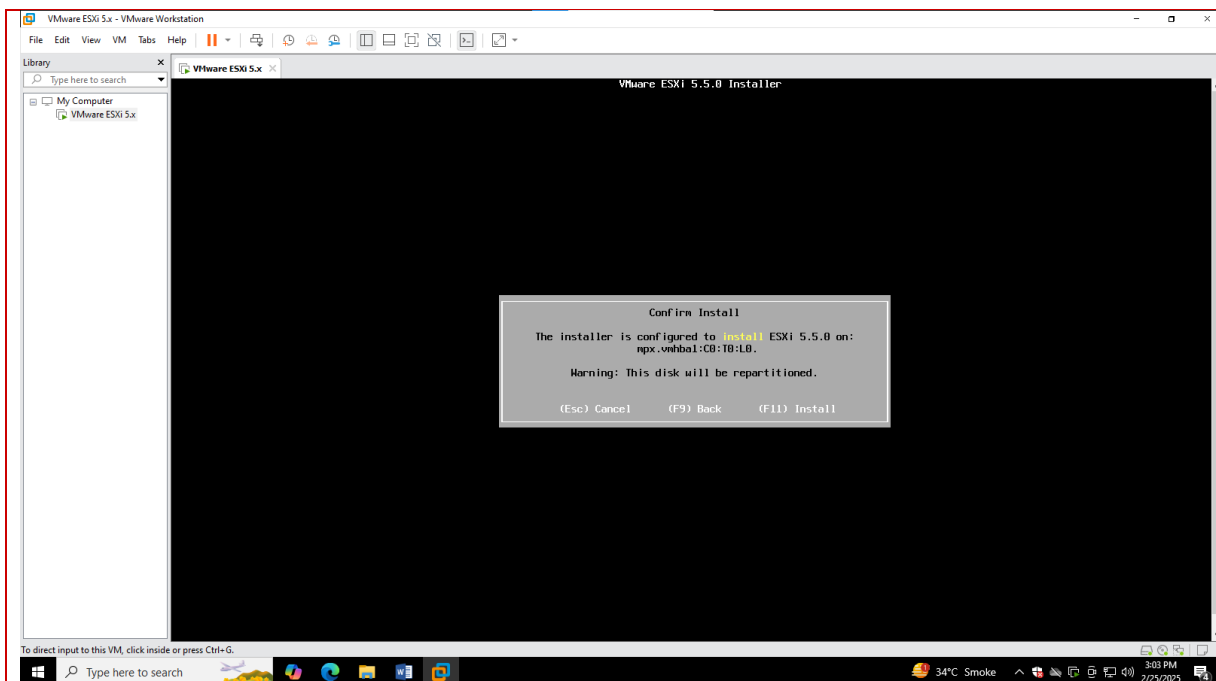
Name of Instructor: Prof. Aditi Prajapati




Root@123



Name of Instructor: Prof. Aditi Prajapati

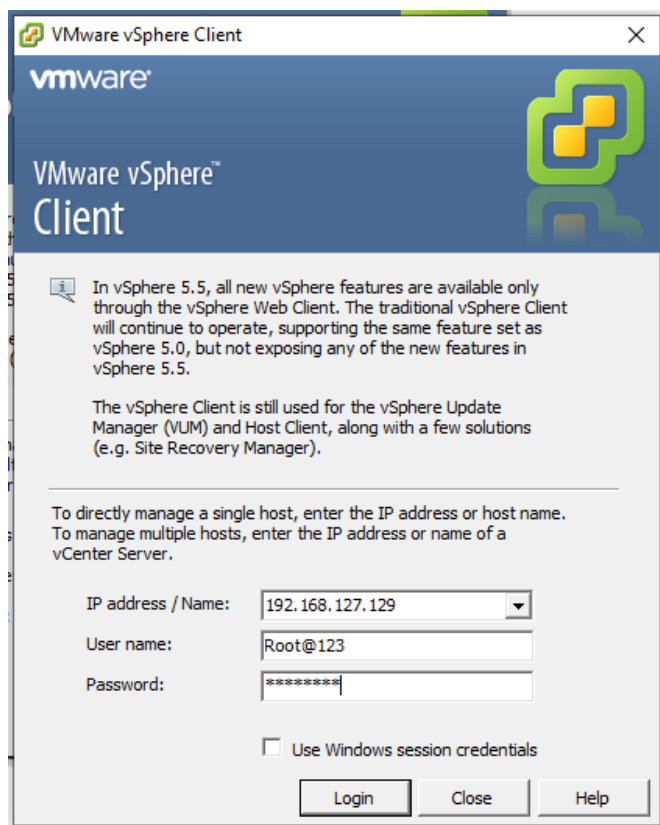
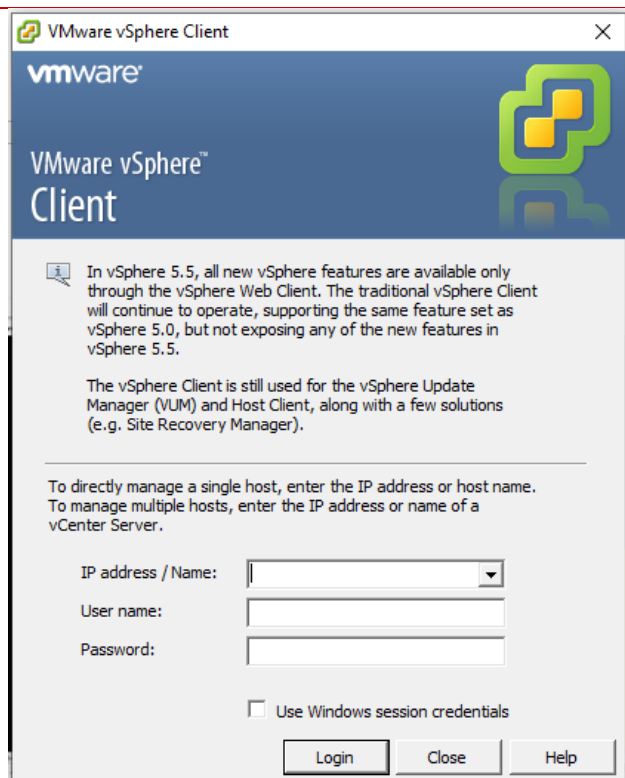


Note this IP

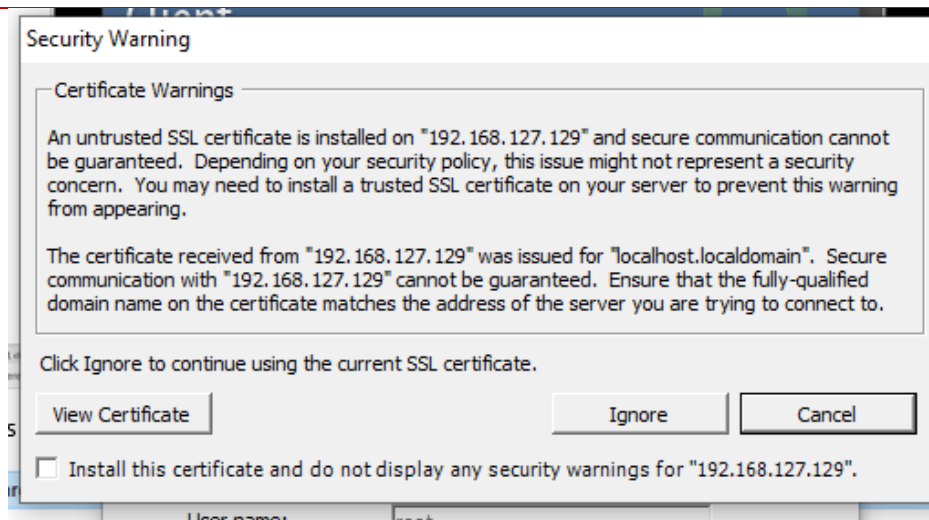
 VMware-viclient-all-5.5.0-1281650	7/30/2024 9:47 AM	Application	356,513 KB
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Install this

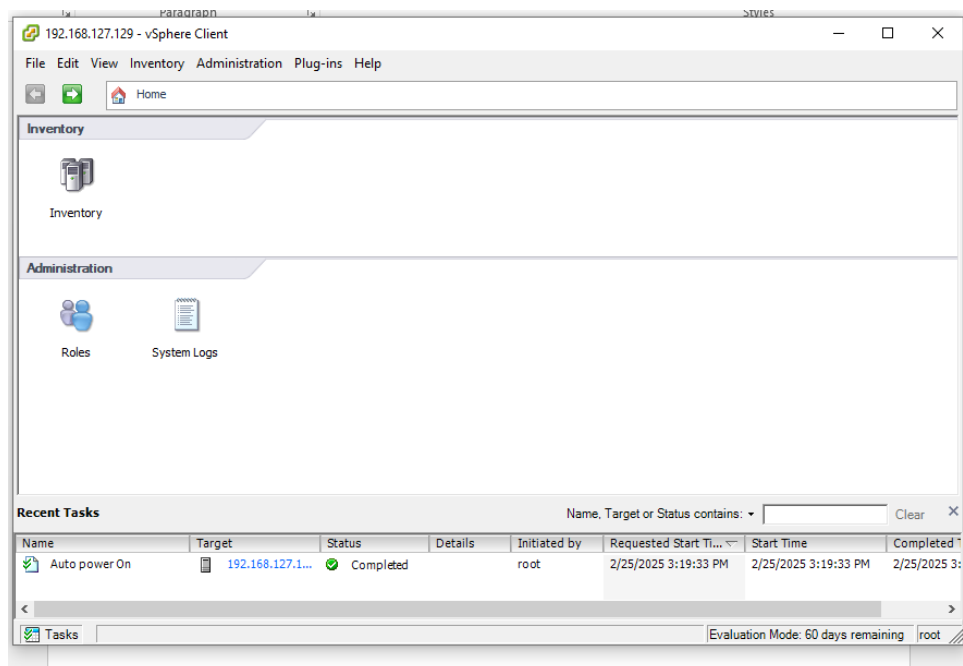
And open this VMware vSphere Client



Correction: username is root

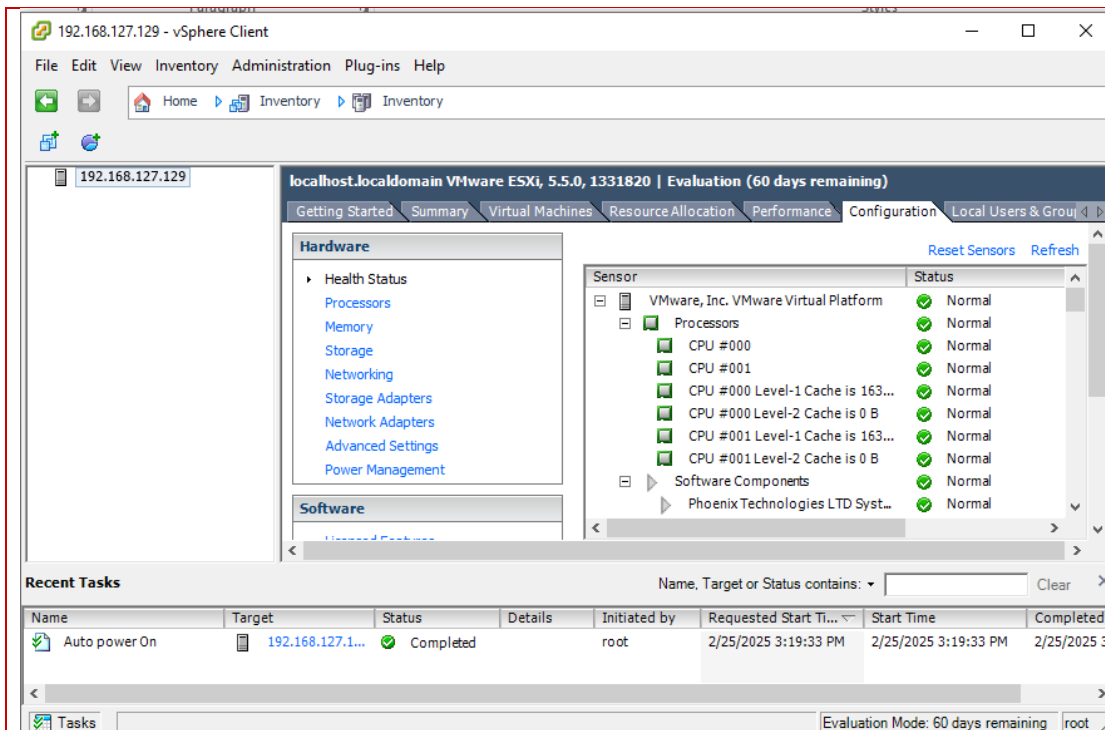


Ignore this

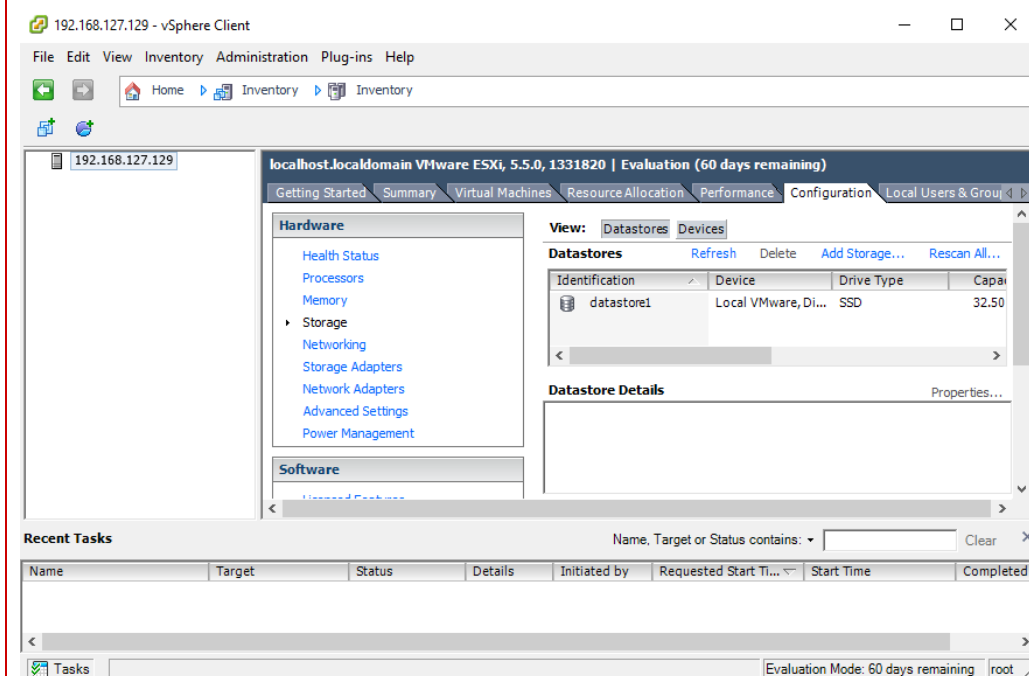


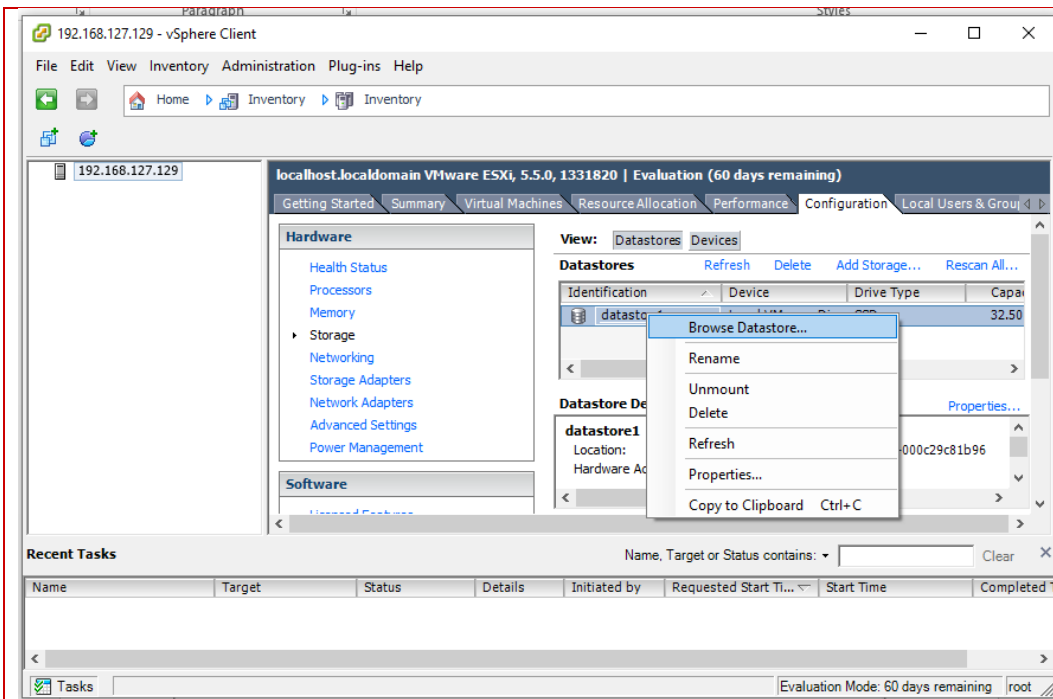
Click on inventory

And goto configuration tab



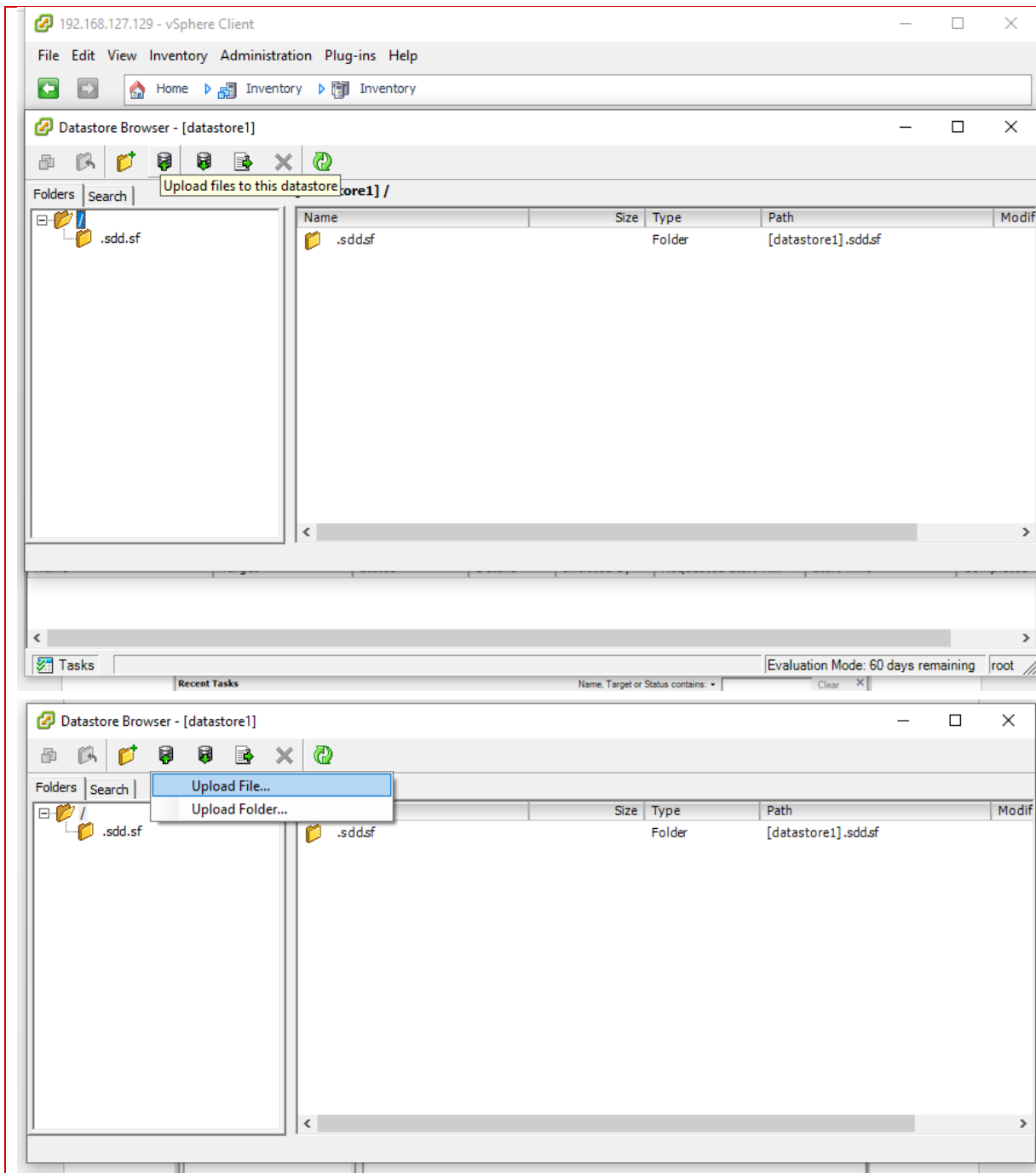
Go to storage

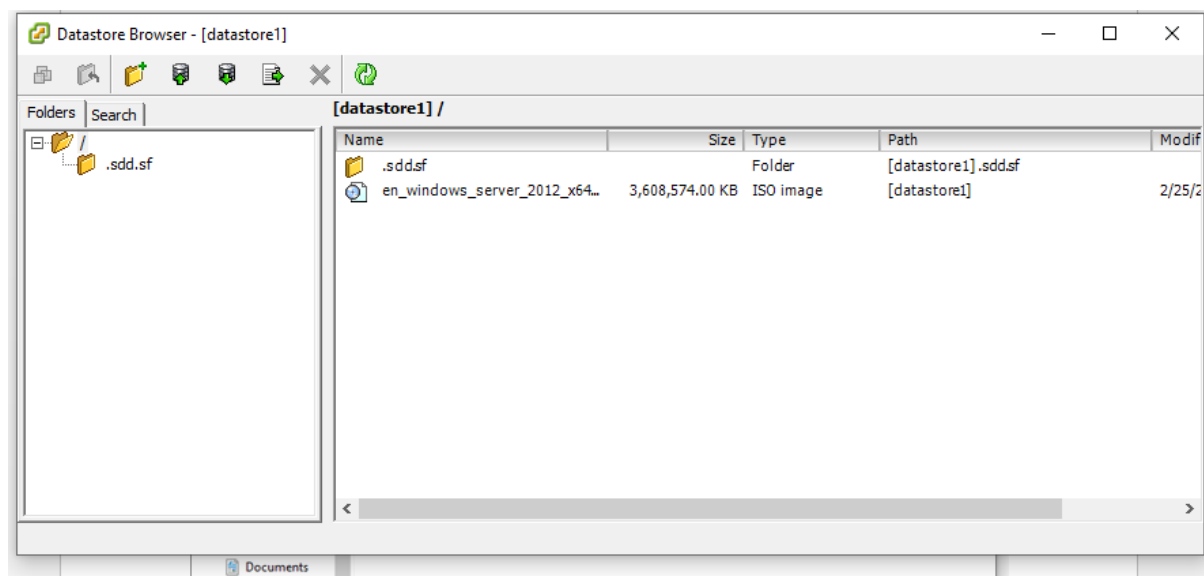
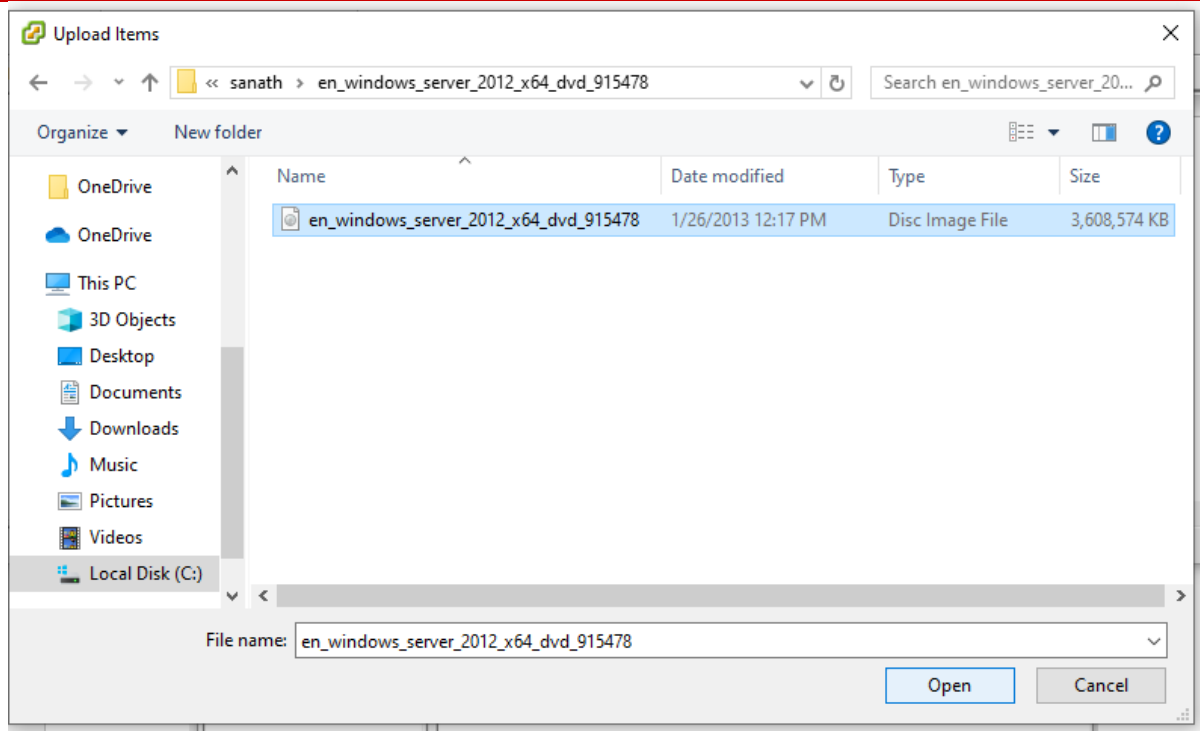




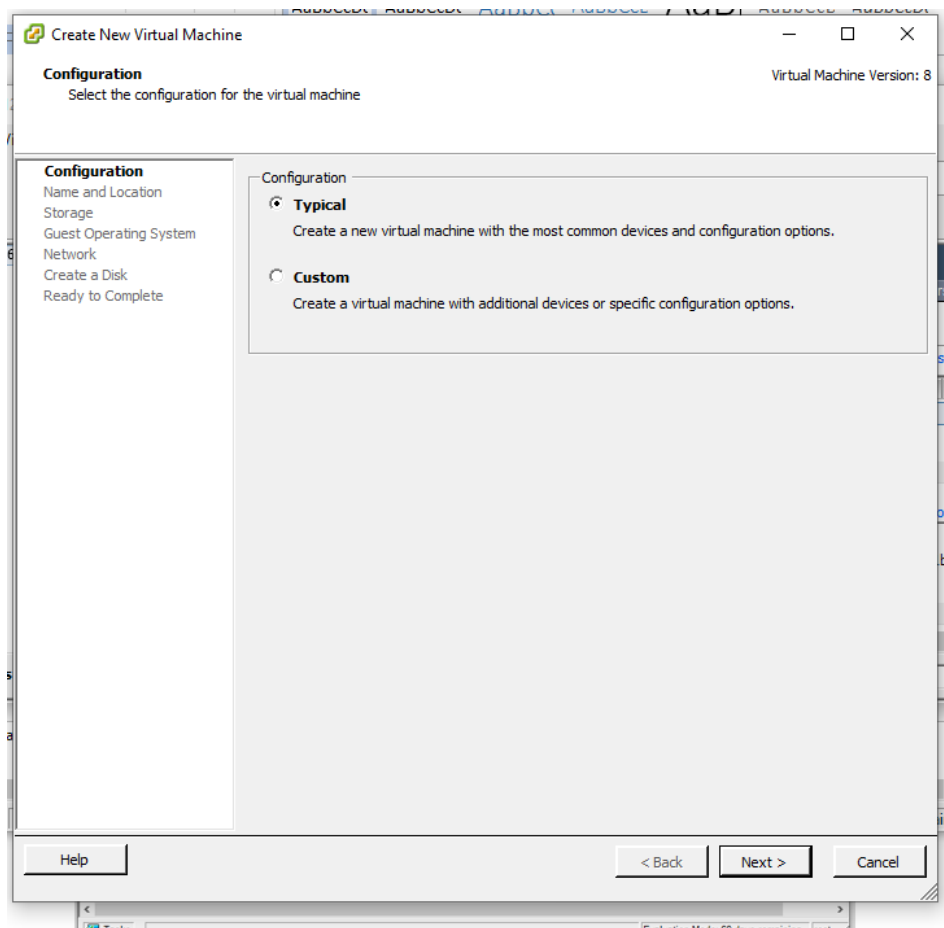
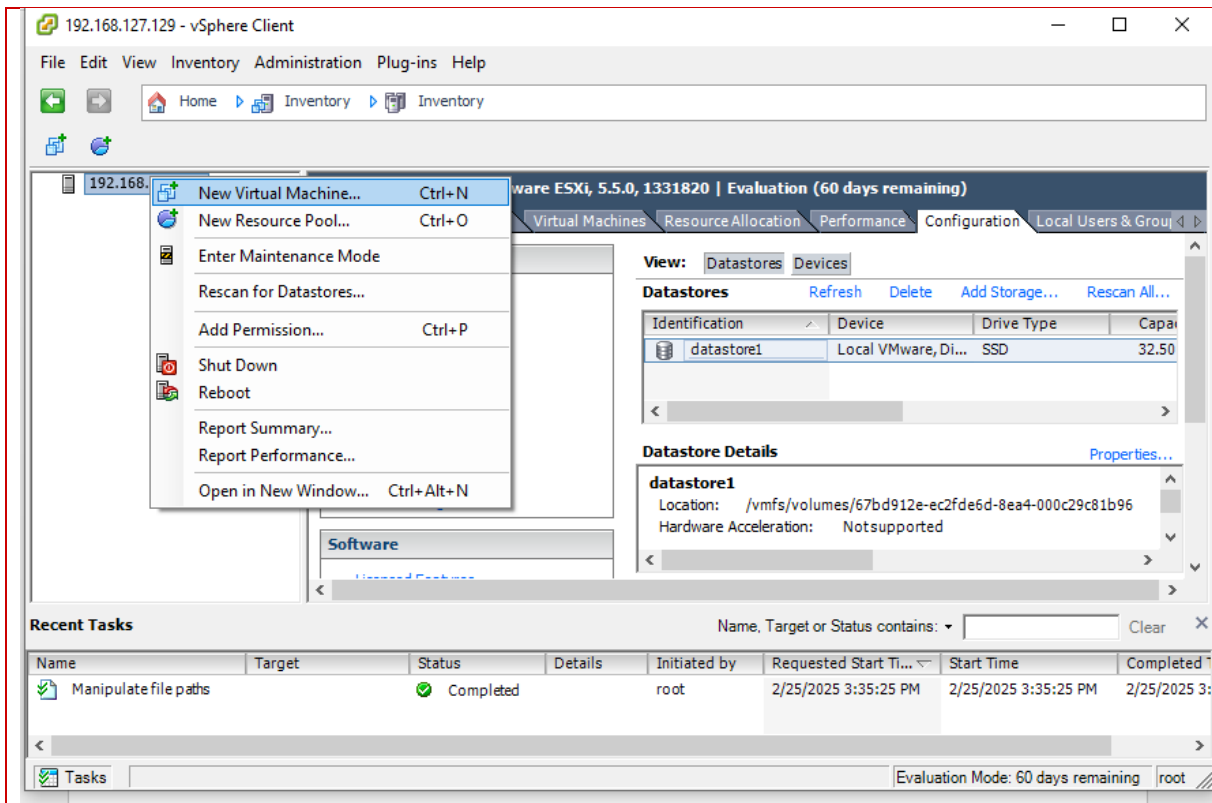
Go to datastore media device (virtual)

And upload windows iso DVD





Create new virtual machine by right click on IP



Create New Virtual Machine

Virtual Machine Version: 8

Name and Location

Specify a name and location for this virtual machine

[Configuration](#)

Name and Location

Storage

Guest Operating System

Network

Create a Disk

Ready to Complete

Name:

WindowsServer_sanath

Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder.

VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.

Help

< Back

Next >

Cancel

Create New Virtual Machine

Virtual Machine Version: 8

Storage

Select a destination storage for the virtual machine files

[Configuration](#)

Name and Location

Storage

Guest Operating System

Network

Create a Disk

Ready to Complete

Select a destination storage for the virtual machine files:

Name	Drive Type	Capacity	Provisioned	Free	Type	Thin Pro
datastore1	SSD	32.50 GB	972.00 MB	31.55 GB	VMFS5	Supporte

< >

☐ Disable Storage DRS for this virtual machine

Select a datastore:

Name	Drive Type	Capacity	Provisioned	Free	Type	Thin Provi
------	------------	----------	-------------	------	------	------------

< >


Help

< Back

Next >

Cancel

Select proper version

 Create New Virtual Machine

Guest Operating System

Specify the guest operating system to use with this virtual machine

Virtual Machine Version: 8

[Configuration](#)

[Name and Location](#)

[Storage](#)

Guest Operating System

[Network](#)

[Create a Disk](#)

[Ready to Complete](#)

Guest Operating System:

☒ Windows

☐ Linux

☐ Other

Version:

Microsoft Windows Server 2012 (64-bit)

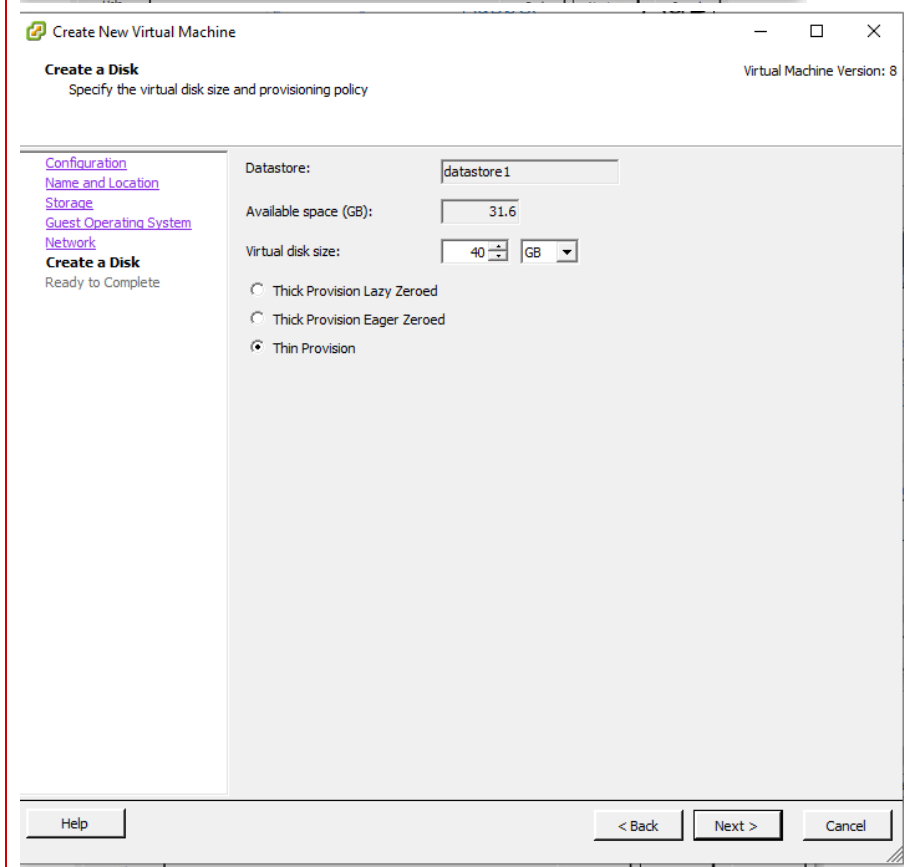
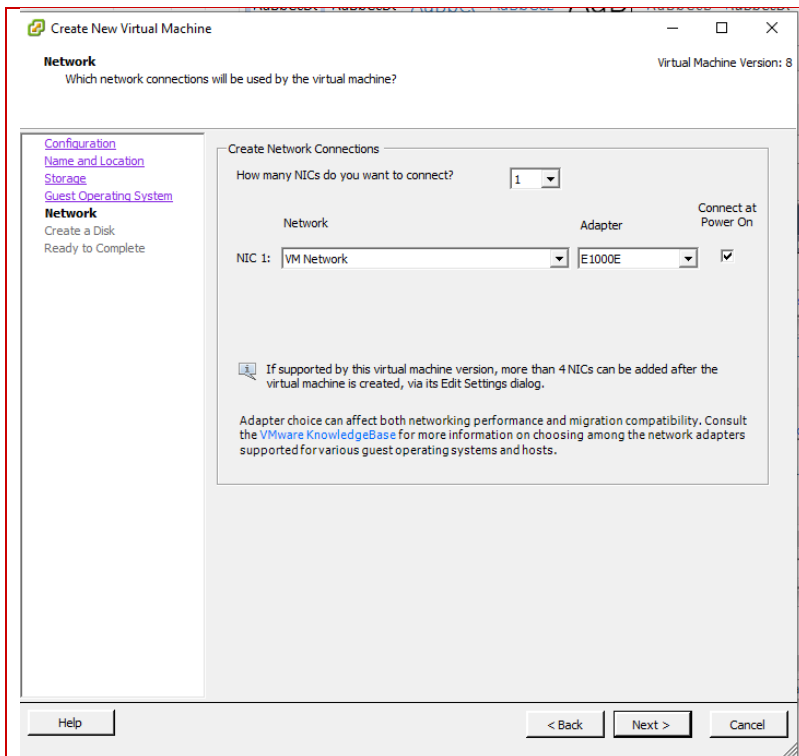
Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

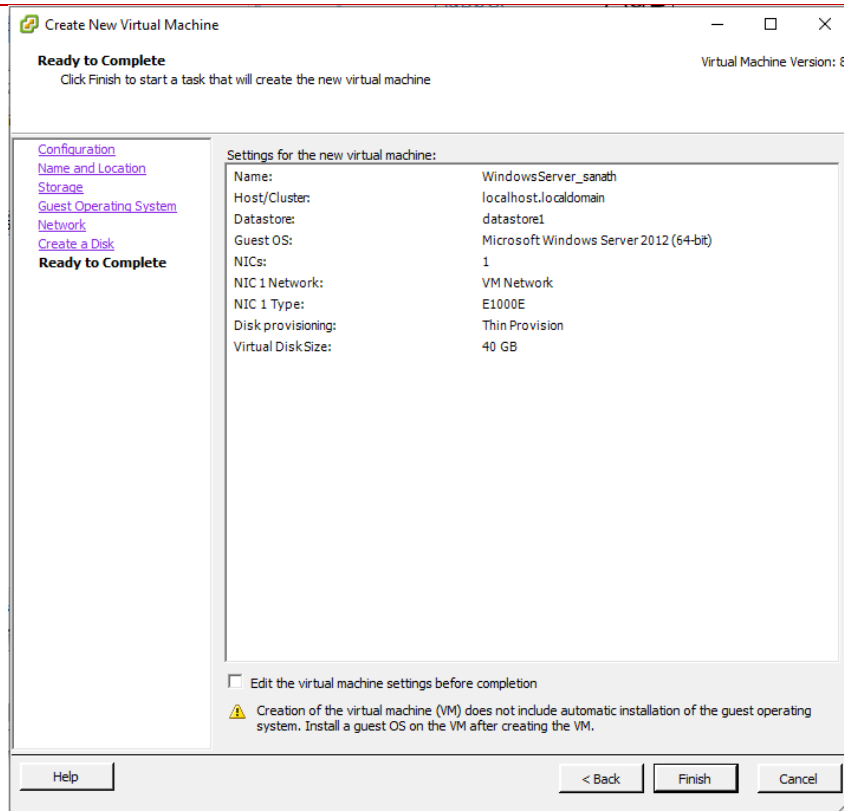
Help

< Back

Next >

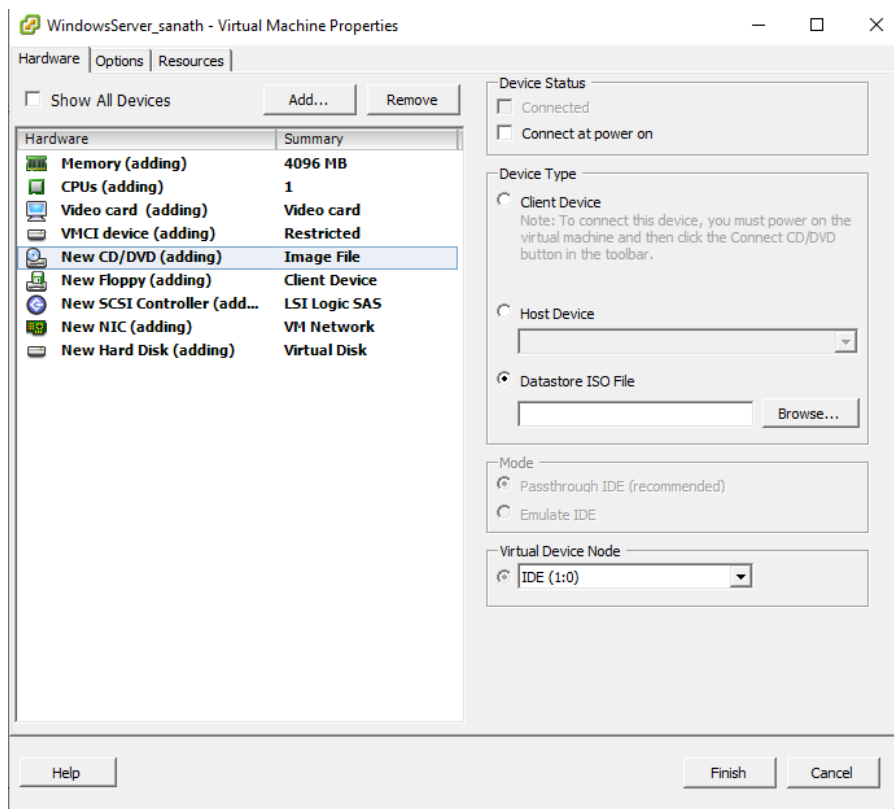
Cancel

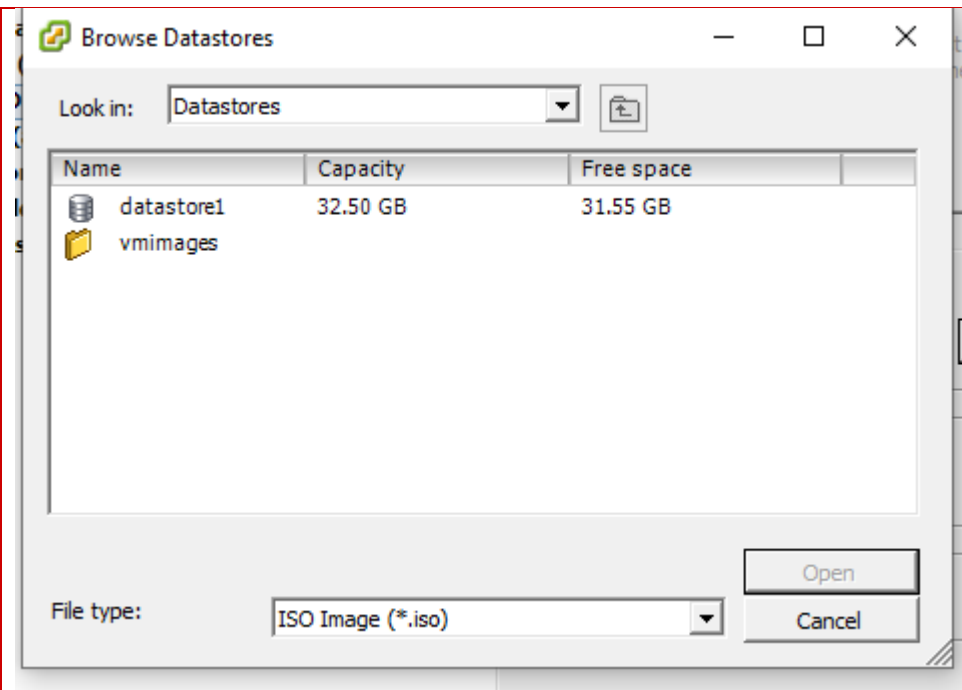




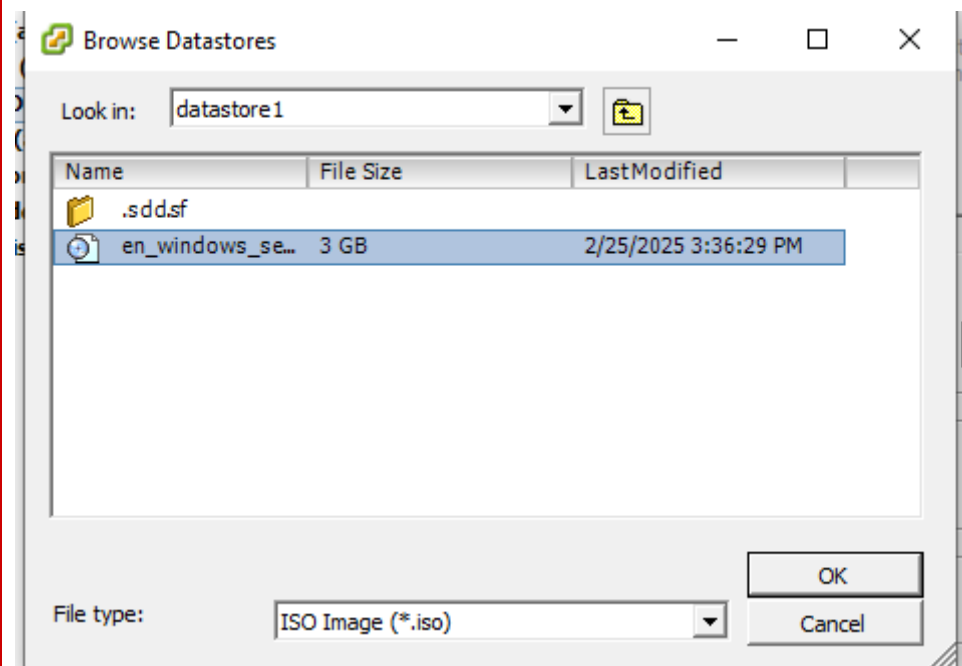
Click on edit the virtual machine settings

And continue

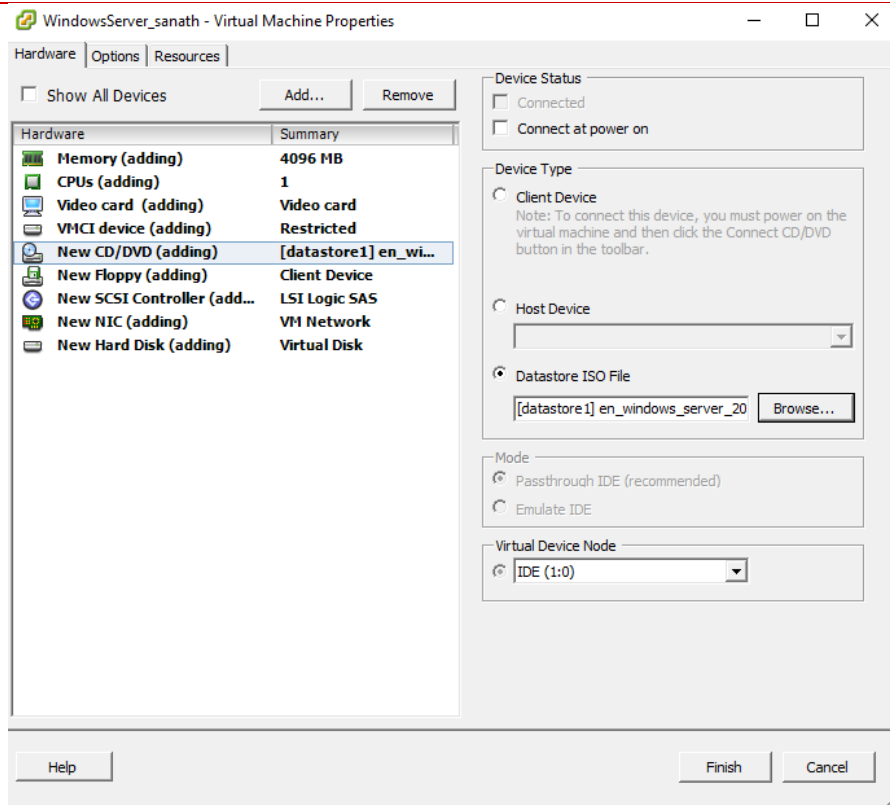




go inside datastore

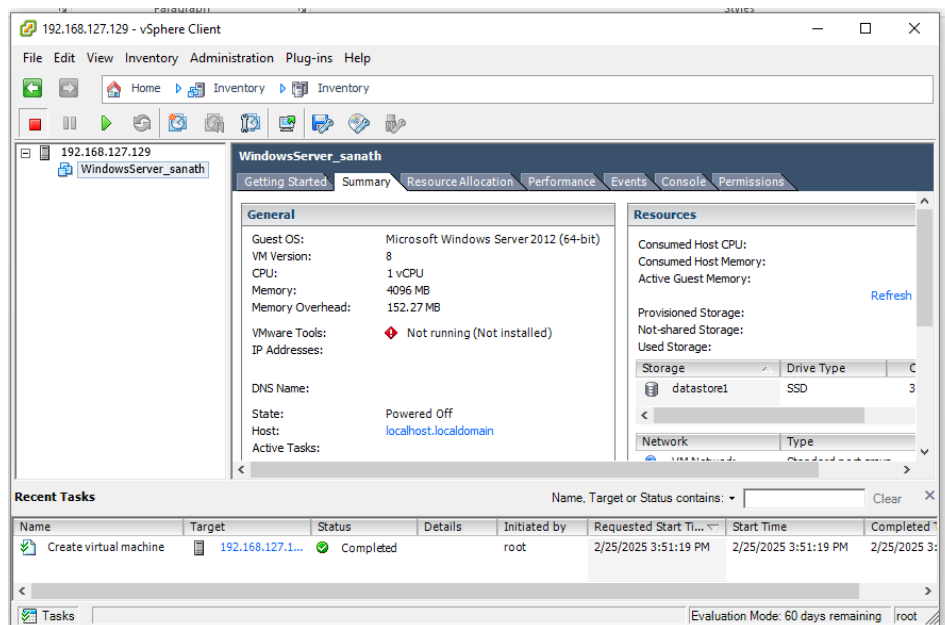


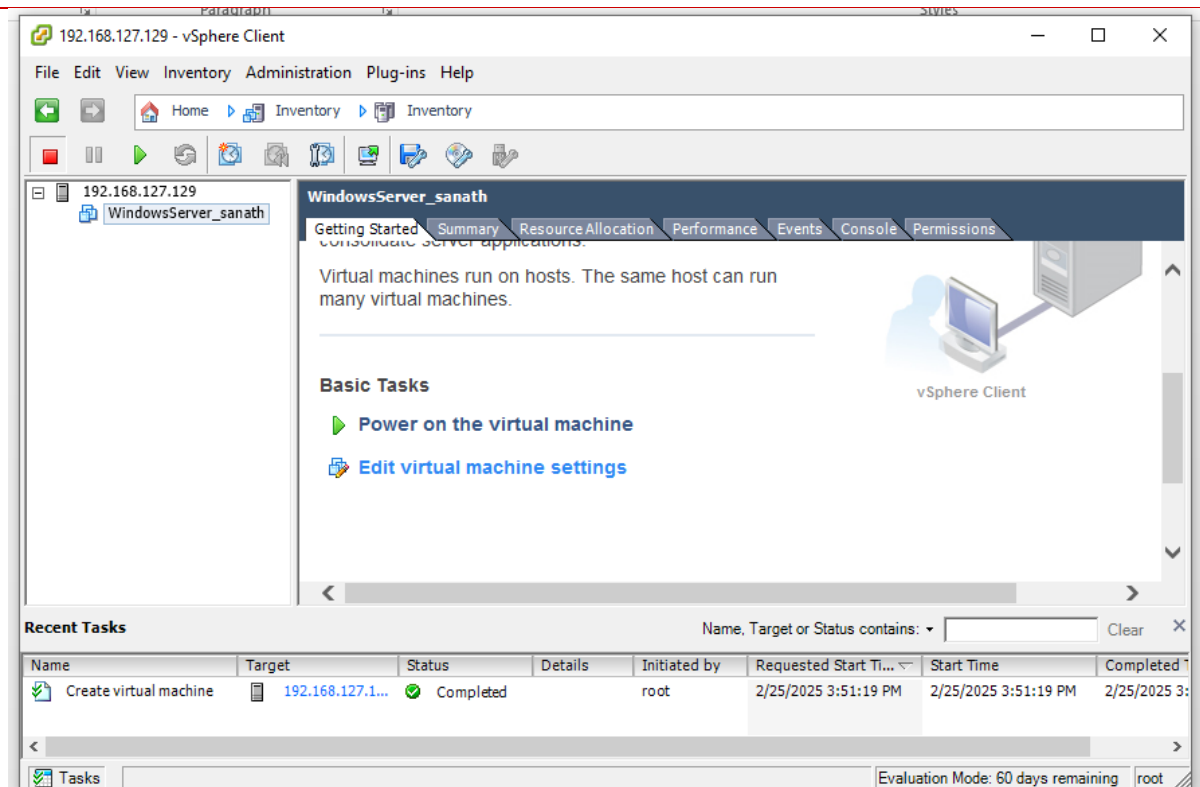
Select iso file



Click on connected power on check button and finish

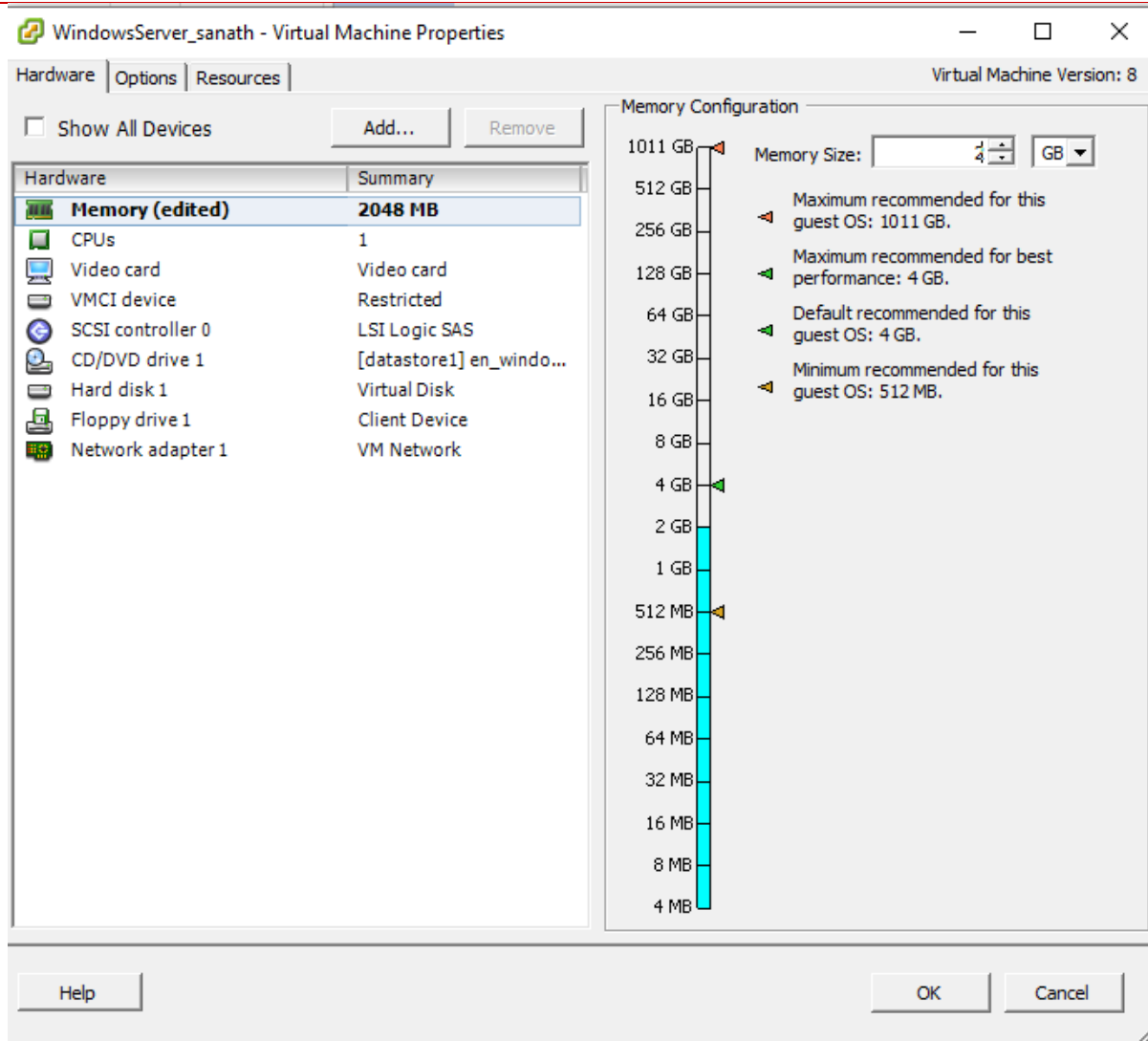
Server gets added



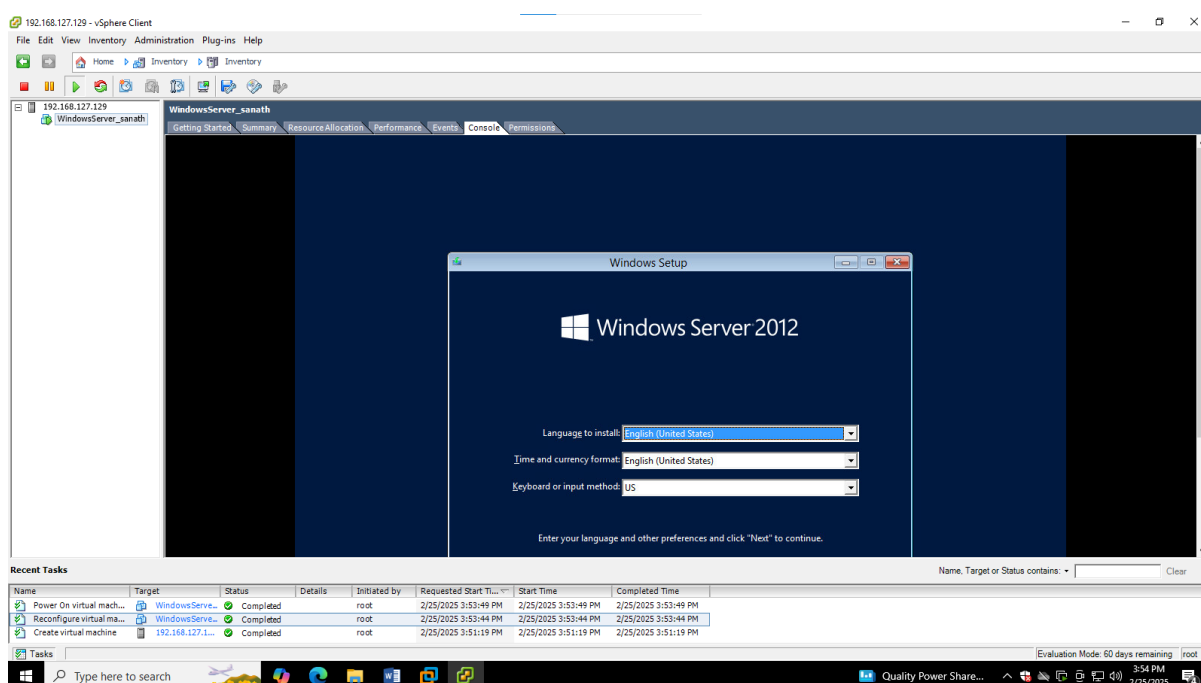


edit VM settings

Set this to 2 GB



Now power on this and go to console



Name of Instructor: Prof. Aditi Prajapati



Cloud Computing Practical No. 7

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	Cloud Computing and its Architecture	Batch	2
Date:	03/03/2025	Practical No	7

A) AIM:

Study of Cloud Computing and its Architecture.

Cloud Computing and Its Architecture

Introduction to Cloud Computing

Cloud computing is a technology that enables users to access and store data, applications, and services over the internet rather than on local computers or physical servers. It provides scalable computing resources on demand, reducing the need for hardware maintenance and increasing flexibility.

Characteristics of Cloud Computing

1. **On-Demand Self-Service** – Users can provision resources without human intervention.
2. **Broad Network Access** – Services are accessible over the internet from various devices.
3. **Resource Pooling** – Multiple users share computing resources dynamically.
4. **Rapid Elasticity** – Resources scale up or down based on demand.
5. **Measured Service** – Usage is monitored, and users pay for what they consume.

Cloud Computing Service Models

1. **Infrastructure as a Service (IaaS)** – Provides virtualized computing resources such as virtual machines, storage, and networking (e.g., AWS EC2, Google Compute Engine).
2. **Platform as a Service (PaaS)** – Provides a development platform with tools and frameworks (e.g., Google App Engine, Microsoft Azure).
3. **Software as a Service (SaaS)** – Delivers applications over the internet (e.g., Google Drive, Dropbox, Microsoft Office 365).

Cloud Deployment Models

1. **Public Cloud** – Services are available to the general public over the internet (e.g., AWS, Google Cloud).
2. **Private Cloud** – Cloud infrastructure is dedicated to a single organization.
3. **Hybrid Cloud** – A combination of public and private clouds for flexibility.
4. **Community Cloud** – Shared infrastructure among organizations with common concerns.

Cloud Computing Architecture

Cloud computing architecture consists of the following layers:

1. Front-End Layer

- Users interact with cloud services via web browsers or applications.
- Includes client devices like computers, tablets, and smartphones.

2. Back-End Layer

- Consists of servers, storage systems, databases, and applications that process user requests.
- Provides core functionalities such as computing, networking, and storage.

3. Cloud Storage

- Stores data in distributed servers, ensuring redundancy and reliability.

4. Virtualization

- Creates multiple virtual environments on a single physical server, optimizing resource utilization.

5. Networking

- Ensures secure communication between cloud services and users through the internet.

Benefits of Cloud Computing

- Cost-efficient (pay-as-you-go model).
- High availability and scalability.
- Automatic software updates and maintenance.
- Enhanced collaboration and remote accessibility.

Challenges of Cloud Computing

- Security and privacy concerns.
- Internet dependency.
- Compliance and legal issues.
- Downtime and potential data loss risks.

Conclusion

Cloud computing is revolutionizing IT infrastructure by offering scalable, cost-effective, and flexible solutions. Its architecture enables businesses to optimize resources, enhance productivity, and improve service delivery. As cloud technologies continue to evolve, they will play a crucial role in the future of computing.



Cloud Computing

Practical No. 8

DEPARTMENT OF COMPUTER SCIENCE

Name:	Jagdish Ganesh Naikar	Roll Number	TCS2425101
Paper Code:	SIUSCS62	Class	TYBSc(Computer Science)
Topic:	Case Study	Batch	2
Date:	03/03/2025	Practical No	8

A) AIM:

Case study on Amazon EC2, Microsoft Hyper-V, Microsoft Azure, and Google Cloud Platform

Case Study on Cloud Computing Platforms: Amazon EC2, Microsoft Hyper-V, Microsoft Azure, and Google Cloud Platform

Introduction

Cloud computing has transformed business operations by offering flexible, scalable, and cost-efficient solutions. This case study examines **Amazon EC2, Microsoft Hyper-V, Microsoft Azure, and Google Cloud Platform (GCP)** through real-world applications, highlighting how companies have benefited from each platform.

1. Amazon EC2 (Elastic Compute Cloud) Case Study – Netflix

Background:

Netflix is a leading global streaming service with over **260 million subscribers**. The company requires massive computing power to stream HD and 4K videos to millions of users across different regions while ensuring seamless performance.

Challenge:

- Scaling on-premise infrastructure was costly and inefficient.
- High demand for computing resources during peak hours.
- Need for real-time video encoding, content delivery, and recommendation algorithms.

Solution:

Netflix migrated its entire infrastructure to **Amazon EC2** on AWS.

- **Auto Scaling:** EC2 instances automatically adjust based on demand, reducing costs.
- **Elastic Load Balancing:** Distributes traffic across multiple instances for optimal performance.
- **Content Delivery via AWS Edge Locations:** Netflix stores content in AWS servers closer to users for low-latency streaming.

Outcome:

- **99.99% uptime**, ensuring uninterrupted streaming.
- **Cost savings** by scaling only when needed.
- **Faster content delivery** using AWS global infrastructure.

2. Microsoft Hyper-V Case Study – Dell Technologies

Background:

Dell Technologies, a global leader in IT solutions, manages vast enterprise infrastructures requiring efficient virtualization solutions.

Challenge:

- Managing thousands of servers in data centers.
- Need for a **cost-effective** virtualization solution.
- Seamless integration with Microsoft Windows Server and Azure.

Solution:

Dell implemented **Microsoft Hyper-V** to virtualize its data centers and streamline its internal IT infrastructure.

- **Hyper-V Live Migration** enabled moving workloads across servers without downtime.
- **Dynamic Memory Allocation** optimized resource utilization.
- **Hyper-V Replica** provided disaster recovery by replicating virtual machines (VMs) across locations.

Outcome:

- **40% reduction** in hardware costs.
- **Improved system performance** by efficiently managing VMs.
- **Seamless integration with Azure**, allowing Dell to expand into hybrid cloud solutions.

3. Microsoft Azure Case Study – GE Healthcare

Background:

GE Healthcare is a leading medical technology provider, managing vast amounts of healthcare data, including **medical imaging** (X-rays, MRIs, CT scans).

Challenge:

- Processing and storing large medical images required massive computing resources.
- Hospitals needed **real-time AI insights** for diagnostics.
- Regulatory compliance and data security were critical.

Solution:

GE Healthcare leveraged **Microsoft Azure AI and cloud storage**:

- **Azure Data Lake** to store and manage large medical datasets.
- **Azure Machine Learning** to analyze X-rays and MRI scans for faster diagnosis.
- **Azure Security & Compliance** to ensure **HIPAA compliance** for patient data protection.

Outcome:

- **Reduced diagnostic time by 50%** using AI-driven insights.
- **Increased efficiency** in medical imaging processing.
- **Global scalability** to serve hospitals worldwide.

4. Google Cloud Platform (GCP) Case Study – Spotify

Background:

Spotify, a music streaming giant with **over 600 million active users**, requires powerful infrastructure to manage personalized playlists, song recommendations, and music streaming.

Challenge:

- Handling billions of song streams daily.
- Real-time **data processing** for personalized music recommendations.
- Reducing **server maintenance costs**.

Solution:

Spotify migrated from AWS to **Google Cloud Platform (GCP)** to utilize Google's AI and data analytics tools.

- **BigQuery** processed petabytes of user data to enhance recommendations.
- **TensorFlow AI** improved Spotify's Discover Weekly algorithm.
- **Google Kubernetes Engine (GKE)** optimized application performance and scaling.

Outcome:

- **Faster and more accurate** music recommendations.
- **50% cost reduction** in infrastructure management.
- **Seamless scalability**, handling millions of new users effortlessly.