Practical No.1

Study of Cloud Computing and Architecture

- **Types of Computing:**

A computer system uses many devices, arranged in different ways to solve many problems. This constitutes a computing environment where many computers are used to process and exchange information to handle multiple issues.

The different types of Computing are −

1. **Personal Computing:**

   In the personal computing environment, there is a single computer system. All the system processes are available on the computer and executed there. The different devices that constitute a personal computing environment are laptops, mobiles, printers, computer systems, scanners etc.

2. **Client Server Computing:**

   In client server computing, the client requests a resource and the server provides that resource. A server may serve multiple clients at the same time while a client is in contact with only one server. Both the client and server usually communicate via a computer network but sometimes they may reside in the same system.

3. **Distributed Computing:**

   A distributed computing environment contains multiple nodes that are physically separate but linked together using the network. All the nodes in this system communicate with each other and handle processes in tandem. Each of these nodes contains a small part of the distributed operating system software.

4. **Cloud Computing:**

   The computing is moved away from individual computer systems to a cloud of computers in cloud computing environment. The cloud users only see the service being provided and not the internal details of how the service is provided. This is done by pooling all the computer resources and then managing them using a software.

5. **Cluster Computing:**

   The clustered computing environment is similar to parallel computing environment as they both have multiple CPUs. A major difference is that clustered systems are created by two or more individual computer systems merged together which then work parallel to each other.

➢ NIST Definition for Cloud:

A model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model comprises five essential characteristics, three service, and four deployment models.

The NIST definition also includes:

- Broad network access
- Minimal management effort or service provider interaction
- Three service categories:
  I. Software as a service (SaaS)
  II. Platform as a service (PaaS)
  III. Infrastructure as a service (IaaS)

➢ 5 Essentials characteristics of Cloud:

1. On-Demand Self-Service:

Self-service means that the cloud user can acquire the service independently: without going through an IT department, call center, or other middle man. To support self-service:

- The cloud provider must have an automated interface, such as a web portal or mobile app.
- The user should be able to access the interface at any time.
- The user should also be able to cancel the cloud service at any time.

2. Broad Network Access:

The cloud service must be broadly available over the communication network. Users should be able to access it from any location and internet-enabled device.

3. Resource Pooling:

Multiple customers share the cloud service resources in a multi-tenancy model. This model raises privacy and security concerns, so users must protect their cloud data and assets by taking necessary security precautions.

4. Rapid Elasticity:

Elasticity refers to the flexibility of the cloud service to scale up or down automatically to meet the user's needs. That allows the user to access the right level and kind of resources, including processing power, memory, network bandwidth, and storage, to accommodate the user's varying workloads.

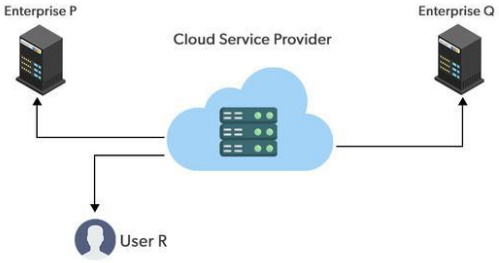
5. Measured Service:

A measured cloud service provides a metering capability that underpins the provider's pay-as-you-go pricing model. This model provides users with greater transparency and control over their cloud costs.

- **Various Cloud Deployment Models:**

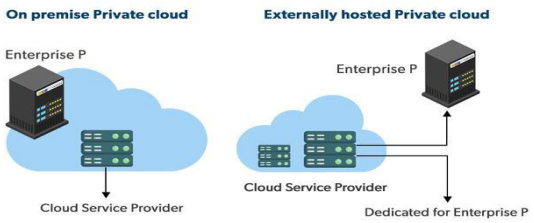
1. Public Cloud:

The public cloud makes it possible for anybody to access systems and services. The public cloud may be less secure as it is open to everyone. The infrastructure in this cloud model is owned by the entity that delivers the cloud services, not by the consumer. This form of cloud computing is an excellent example of cloud hosting, in which service providers supply services to a variety of customers. In this arrangement, storage backup and retrieval services are given for free, as a subscription, or on a per-user basis. For example, Google App Engine etc.



2. Private Cloud:

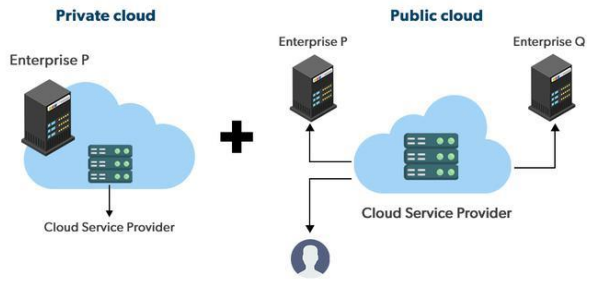
The private cloud deployment model is the exact opposite of the public cloud deployment model. It's a one-on-one environment for a single user (customer). It is also called the "internal cloud" & it refers to the ability to access systems and services within a given border or organization. The cloud platform is implemented in a cloud-based secure environment that is protected by powerful firewalls and under the supervision of an organization's IT department. The private cloud gives greater flexibility of control over cloud resources.



3. Hybrid Cloud:

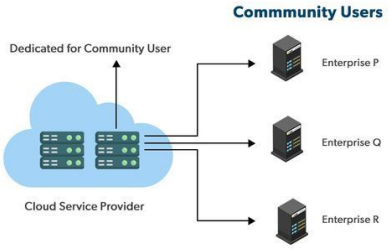
By bridging the public and private worlds with a layer of proprietary software, hybrid cloud computing gives the best of both worlds. With a hybrid solution, you may host the app in a safe environment while taking advantage of the public cloud's cost savings. Organizations

can move data and applications between different clouds using a combination of two or more cloud deployment methods, depending on their needs.



4. Community Cloud:

It allows systems and services to be accessible by a group of organizations. It is a distributed system that is created by integrating the services of different clouds to address the specific needs of a community, industry, or business. The infrastructure of the community could be shared between the organization which has shared concerns or tasks. It is generally managed by a third party or by the combination of one or more organizations in the community.



➢ **Service Models and the Evolution of Cloud Computing:**

Service Models:

1. Software as a Service (SaaS):

SaaS is also known as "on-demand software". It is a software in which the applications are hosted by a cloud service provider. Users can access these applications with the help of internet connection and web browser.

There are the following characteristics of SaaS -

- Managed from a central location
- Hosted on a remote server
- Accessible over the internet
- Users are not responsible for hardware and software updates. Updates are applied automatically.
- The services are purchased on the pay-as-per-use basis

Example: BigCommerce, Google Apps, Salesforce, Dropbox.

2. Platform as a Service (PaaS):

PaaS cloud computing platform is created for the programmer to develop, test, run, and manage the applications.

Characteristics of PaaS

- Accessible to various users via the same development application.
- Integrates with web services and databases.
- Builds on virtualization technology, so resources can easily be scaled up or down as per the organization's need.
- Support multiple languages and frameworks.
- Provides an ability to "Auto-scale".

Example: AWS Elastic Beanstalk, Windows Azure, Heroku.

3. Infrastructure as a Service (IaaS):

IaaS is also known as Hardware as a Service (IaaS). It is a computing infrastructure managed over the internet. The main advantage of using IaaS is that it helps users to avoid the cost and complexity of purchasing and managing the physical servers.

There are the following characteristics of IaaS -

- Resources are available as a service
- Services are highly scalable
- Dynamic and flexible
- GUI and API-based access
- Automated administrative tasks

Example: Amazon Web Services (AWS), Microsoft Azure, Google Compute Engine (GCE).

➢ **Evolution of Cloud Computing**

Cloud computing is all about renting computing services. This idea first came in the 1950s. In making cloud computing what it is today, five technologies played a vital role. These are distributed systems and its peripherals, virtualization, web 2.0, service orientation, and utility computing.

- **Distributed Systems:**
  It is a composition of multiple independent systems but all of them are depicted as a single entity to the users. The purpose of distributed systems is to share resources and also use them effectively and efficiently. Distributed systems possess characteristics such as scalability, concurrency, continuous availability, heterogeneity, and independence in failures. But the main problem with this system was that all the systems were required to be present at the same geographical location. Thus to solve this problem, distributed computing led to three more types of computing and they were-Mainframe computing, cluster computing, and grid computing.

- **Mainframe computing:**
  Mainframes which first came into existence in 1951 are highly powerful and reliable computing machines. These are responsible for handling large data such as massive input-output operations. Even today these are used for bulk processing tasks such as online transactions etc. These systems have almost no downtime with high fault tolerance. After distributed computing, these increased the processing capabilities of the system. But these

were very expensive. To reduce this cost, cluster computing came as an alternative to mainframe technology.

- **Cluster computing:**
  In 1980s, cluster computing came as an alternative to mainframe computing. Each machine in the cluster was connected to each other by a network with high bandwidth. These were way cheaper than those mainframe systems. These were equally capable of high computations. Also, new nodes could easily be added to the cluster if it was required. Thus, the problem of the cost was solved to some extent but the problem related to geographical restrictions still pertained. To solve this, the concept of grid computing was introduced.

- **Grid computing:**
  In 1990s, the concept of grid computing was introduced. It means that different systems were placed at entirely different geographical locations and these all were connected via the internet. These systems belonged to different organizations and thus the grid consisted of heterogeneous nodes. Although it solved some problems but new problems emerged as the distance between the nodes increased. The main problem which was encountered was the low availability of high bandwidth connectivity and with it other network associated issues. Thus. cloud computing is often referred to as "Successor of grid computing".

- **Virtualization:**
  It was introduced nearly 40 years back. It refers to the process of creating a virtual layer over the hardware which allows the user to run multiple instances simultaneously on the hardware. It is a key technology used in cloud computing. It is the base on which major cloud computing services such as Amazon EC2, VMware vCloud, etc work on. Hardware virtualization is still one of the most common types of virtualization.

- **Web 2.0:**
  It is the interface through which the cloud computing services interact with the clients. It is because of Web 2.0 that we have interactive and dynamic web pages. It also increases flexibility among web pages. Popular examples of web 2.0 include Google Maps, Facebook, Twitter, etc. Needless to say, social media is possible because of this technology only. It gained major popularity in 2004.

- **Service orientation:**
  It acts as a reference model for cloud computing. It supports low-cost, flexible, and evolvable applications. Two important concepts were introduced in this computing model. These were Quality of Service (QoS) which also includes the SLA (Service Level Agreement) and Software as a Service (SaaS).

- **Utility computing:**
  It is a computing model that defines service provisioning techniques for services such as compute services along with other major services such as storage, infrastructure, etc which are provisioned on a pay-per-use basis.

➢ **Studying Various File Service Storage providers that offer Cloud Storage:**

Google Drive Offers 15 GB of free storage space and strong file sharing capabilities.

OneDrive Offers 5 GB of free storage space and can be accessed from any device.

Dropbox Offers data storage plans ranging from 2 GB to unlimited storage space.

IDrive Offers a hybrid cloud storage solution that includes cloud storage and online backup Functionality.

Box Offers multiple service options, including a business plan with unlimited storage.

iCloud Makes it easy to upgrade Apple devices.

pCloud A cloud storage provider based in Switzerland.

Icedrive Allows users to access their data directly from their computer's operating system.

Other cloud storage providers include: **Mega, Amazon S3, Sync.com.**

- **File Synchronization:**
  Cloud file syncing (Synchronization) is an application that keeps files in different locations up to date through the cloud. For cloud file syncing, a user sets up a cloud-based folder, to which the desired files are copied. This folder makes the files accessible via a web interface for multiple users, on whatever device they are using.

- **Client Software:**
  Client software is a program that's installed on a computer to communicate with other software over a network. Client software allows a device to access services or functionality provided by server software. Client software doesn't always need a network connection to run on a computer. Clients are often referred to as "service requesters".

- **List the common features included in DaaS:**

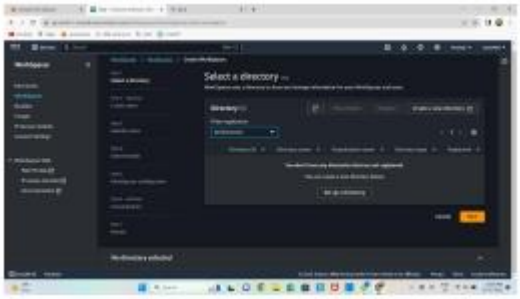
Desktop as a Service (DaaS) is a cloud computing offering where a service provider distributes virtual desktops to end-users over the Internet, licensed with a per-user subscription.

- **Data Access:** DaaS platforms offer a means to access data stored in the cloud. This could be through APIs, web interfaces, or other methods.
- **Data Integration:** DaaS often includes tools for integrating data from various sources. It can involve data cleansing, transformation, and aggregation.
- **Data Security:** DaaS providers typically have security measures in place to protect the data. This includes encryption, access control, and compliance with data protection regulations.
- **Scalability:** DaaS platforms can scale up or down according to your needs. This flexibility is useful for handling data growth.
- **Data Backup and Recovery:** Data in DaaS solutions is often backed up and can be recovered in case of data loss or disasters.

- **Data Analytics:** Some DaaS platforms include analytics tools or integrations, allowing users to analyze the data they access.
- **Real-time Data:** DaaS can provide real-time or near-real-time access to data, which is useful for applications requiring up-to-date information.
- **Monitoring and Reporting:** Many DaaS providers offer monitoring and reporting tools, allowing you to track data usage, performance, and access patterns.
- **Cost Management:** DaaS often operates on a pay-as-you-go model, and providers offer cost management tools to help you control expenses.
- **Compliance and Governance:** DaaS platforms may include features to help organizations adhere to data governance and compliance requirements, such as GDPR or HIPAA.
- **Data Versioning:** Some DaaS solutions offer data versioning capabilities, which allow you to access historical data snapshots.
- **Collaboration Tools:** DaaS can facilitate data sharing and collaboration within teams or with external partners.

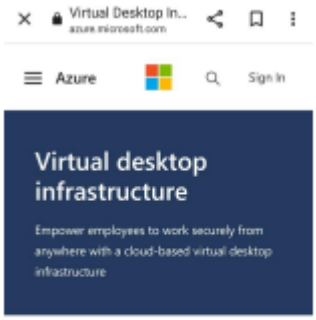
➢ **Explore any 5 Desktop-as- a-Service and include the corresponding screenshots in the writeup. Perform a comparative analysis of all of them:**

1. **Amazon Workspaces:**
   - Each user gets their own personal desktop that can either be Windows or Linux OS.
   - Provides a high-quality cloud desktop experience that is cost-effective and performs as well as traditional desktops.
   - Offers persistent file storage, custom application deployment, and quick scalability.



2. Microsoft Azure Virtual Desktop:

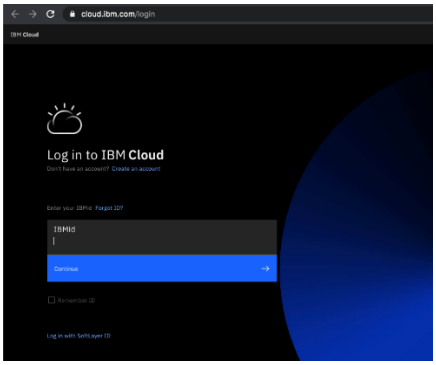
- Offers services for artificial intelligence, analytics, and the Internet of Things (IoT).
- Provides robust integration with Microsoft products, such as Active Directory and Visual Studio, making it an ideal choice for enterprises that already use those products.
- Offers a personal desktop and a shared virtual computer.
- Pricing varies depending on whether each user gets their own virtual machine or many users share a virtual machine.



Find the Azure service for your virtual desktop infrastructure needs

3. IBM Cloud:

- Offers a VDI solution that can be accessed from any device with an internet connection.
- Provides a secure and scalable infrastructure.
- Offers a variety of pricing options, including pay-as-you-go and reserved instances.



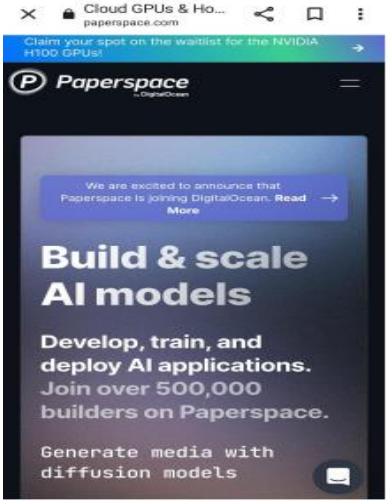
4. VMware:

- Offers a VDI solution that can be accessed from any device with an internet connection.
- Provides a secure and scalable infrastructure.
- Offers a variety of pricing options, including pay-as-you-go and reserved instances.

5. Paperspace Desktop-as-a-Service:

- Offers a VDI solution that can be accessed from any device with an internet connection.
- Provides a secure and scalable infrastructure.

- Offers a variety of pricing options, including pay-as-you-go and reserved instances.



DaaS Provider	Price	Mobile App Availability	Storage Space	User Interface	Sharing Capability	Chat Facility
Amazon Workspaces	$7.25-$26/month	Yes	80gb/user	User Freindly	Yes	Yes
Microsoft Azure Virtual esktop	$10-$140/month	Yes	12gb/ user	User Freindly	Yes	Yes
IBM Cloud	$0.05-$0.50/ hour	Yes	25gb/ user	User Friendly	Yes	Yes
VMware	$8-$16/month	Yes	10gb/ user	User Friendly	Yes	Yes
Paperspace	$8-$21/month	Yes	50gb/ user	User Freindly	Yes	Yes

➢ **Contrast and Compare Between DaaS and IaaS:**

- **DaaS (Desktop as a Service):**

  Definition: DaaS is a cloud computing service that provides virtual desktop environments hosted and managed by a third-party provider.

  Use Case: DaaS is primarily used to deliver virtual desktops to end-users, enabling remote work, centralized management, and simplified desktop provisioning.

  Management: DaaS is fully managed by the service provider, which includes OS updates, security patches, and hardware maintenance.

  Scalability: DaaS allows for easy scalability, making it suitable for businesses with fluctuating or remote workforce requirements.

  Software and Applications: Users access virtual desktops with pre-installed or customizable software and applications via the internet.

- **IaaS (Infrastructure as a Service):**

  Definition: IaaS is a cloud computing service that provides virtualized computing resources such as virtual machines, storage, and networking on-demand.

Use Case: IaaS is used by businesses to build, manage, and scale their IT infrastructure without investing in physical hardware. It's suitable for a wide range of applications.

Management: In IaaS, users have more control over the infrastructure, including the operating system, applications, and security settings.

Scalability: IaaS offers scalable resources, allowing businesses to adjust their computing power and storage capacity as needed.

Software and Applications: Users are responsible for installing, configuring, and managing their own software and applications on the virtual machines.

- **Comparison:**

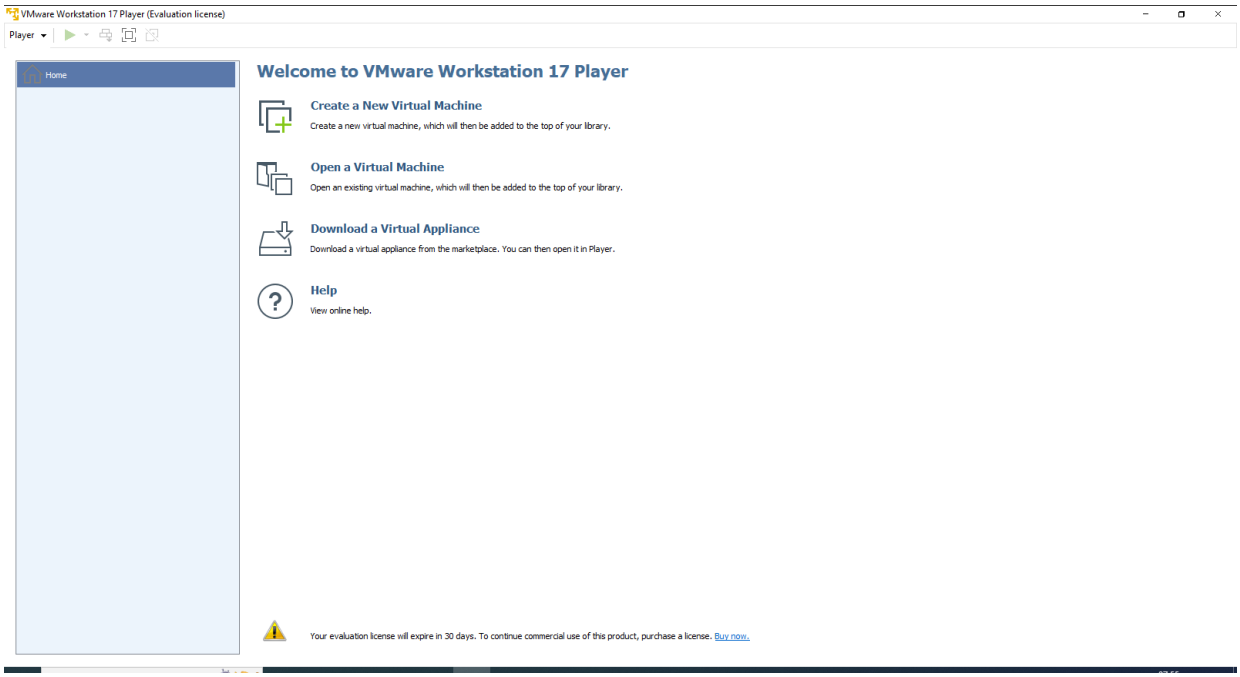
Management Control: DaaS provides a more hands-off approach to management, while IaaS gives users greater control over their virtual infrastructure.

Use Cases: DaaS is specialized for delivering virtual desktops, while IaaS is versatile and can be used for a wide range of computing needs.

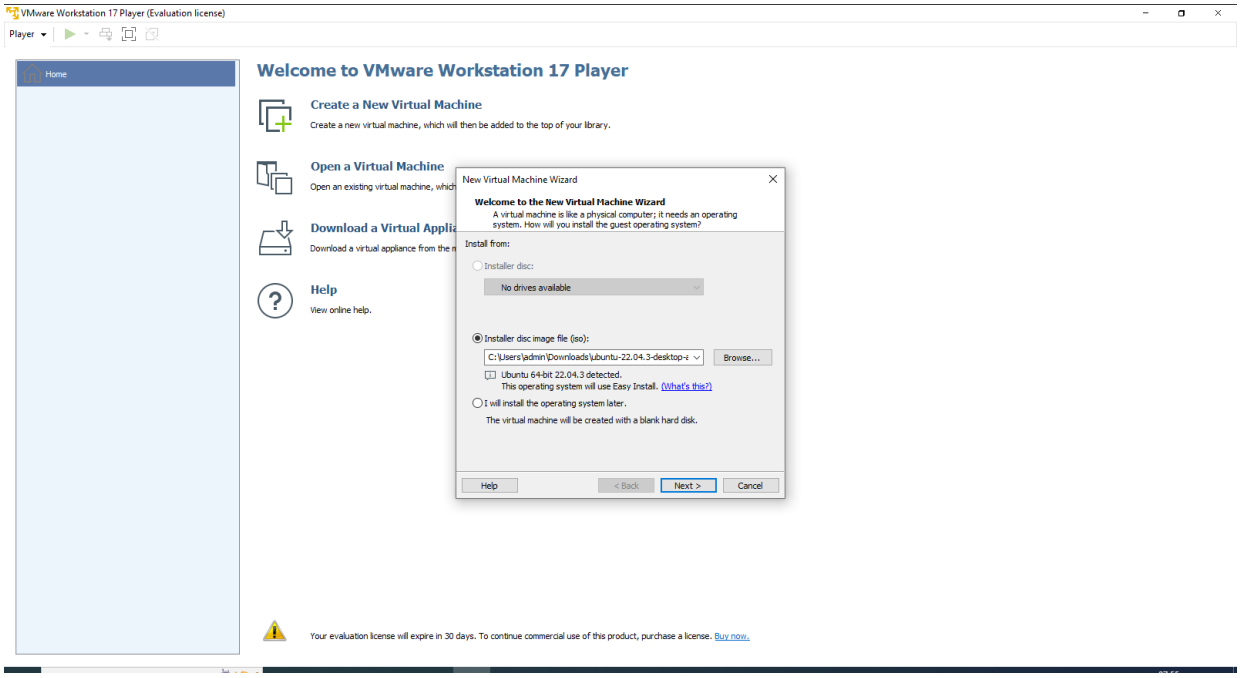
Scalability: Both DaaS and IaaS offer scalability, but DaaS is more geared toward accommodating changes in the number of virtual desktops, whereas IaaS can scale various infrastructure components.

Experiment No. 2

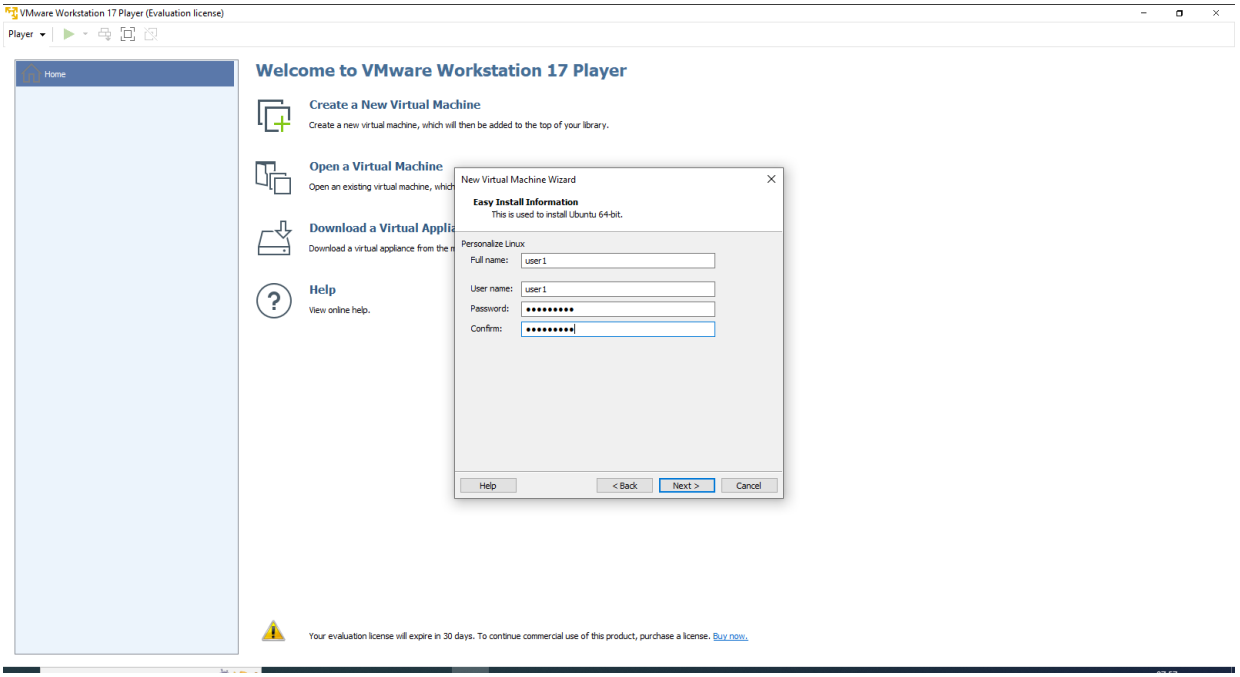
Step 1: Open VMware workstation and click on create new Virtual Machine.



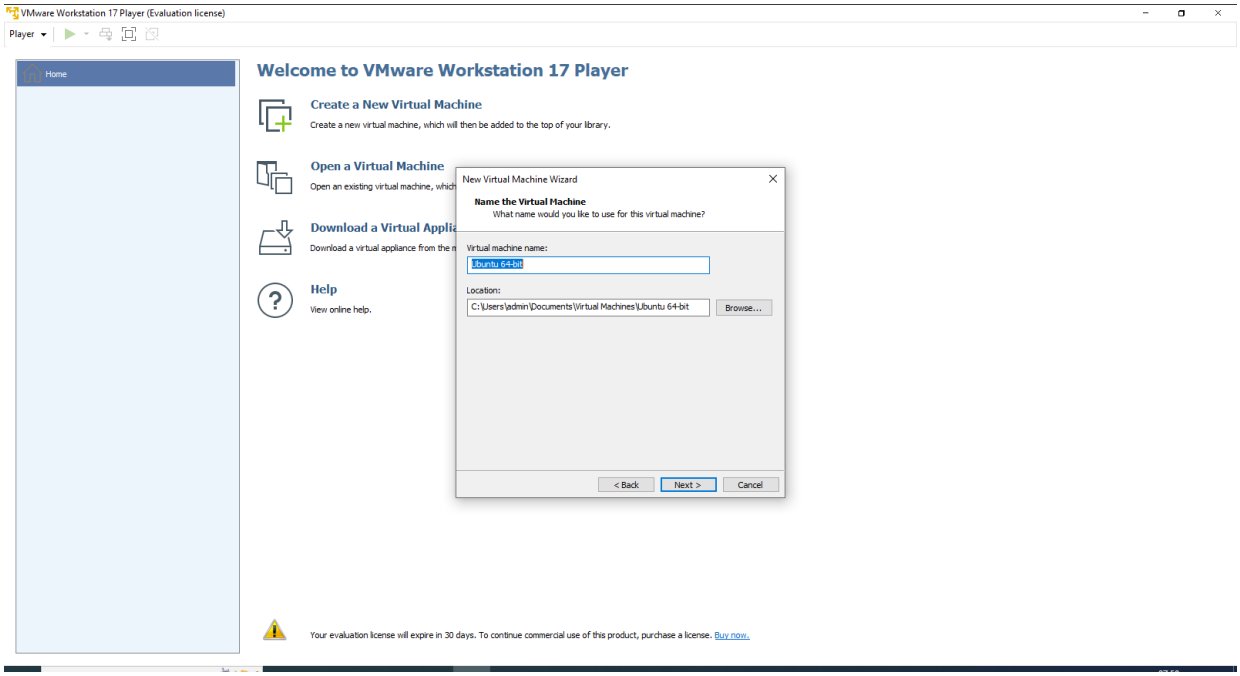
Step 2: Browse iso file and check whether it is detected or not and then click on next.



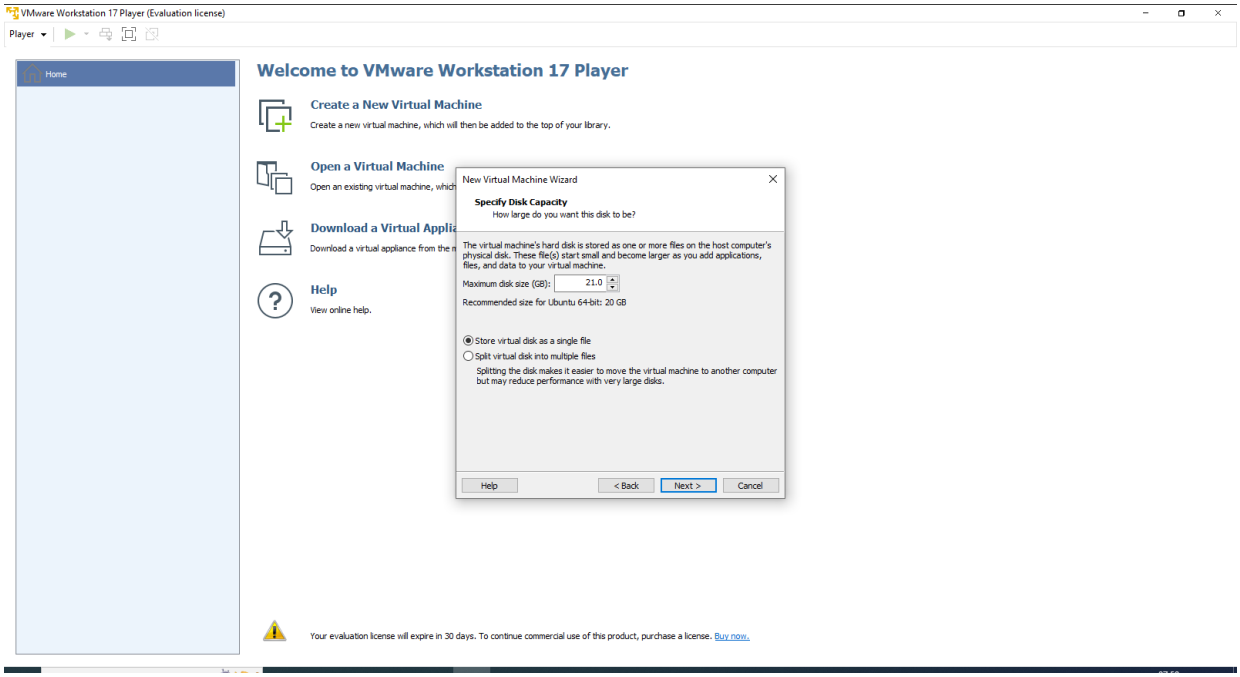
Step 3: Enter the Full Name, Username and Password of your choice and click on next.



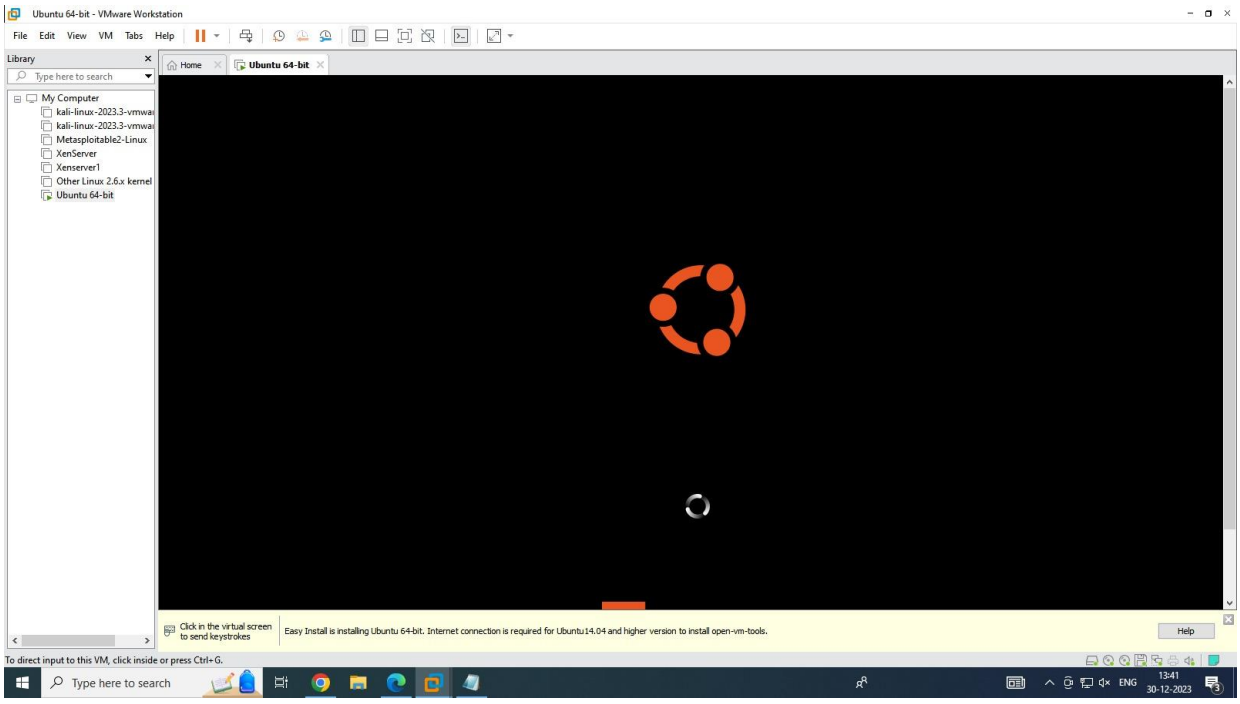
Step 4: Select the path where you want to install the VM or else you can kept it as by default and then click on next.

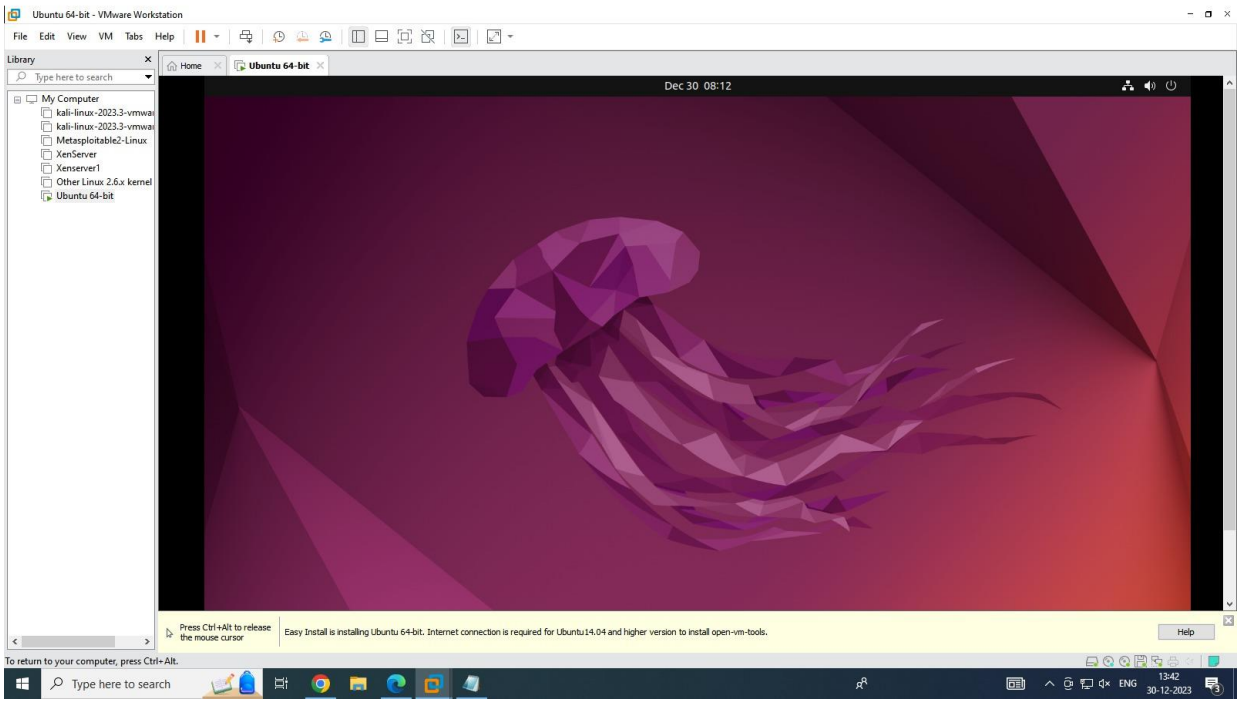


Step 5: Keep Maximum disk size as 21.0 GB and check the store a virtual disk as a single file option and click on next.



Step 6: Check the checkbox of Power on this VM after creation and click on finish.




Ubuntu 64-bit - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
kali-linux-2023.3-vmwa
kali-linux-2023.3-vmwa
Metasploitable2-Linux
XenServer
Xenserver1
Other Linux 2.6.x kernel
Ubuntu 64-bit
Home
Ubuntu 64-bit
Dec 30 08:12
Press Ctrl+Alt to release the mouse cursor
Easy Install is installing Ubuntu 64-bit. Internet connection is required for Ubuntu14.04 and higher version to install open-vm-tools.
Help
To return to your computer, press Ctrl+Alt.
Type here to search
ENG
13:42
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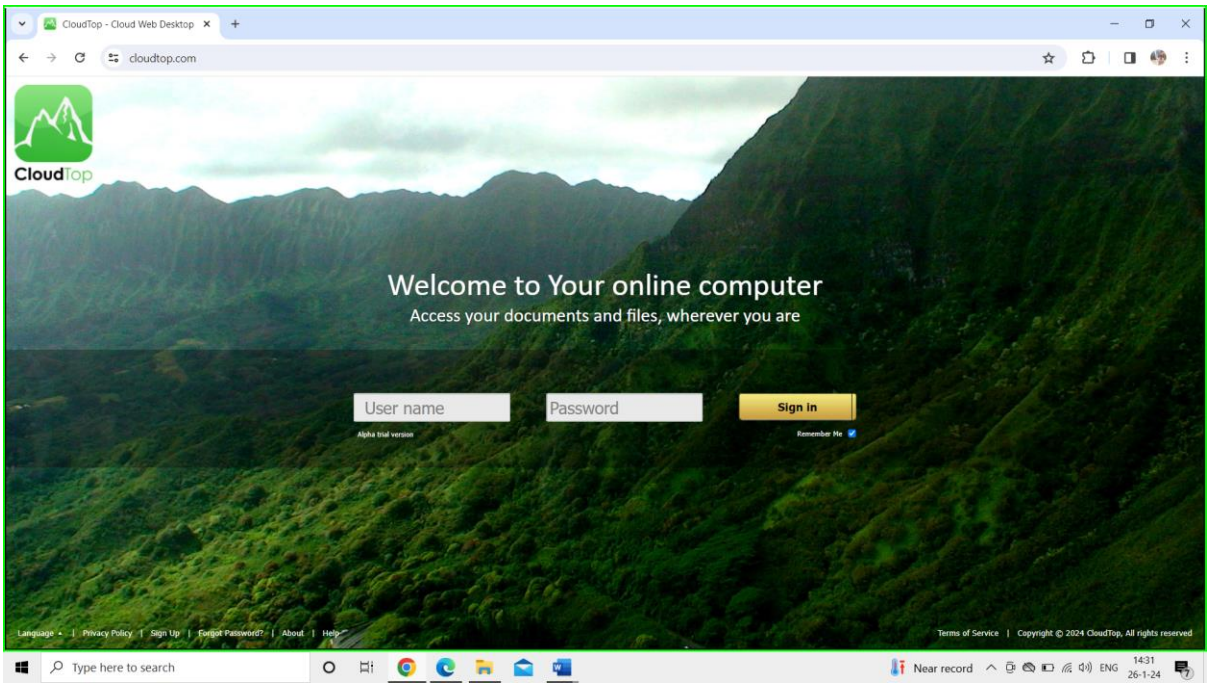
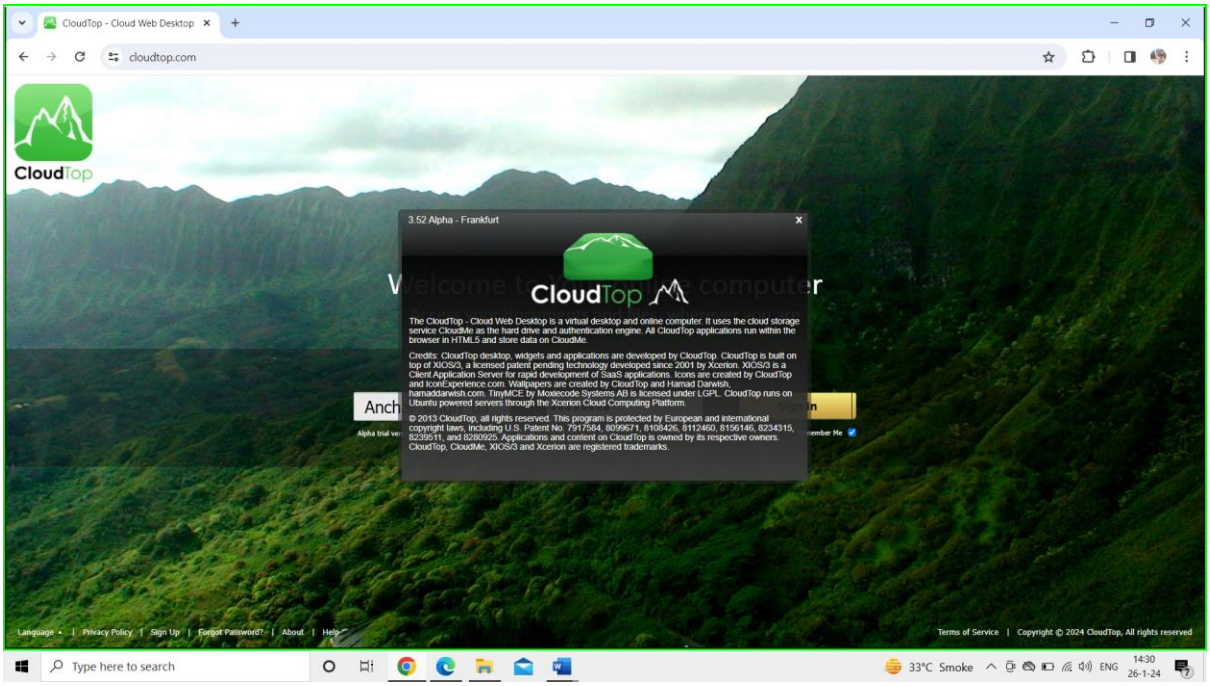
Practical No. 4

1) CLoudtop

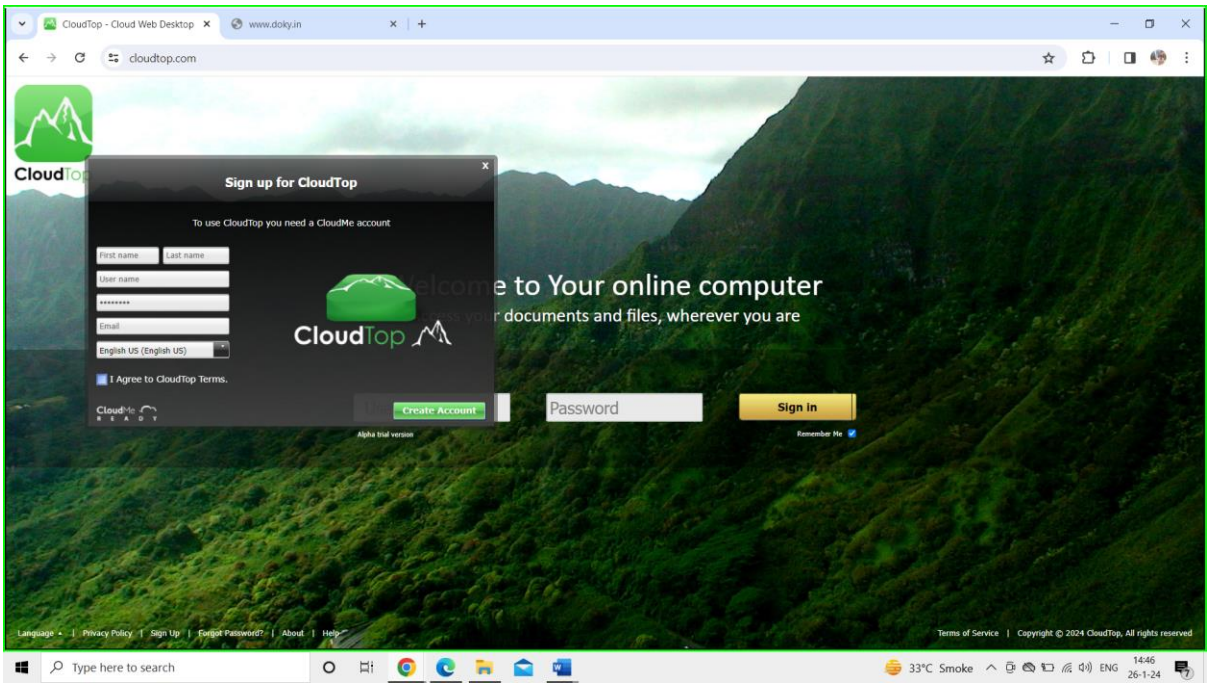
1. When you open the Cloudtop website it displays this page. It can also be an Online Computer



2. You can also know about the cloudtop on their platform.

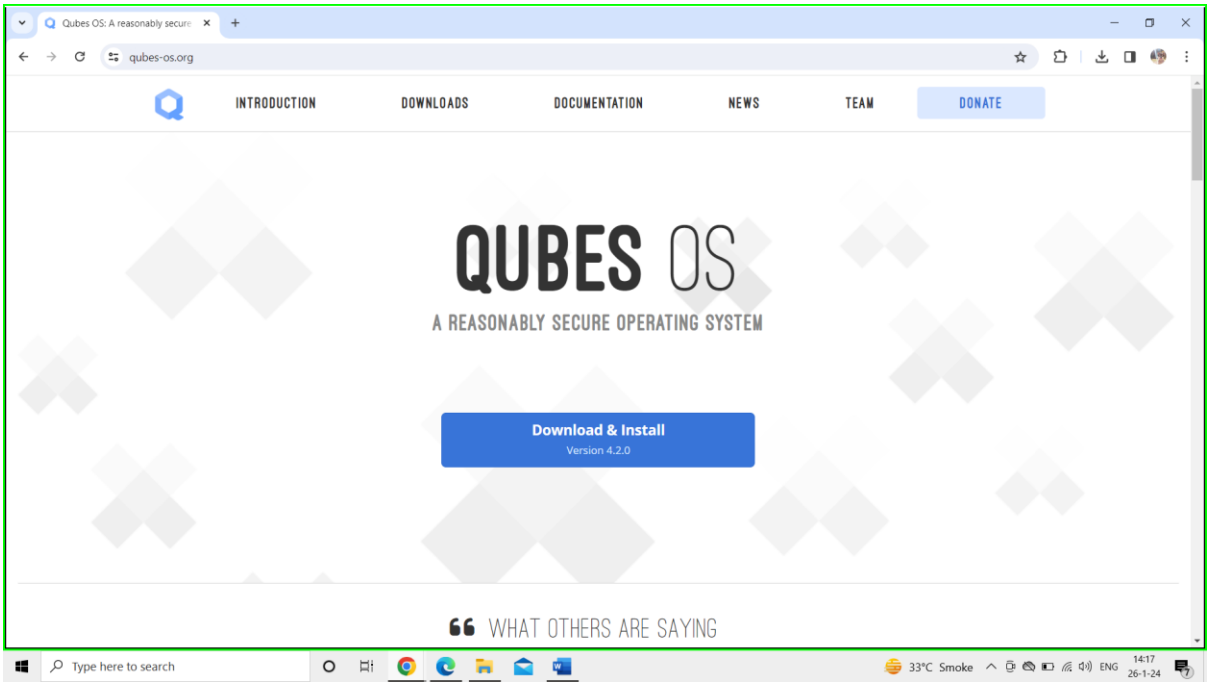


3. It allows you to Sign in and create an account. After that you can login and use the platform as your online computer.

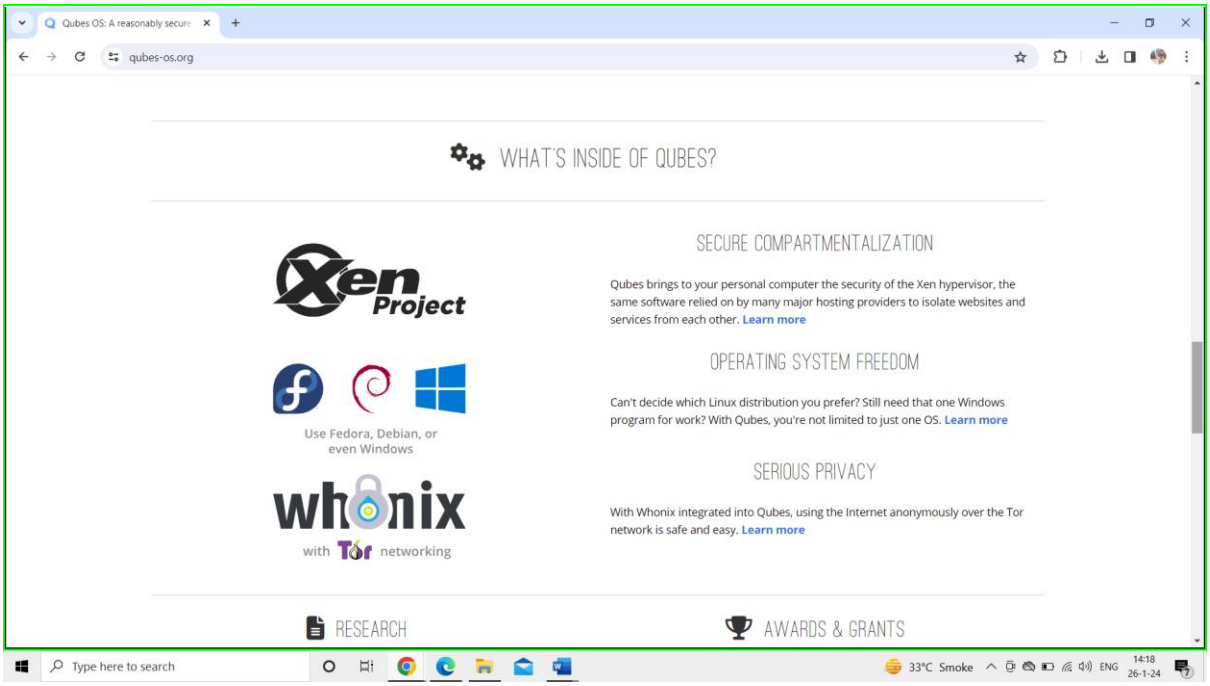


2) QUBES OS

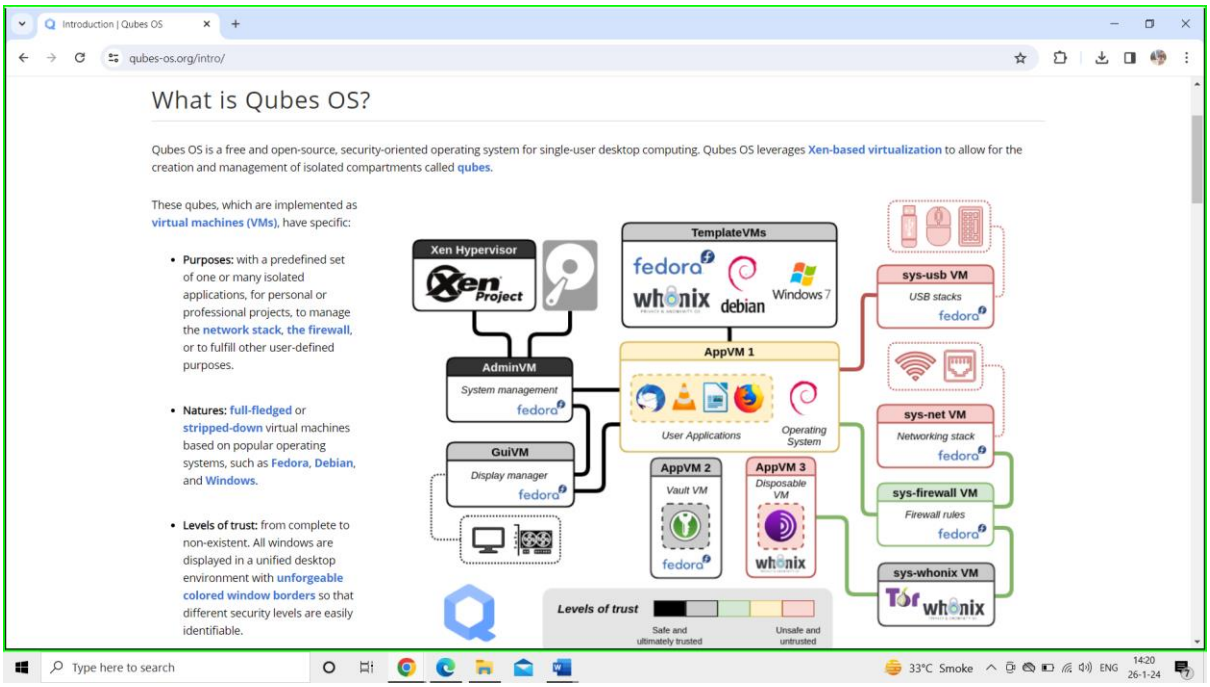
I. Qubes OS is a security-focused operating system that allows you to organize your digital life into compartments called “qubes.”

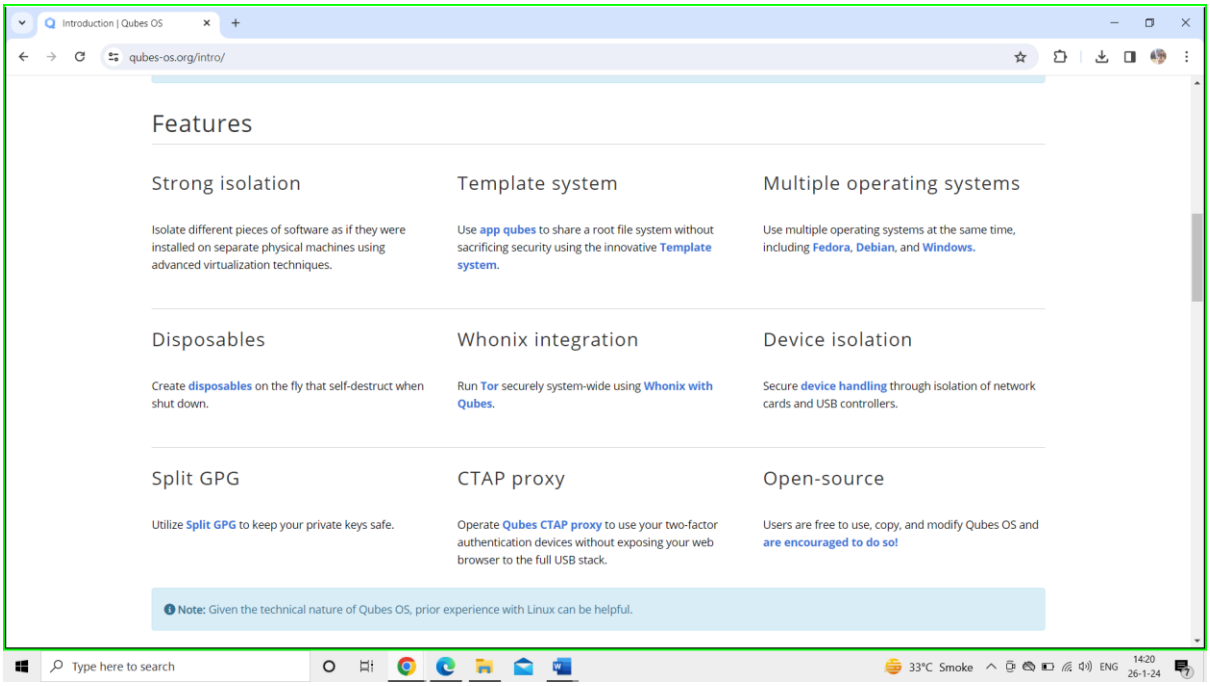


II. Qubes OS provides Secure Compartmentalization , Operating System Freedom and Serious Privacy



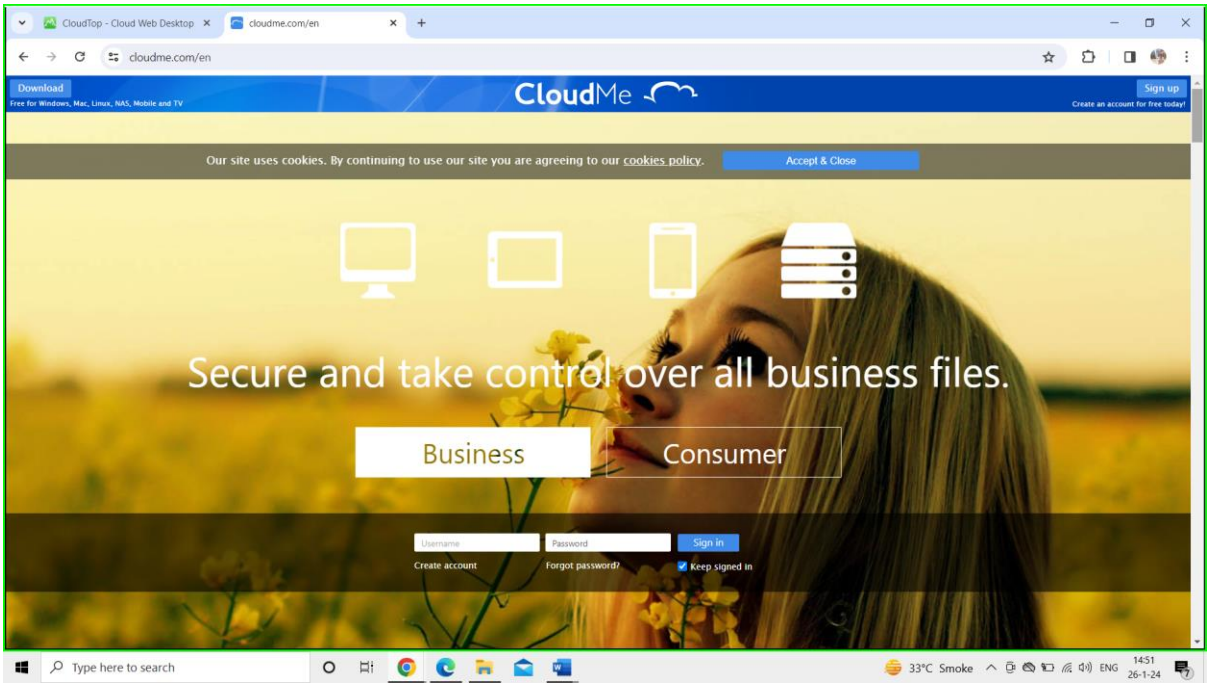
III. Qubes OS and its few Features



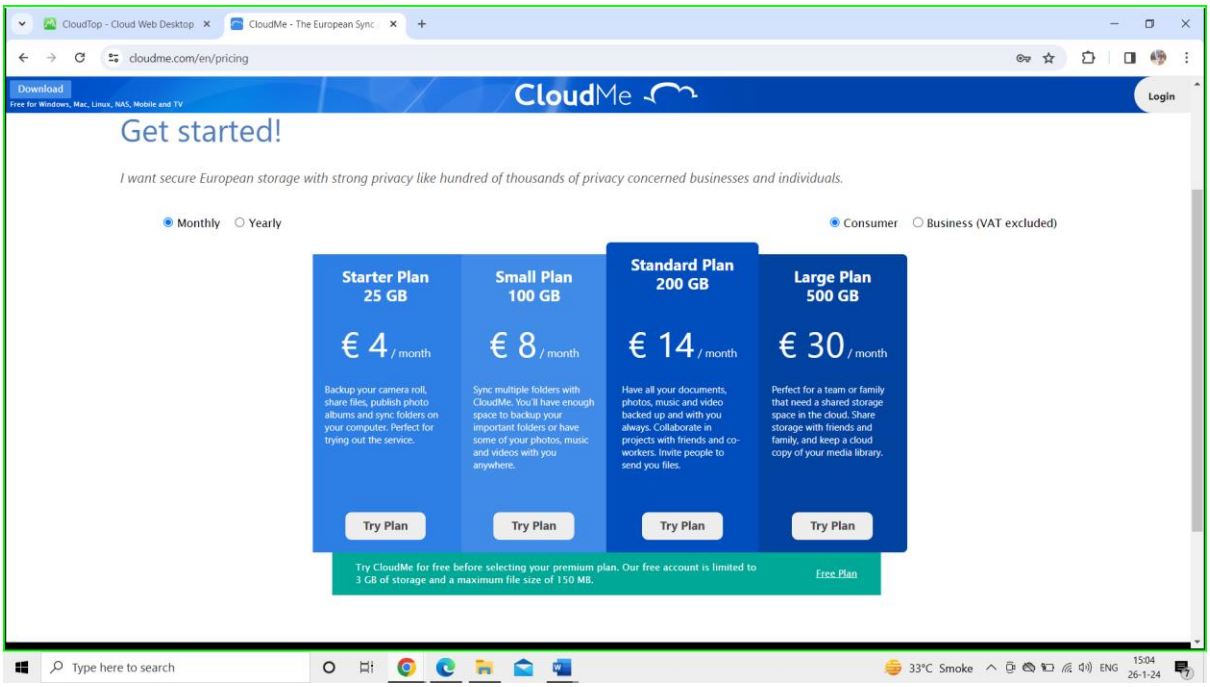


3) CloudMe

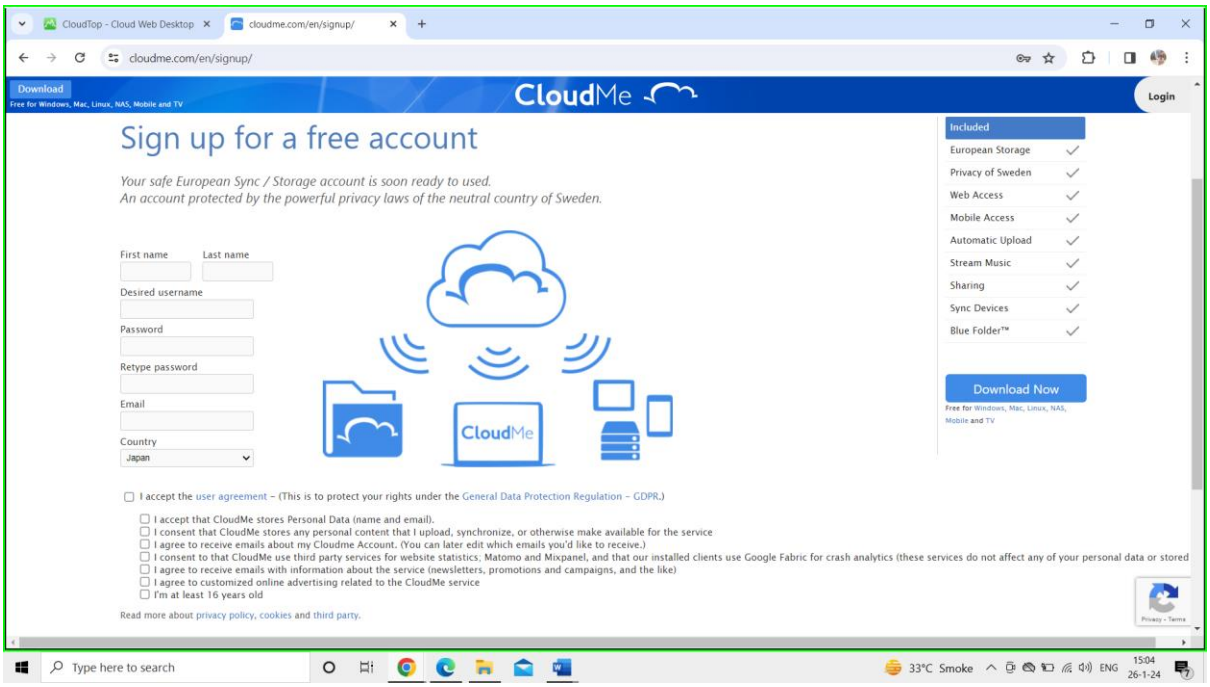
1. CloudMe service combines cloud storage with synchronization of data, allowing you to sync your mobile camera roll with for example your tablet or TV, to sync files across computers and mobile devices, and to share and receive files with friends and colleagues.



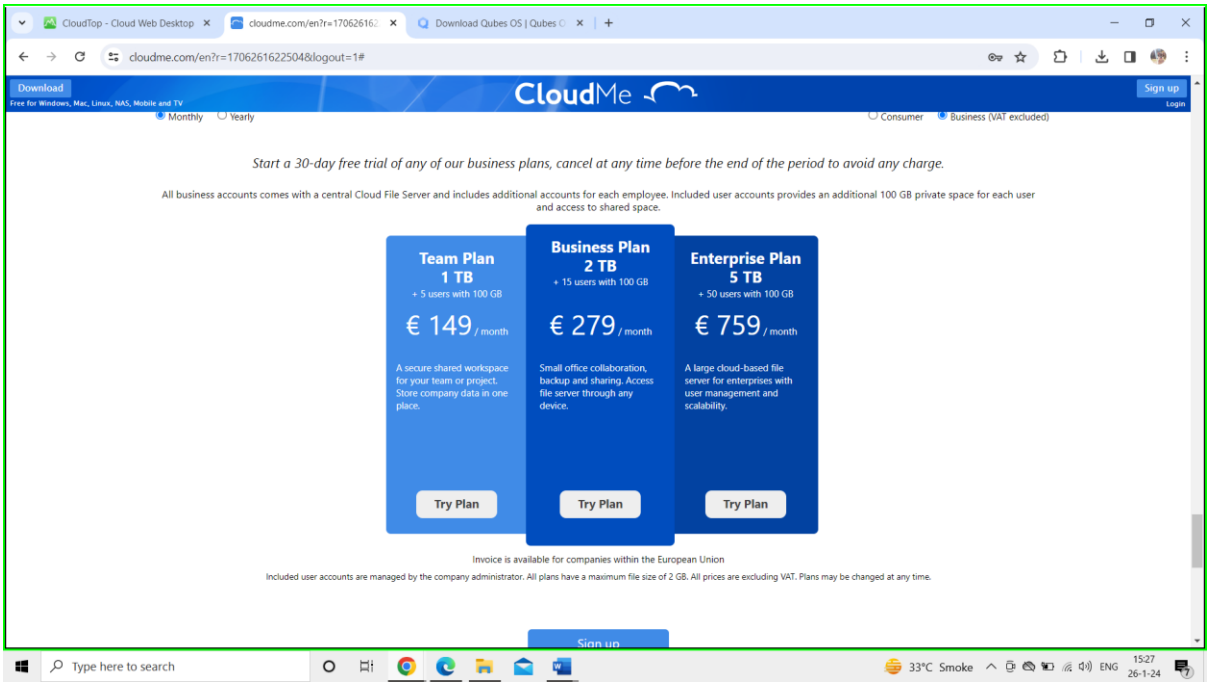
2. You can get started as an business or as an consumer with different pay plans.



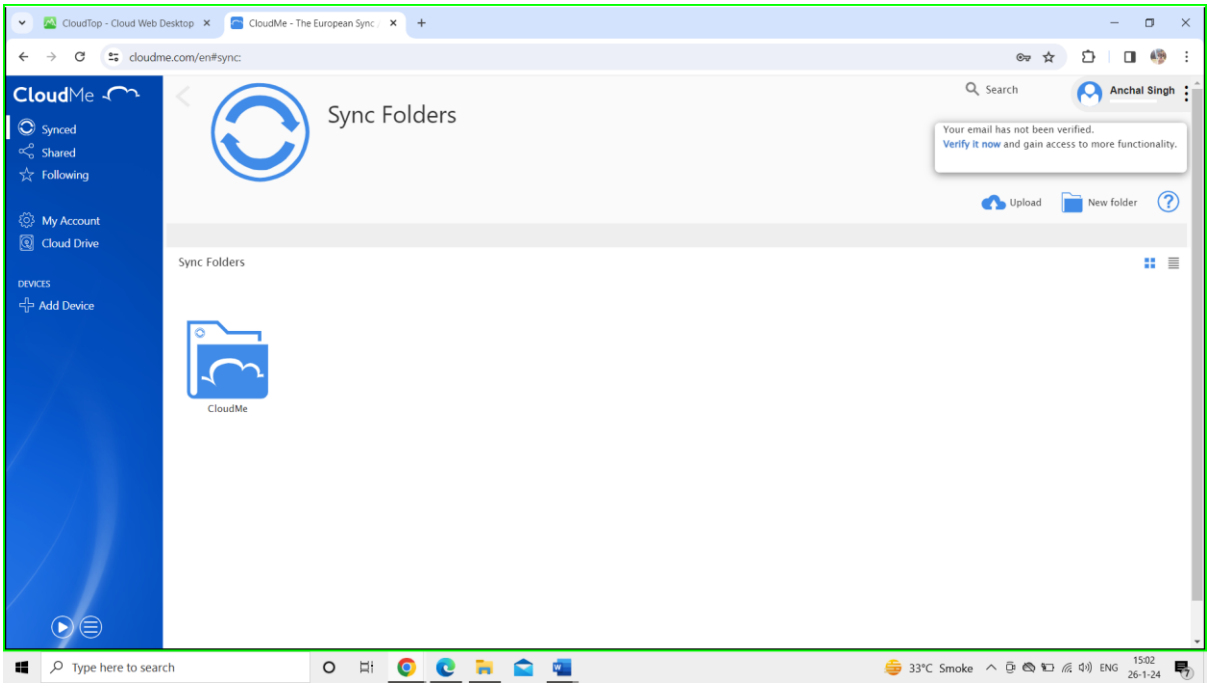
3. Consumers also have an access to free plan. They can sign up for free account with their own Email Id and Personal Details for free.



4. Businesses can have an different plan that they can try to use CloudMe



5. Once you have a sign in as a consumer or as an business you can use cloud me for storage purposes.



- **COMPARITIVE ANALYSIS:-**

1) CloudMe:

- Key Features:
  - Cloud storage and file-sharing service.
  - Cross-platform support.
- Strengths:
  - Emphasis on simplicity and user-friendliness.
  - Collaborative features for file sharing.
- Considerations:
  - May lack some advanced features compared to larger cloud providers.

2) Qubes:

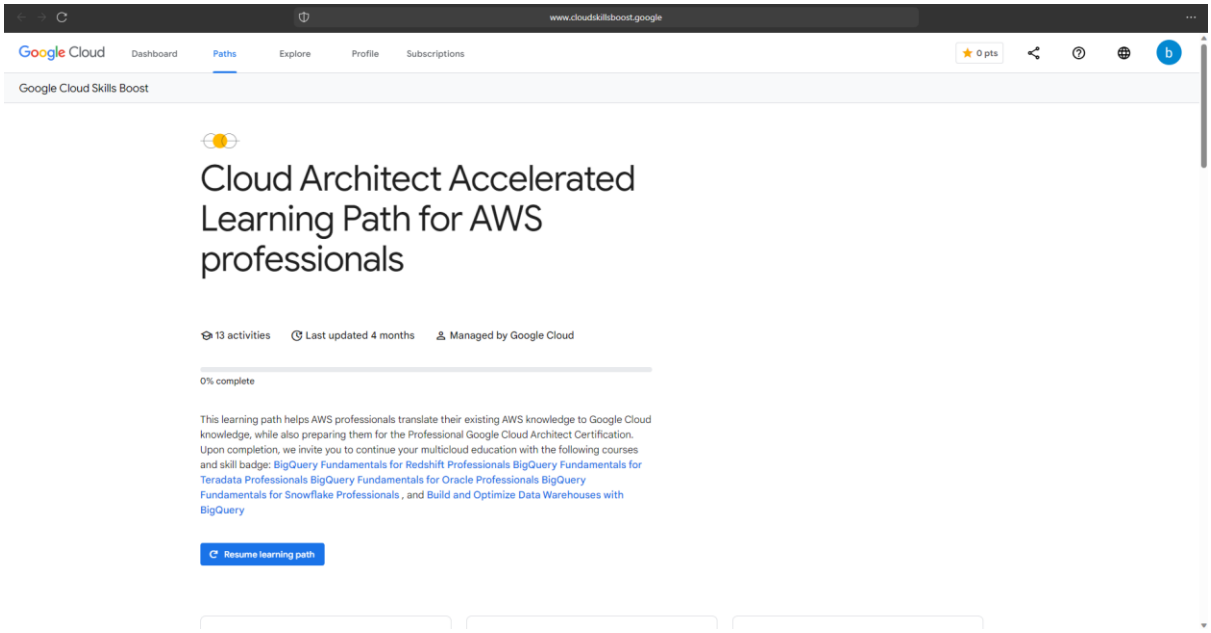
- Key Features:
  - Security-focused operating system.
  - Uses compartmentalization for enhanced security.
- Strengths:
  - Strong emphasis on security and isolation.
  - Allows for running multiple virtual machines for different tasks.
- Considerations:
  - Can be complex for non-technical users.
  - Hardware compatibility may be a consideration.

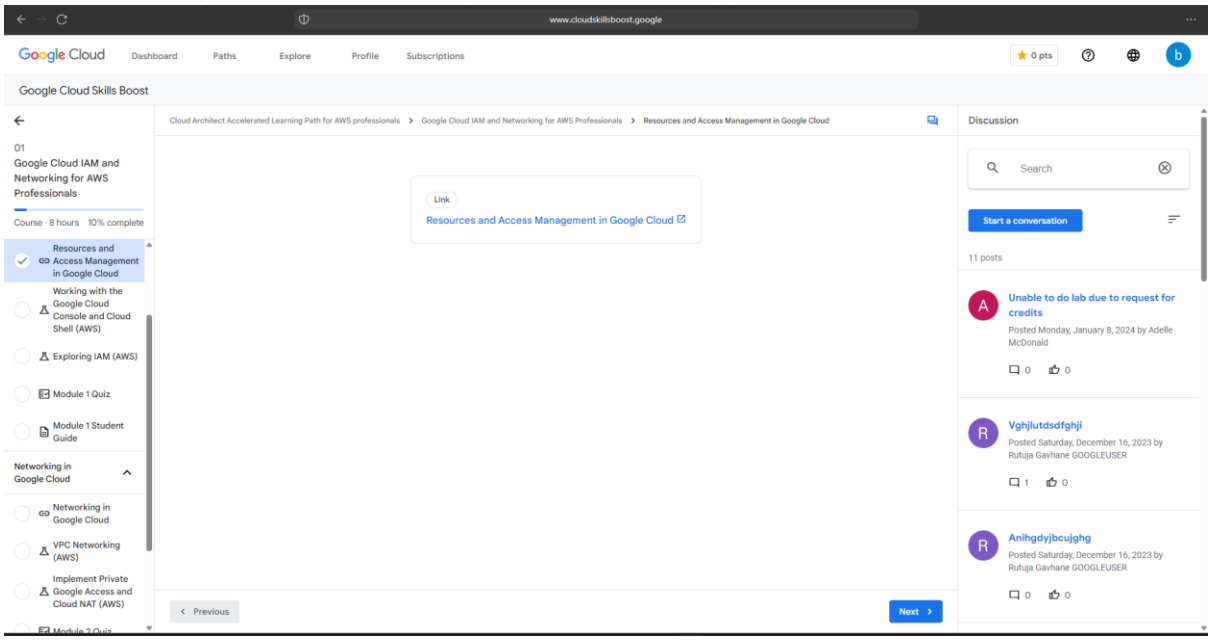
3) ZeroPC:

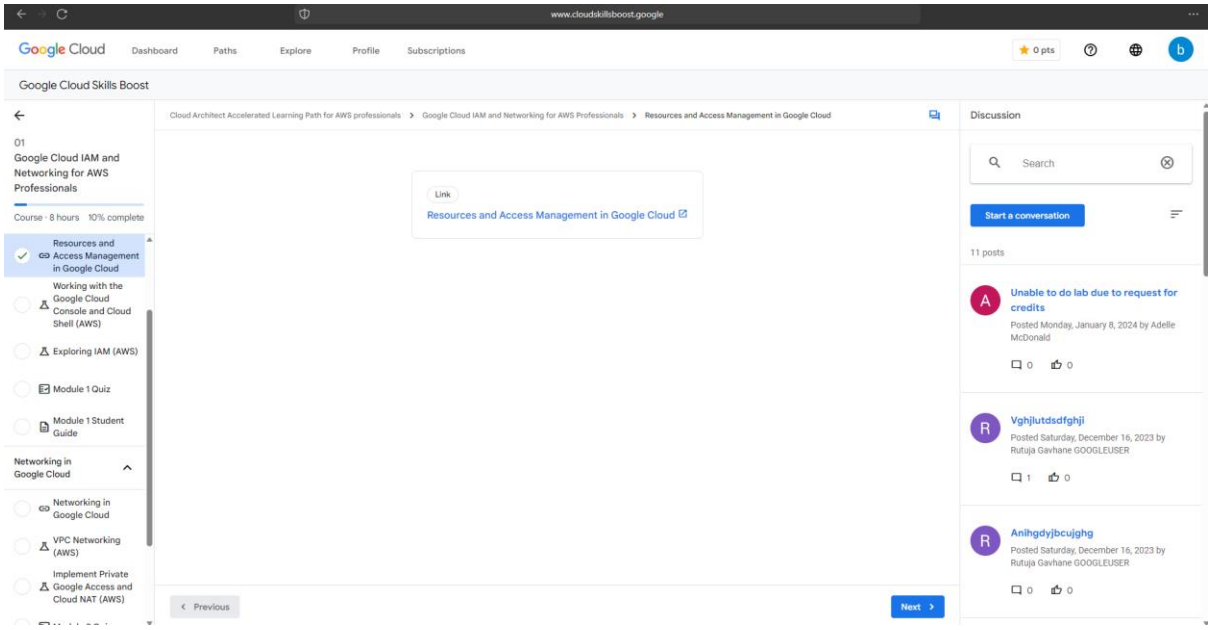
- Key Features:
  - Cloud-based virtual desktop.
  - File management and collaboration tools.
  - Integration with multiple cloud storage services.
- Strengths:
  - Unified access to various cloud storage services, allowing users to manage and organize files in one place.
  - Collaboration features for sharing and editing files.
  - Virtual desktop functionality for a centralized workspace.
- Considerations:
  - The user interface and user experience may vary in terms of intuitiveness.
  - Depending on the user's needs, some features may be more robust in dedicated services from specific cloud storage providers.

Practical No. 5

Open URL:-
https://www.cloudskillsboost.google/paths/125



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Cloud Architect Accelerated Learning Path for AWS professionals > Google Cloud IAM and Networking for AWS Professionals > Resources and Access Management in Google Cloud
01
Google Cloud IAM and Networking for AWS Professionals
Course · 8 hours 10% complete
Resources and Access Management in Google Cloud
Working with the Google Cloud Console and Cloud Shell (AWS)
Exploring IAM (AWS)
Module 1 Quiz
Module 1 Student Guide
Networking in Google Cloud
Networking in Google Cloud
VPC Networking (AWS)
Implement Private Google Access and Cloud NAT (AWS)
Link
Resources and Access Management in Google Cloud
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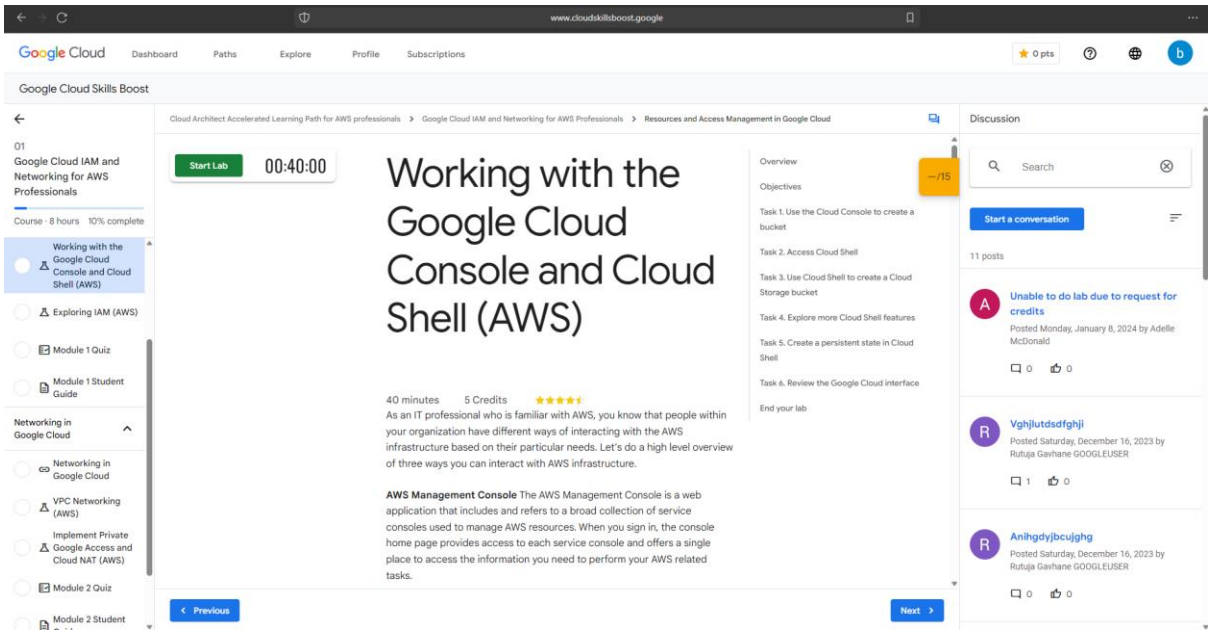
Start a conversation
11 posts
Unable to do lab due to request for credits
Posted Monday, January 8, 2024 by Adelle McDonald
Vghjlutdsdfghji
Posted Saturday, December 16, 2023 by Rutuja Gavhane GOOGLEUSER
Anihgdyjbcujghg
Posted Saturday, December 16, 2023 by Rutuja Gavhane GOOGLEUSER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01
Google Cloud IAM and Networking for AWS Professionals
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Working with the Google Cloud Console and Cloud Shell (AWS)
Exploring IAM (AWS)
Module 1 Quiz
Module 1 Student Guide
Networking in Google Cloud
Networking in Google Cloud
VPC Networking (AWS)
Implement Private Google Access and Cloud NAT (AWS)
Module 2 Quiz
Start Lab
00:40:00
Working with the Google Cloud Console and Cloud Shell (AWS)
40 minutes 5 Credits
As an IT professional who is familiar with AWS, you know that people within your organization have different ways of interacting with the AWS infrastructure based on their particular needs. Let's do a high level overview of three ways you can interact with AWS infrastructure.
AWS Management Console The AWS Management Console is a web application that includes and refers to a broad collection of service consoles used to manage AWS resources. When you sign in, the console home page provides access to each service console and offers a single place to access the information you need to perform your AWS related tasks.
Overview
Objectives
--/15
Task 1. Use the Cloud Console to create a bucket
Task 2. Access Cloud Shell
Task 3. Use Cloud Shell to create a Cloud Storage bucket
Task 4. Explore more Cloud Shell features
Task 5. Create a persistent state in Cloud Shell
Task 6. Review the Google Cloud interface
End your lab
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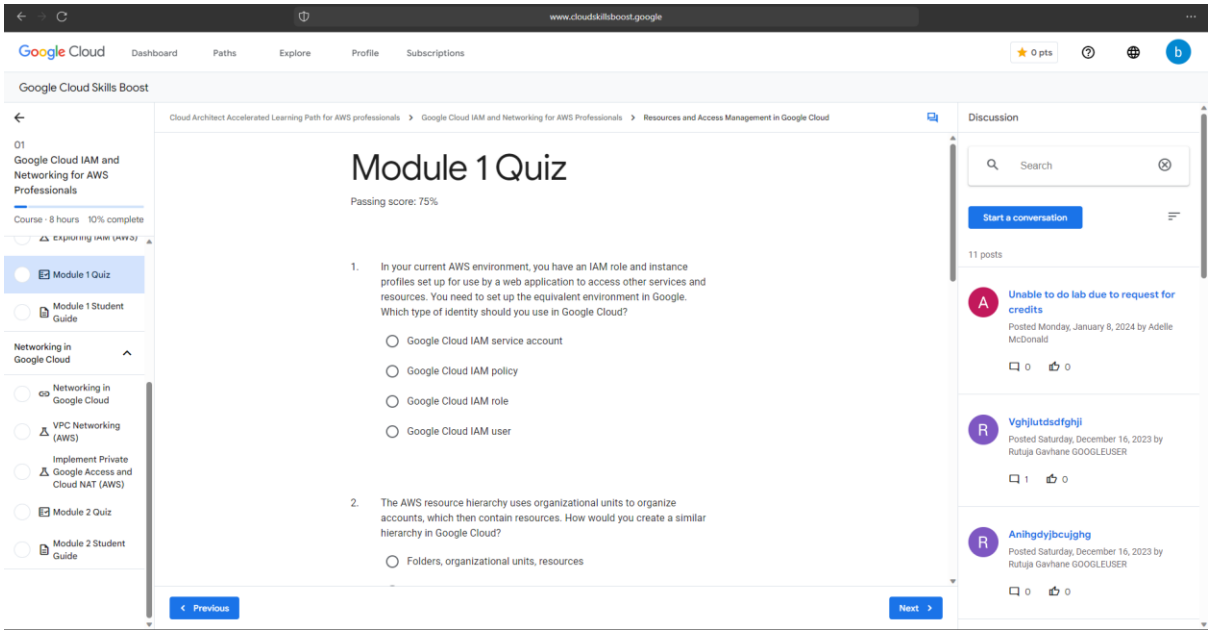
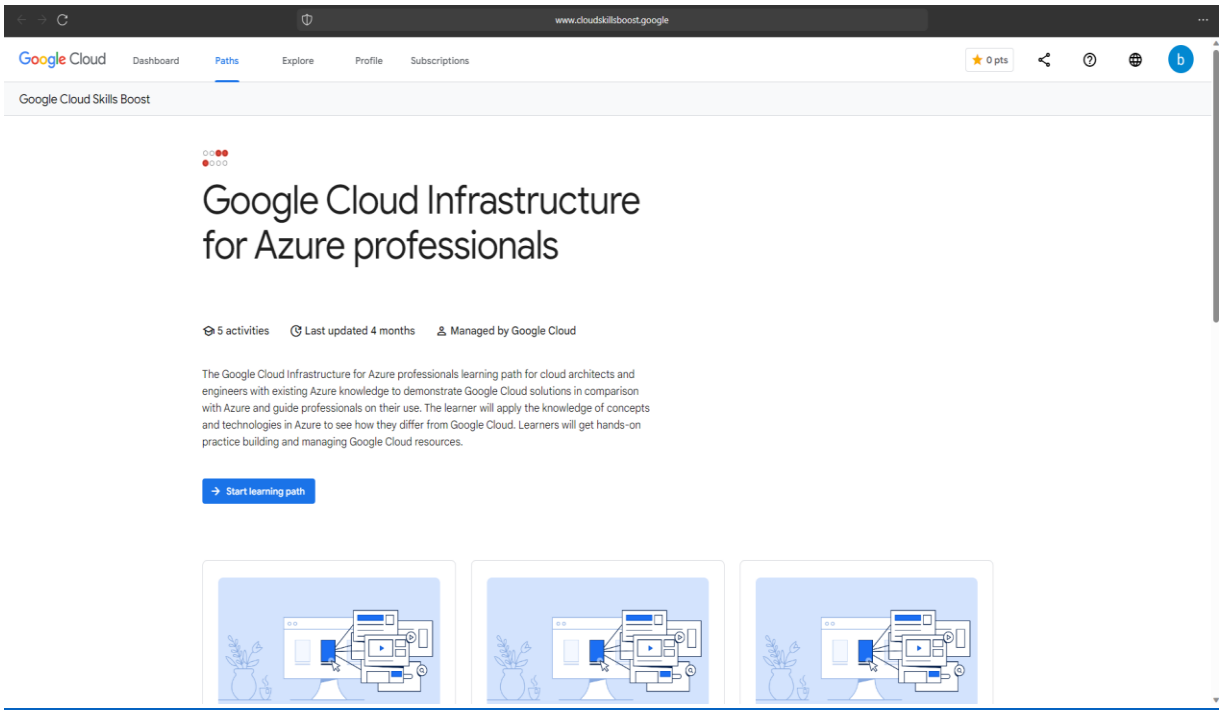
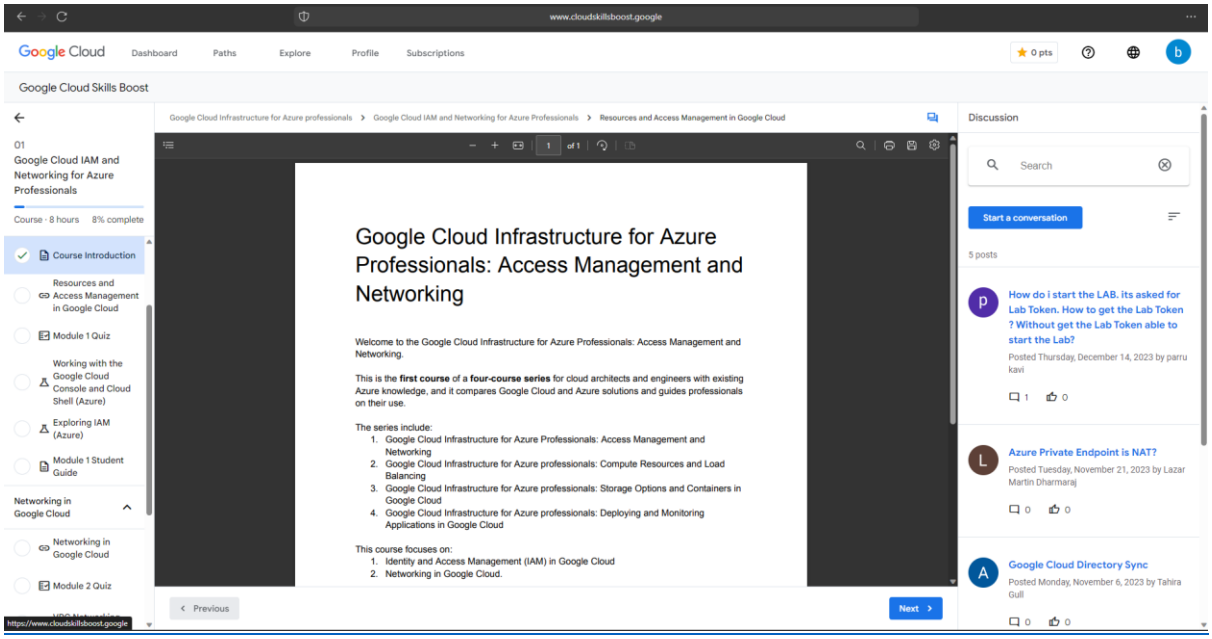


https://www.cloudskillsboost.google/paths/72

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Google Cloud Infrastructure for Azure professionals > Google Cloud IAM and Networking for Azure Professionals > Resources and Access Management in Google Cloud
01
Google Cloud IAM and Networking for Azure Professionals
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Course Introduction
Resources and Access Management in Google Cloud
Module 1 Quiz
Working with the Google Cloud Console and Cloud Shell (Azure)
Exploring IAM (Azure)
Module 1 Student Guide
Networking in Google Cloud
Networking in Google Cloud
Module 2 Quiz
Google Cloud Infrastructure for Azure Professionals: Access Management and Networking
Welcome to the Google Cloud Infrastructure for Azure Professionals: Access Management and Networking.
This is the first course of a four-course series for cloud architects and engineers with existing Azure knowledge, and it compares Google Cloud and Azure solutions and guides professionals on their use.
The series include:
1. Google Cloud Infrastructure for Azure Professionals: Access Management and Networking
2. Google Cloud Infrastructure for Azure professionals: Compute Resources and Load Balancing
3. Google Cloud Infrastructure for Azure professionals: Storage Options and Containers in Google Cloud
4. Google Cloud Infrastructure for Azure professionals: Deploying and Monitoring Applications in Google Cloud
This course focuses on:
1. Identity and Access Management (IAM) in Google Cloud
2. Networking in Google Cloud.
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5 posts
How do i start the LAB. its asked for Lab Token. How to get the Lab Token ? Without get the Lab Token able to start the Lab?
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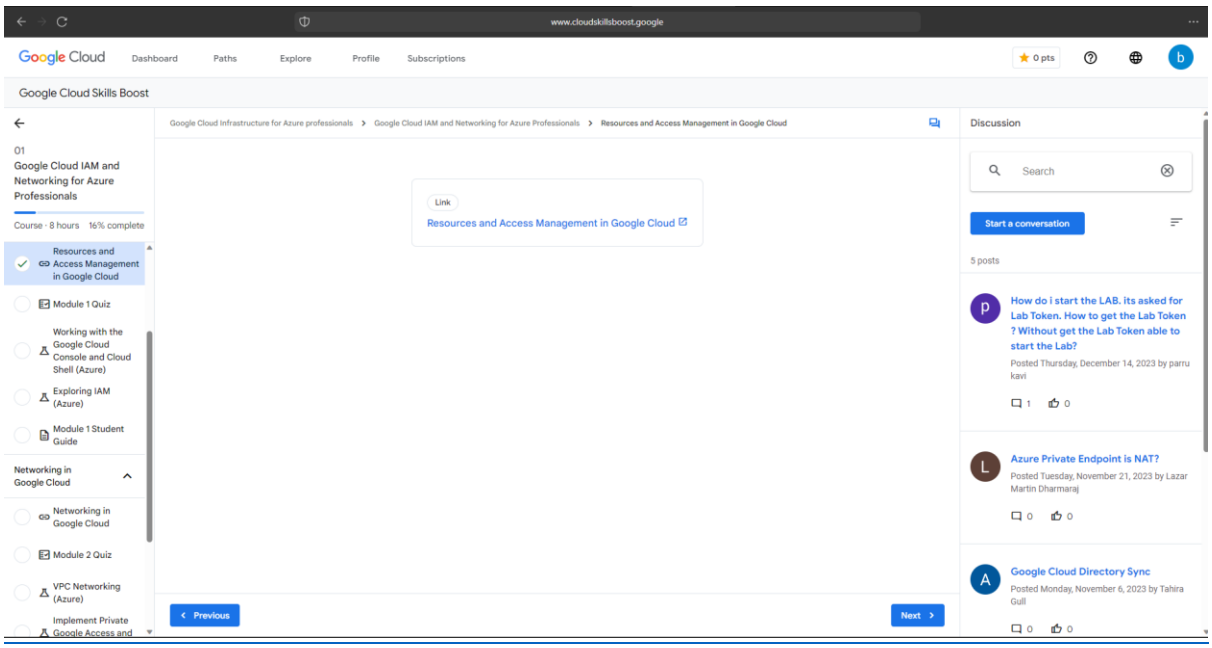
Azure Private Endpoint is NAT?
Posted Tuesday, November 21, 2023 by Lazar Martin Dharmaraj
Google Cloud Directory Sync
Posted Monday, November 6, 2023 by Tahira Gull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Google Cloud Infrastructure for Azure professionals > Google Cloud IAM and Networking for Azure Professionals > Resources and Access Management in Google Cloud
01
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Networking in Google Cloud
Networking in Google Cloud
Module 2 Quiz
VPC Networking (Azure)
Implement Private Google Access and
Link
Resources and Access Management in Google Cloud
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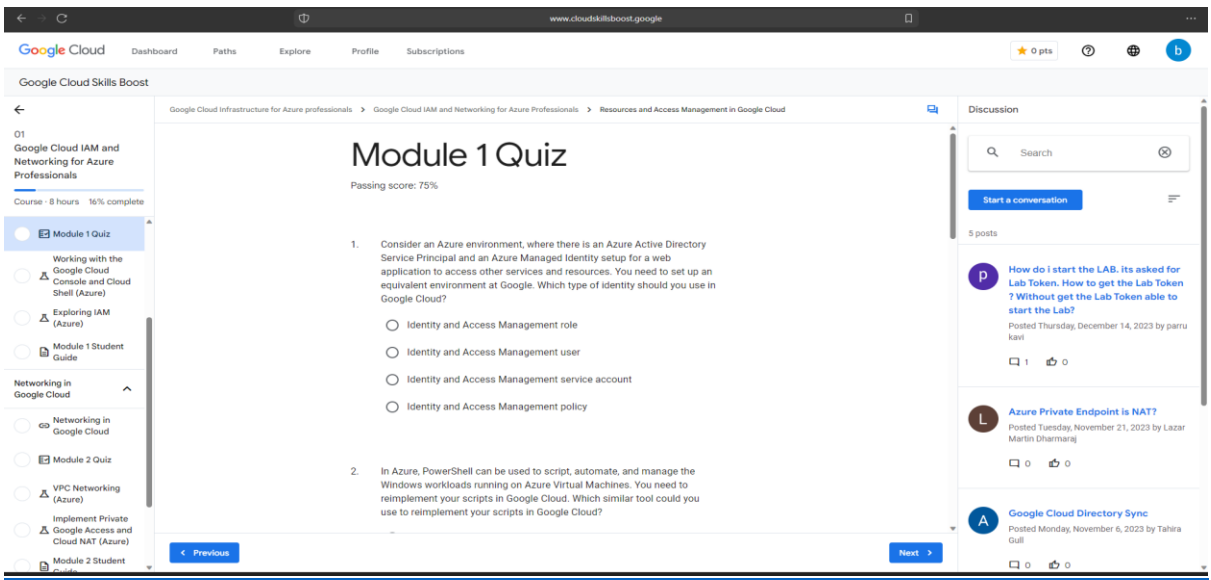
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01
Google Cloud IAM and Networking for Azure Professionals
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Module 1 Quiz
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Exploring IAM (Azure)
Module 1 Student Guide
Networking in Google Cloud
Networking in Google Cloud
Module 2 Quiz
VPC Networking (Azure)
Implement Private Google Access and Cloud NAT (Azure)
Module 2 Student
Module 1 Quiz
Passing score: 75%
1. Consider an Azure environment, where there is an Azure Active Directory Service Principal and an Azure Managed Identity setup for a web application to access other services and resources. You need to set up an equivalent environment at Google. Which type of identity should you use in Google Cloud?
Identity and Access Management role
Identity and Access Management user
Identity and Access Management service account
Identity and Access Management policy
2. In Azure, PowerShell can be used to script, automate, and manage the Windows workloads running on Azure Virtual Machines. You need to reimplement your scripts in Google Cloud. Which similar tool could you use to reimplement your scripts in Google Cloud?
Previous
Next
Discussion
Search
Start a conversation
5 posts
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Posted Thursday, December 14, 2023 by parru kavi
Azure Private Endpoint is NAT?
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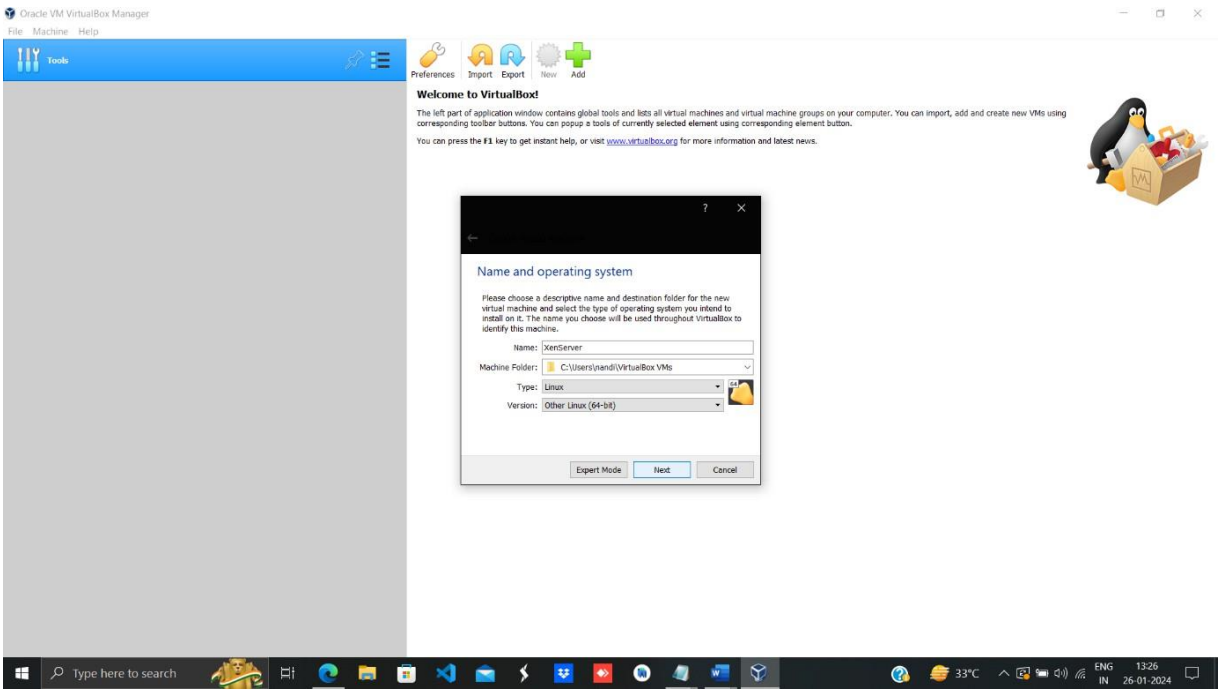
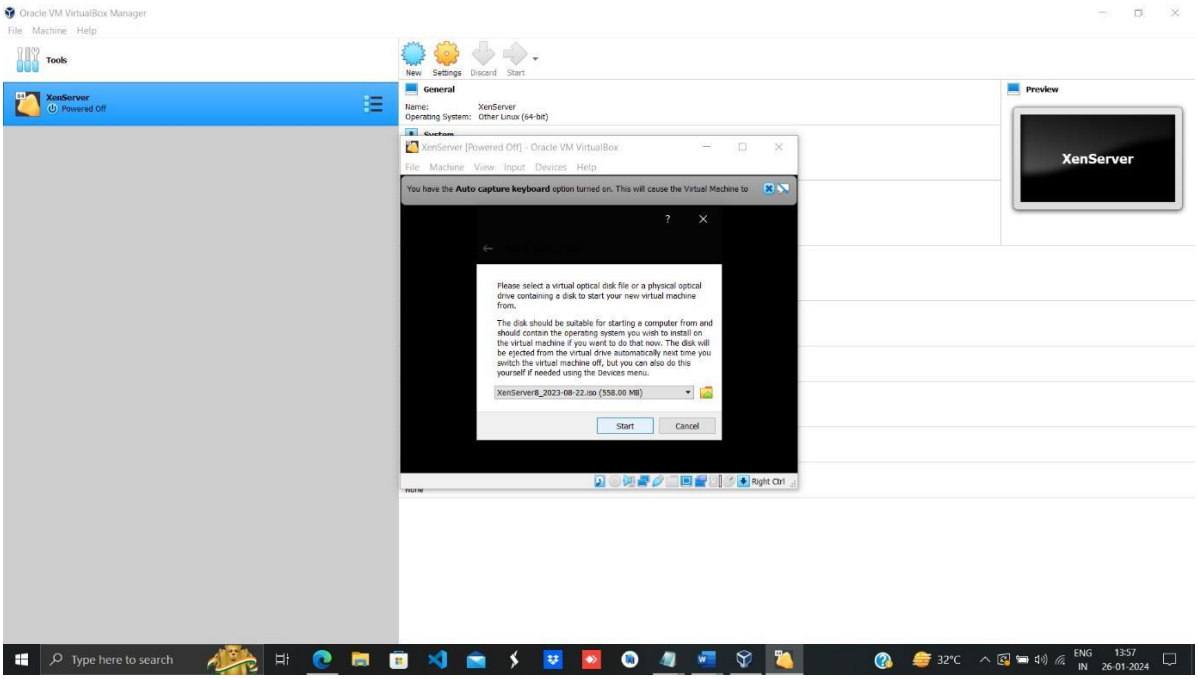
Google Cloud Directory Sync
Posted Monday, November 6, 2023 by Tahira Gull

Practical No. 6

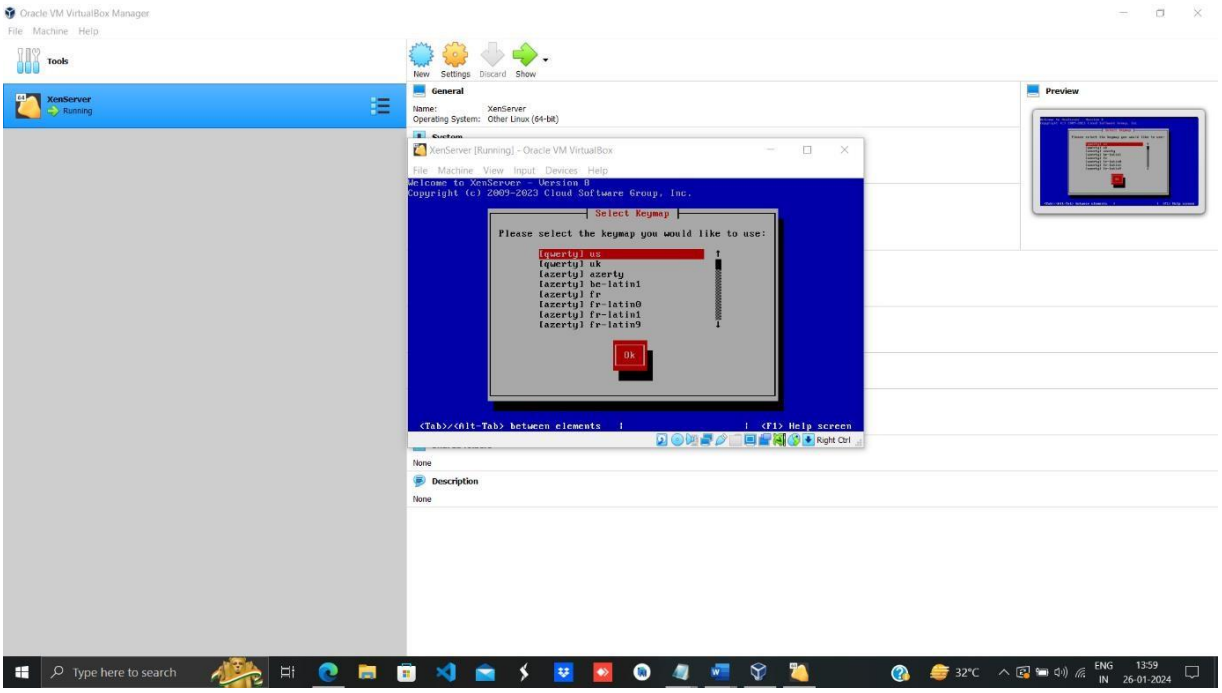
Step 1: Download the Citrix Hypervisor (XenServer) .iso file Download Launch Virtualbox Create a New VM by selecting New.
Name: XenServer
Machine Folder:
C:\VMs **Type:** Linux
Version: Other (64-bit)
Memory Size: 8192 MB
Hard disk: Create a virtual hard disk now



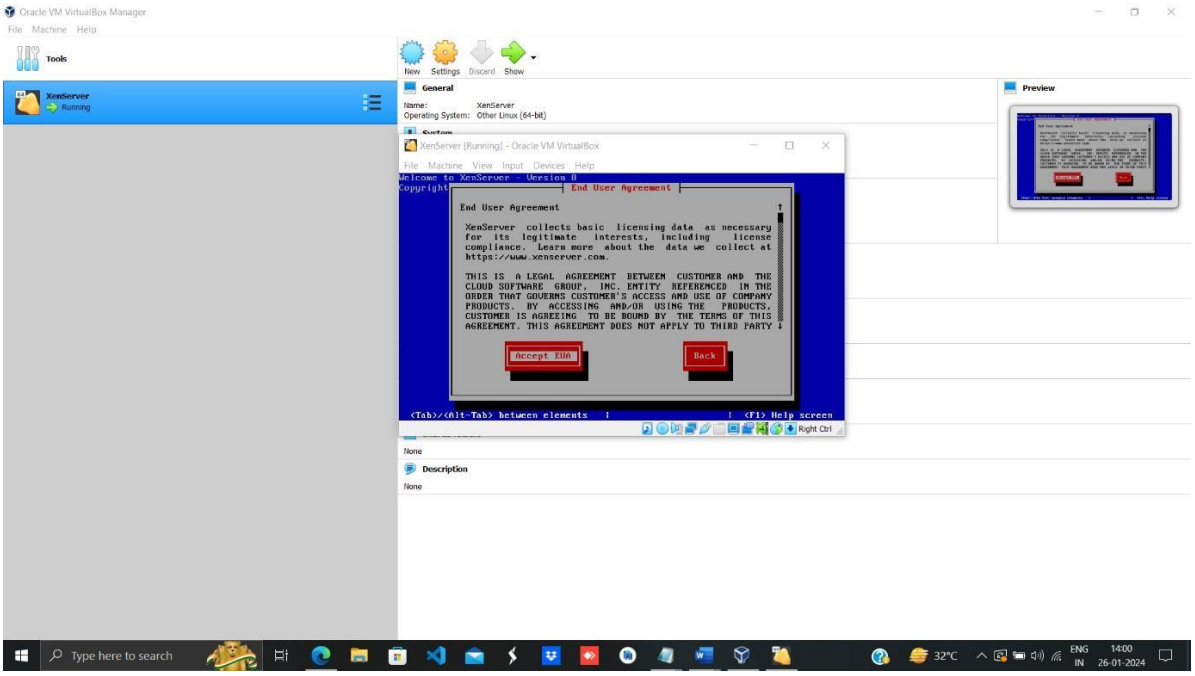
Step 2: Start the VM and select the XenServer iso file Start.



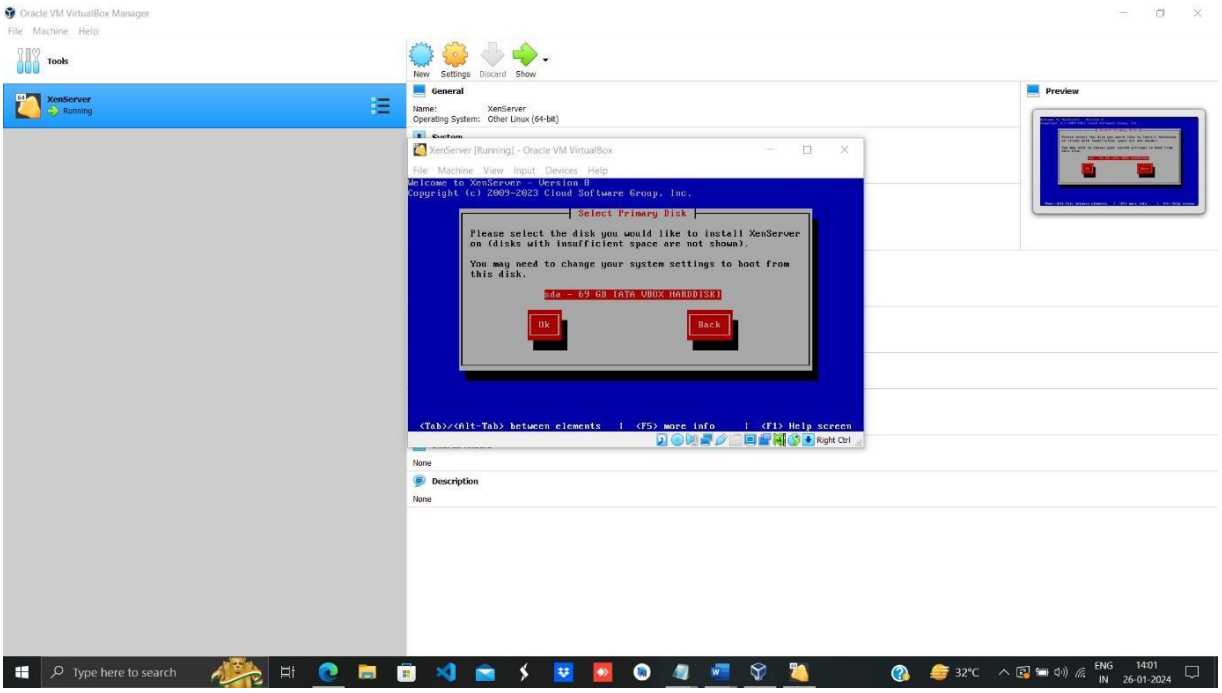
Step 3: Select Keymap (US) → Ok



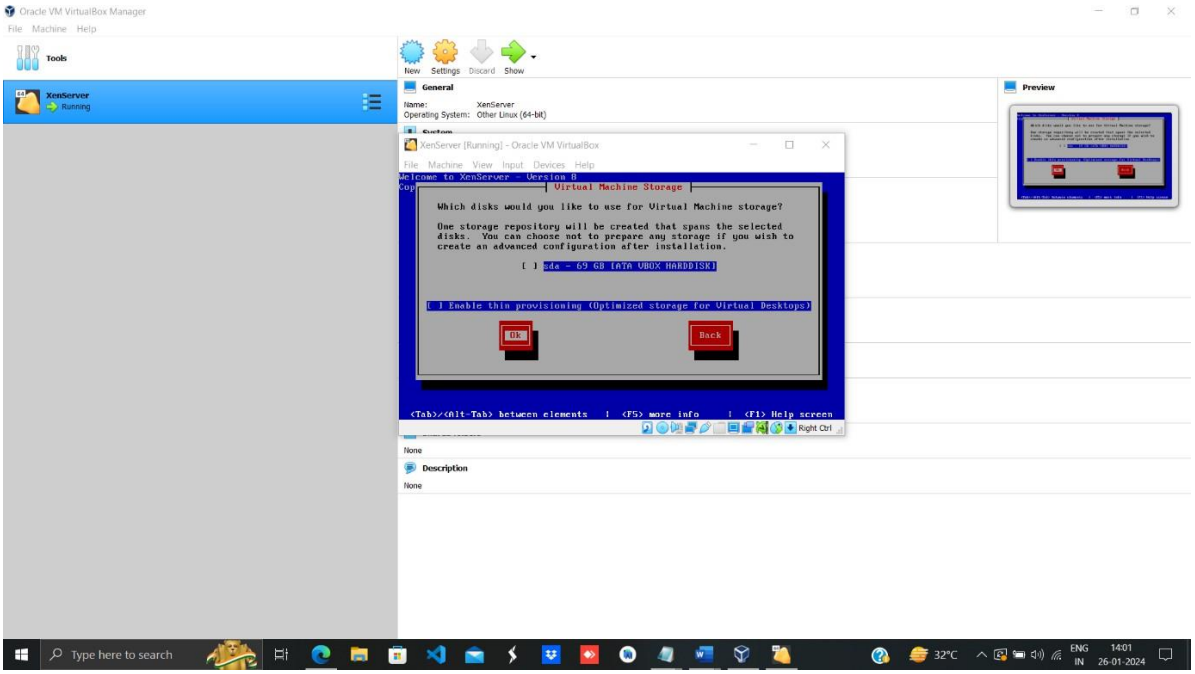
Step 4: Click on Accept EVA.



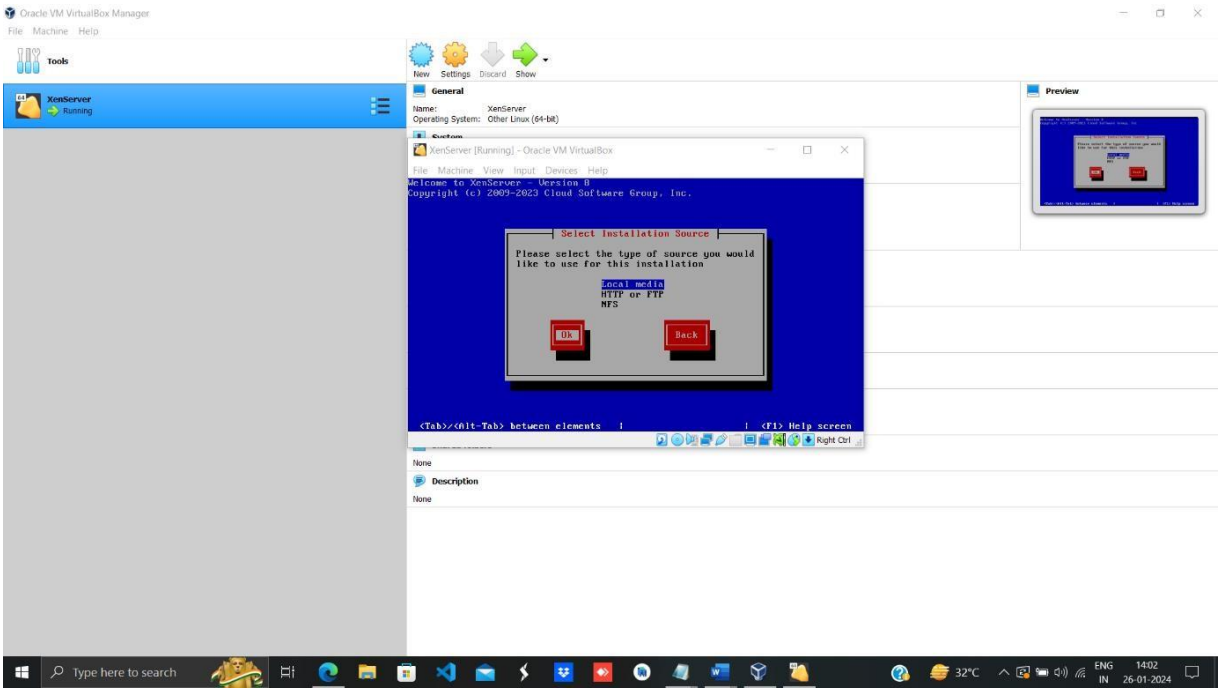
Step 5: Select Primary Disk → Ok.



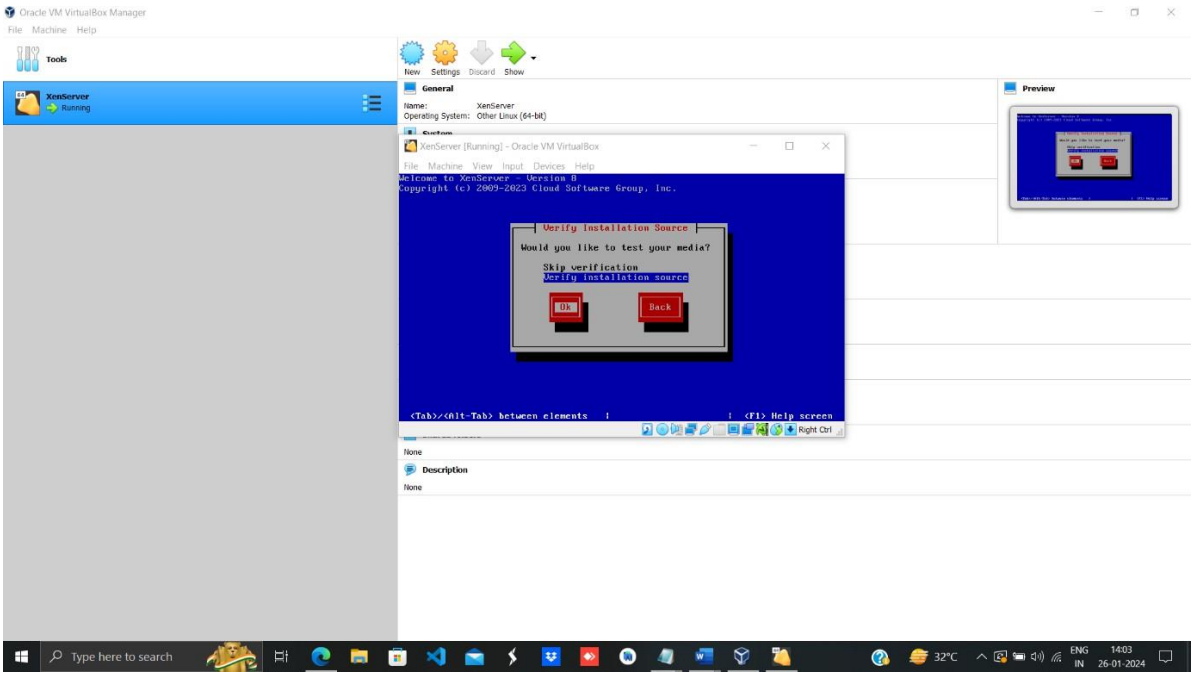
Step 6: Select virtual Machine Storage Ok.



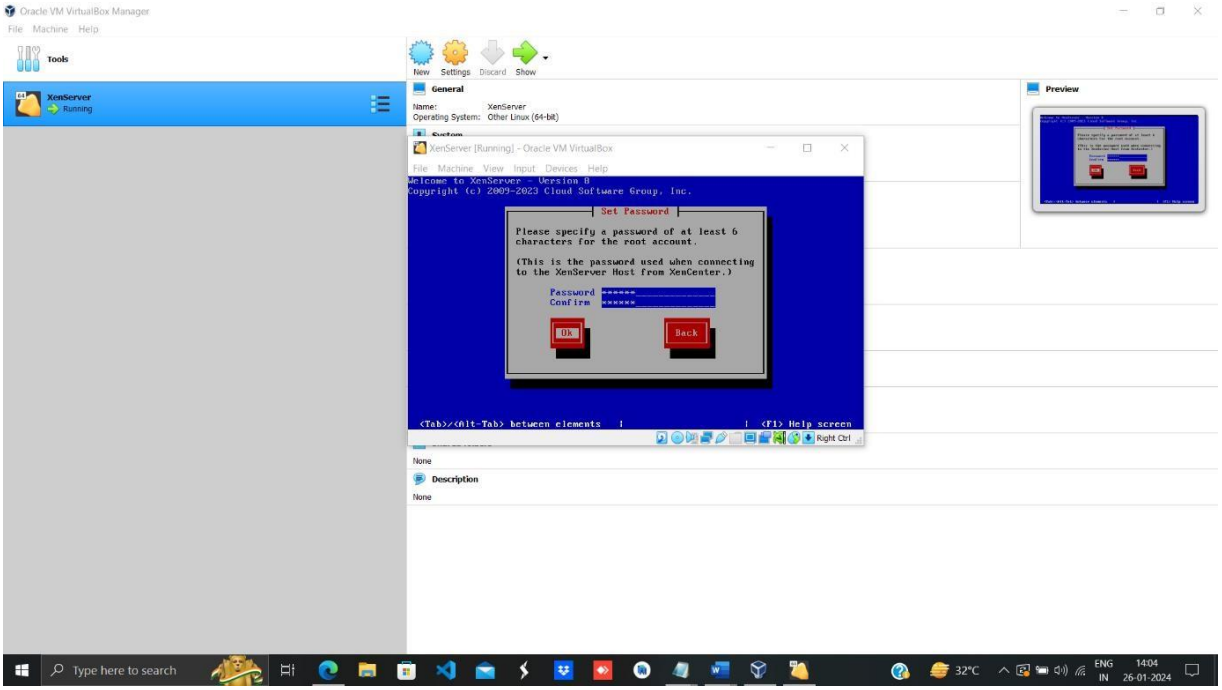
Step 7: Select installation Source → Ok.



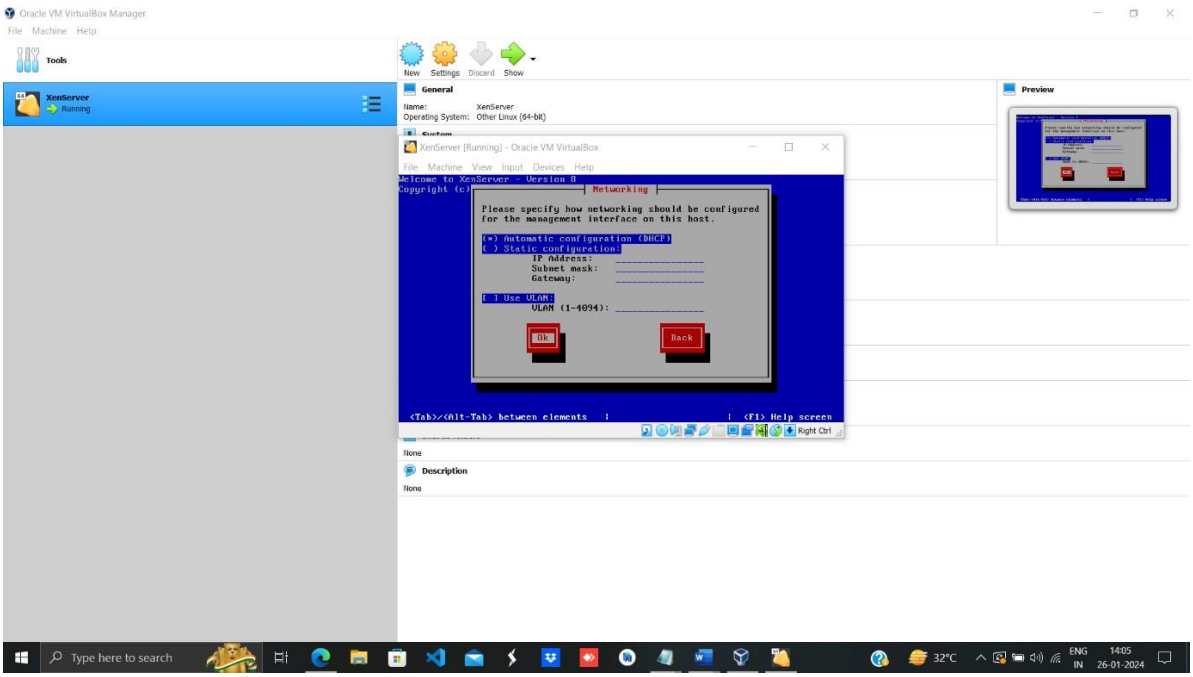
Step 8: Select installation source Ok.



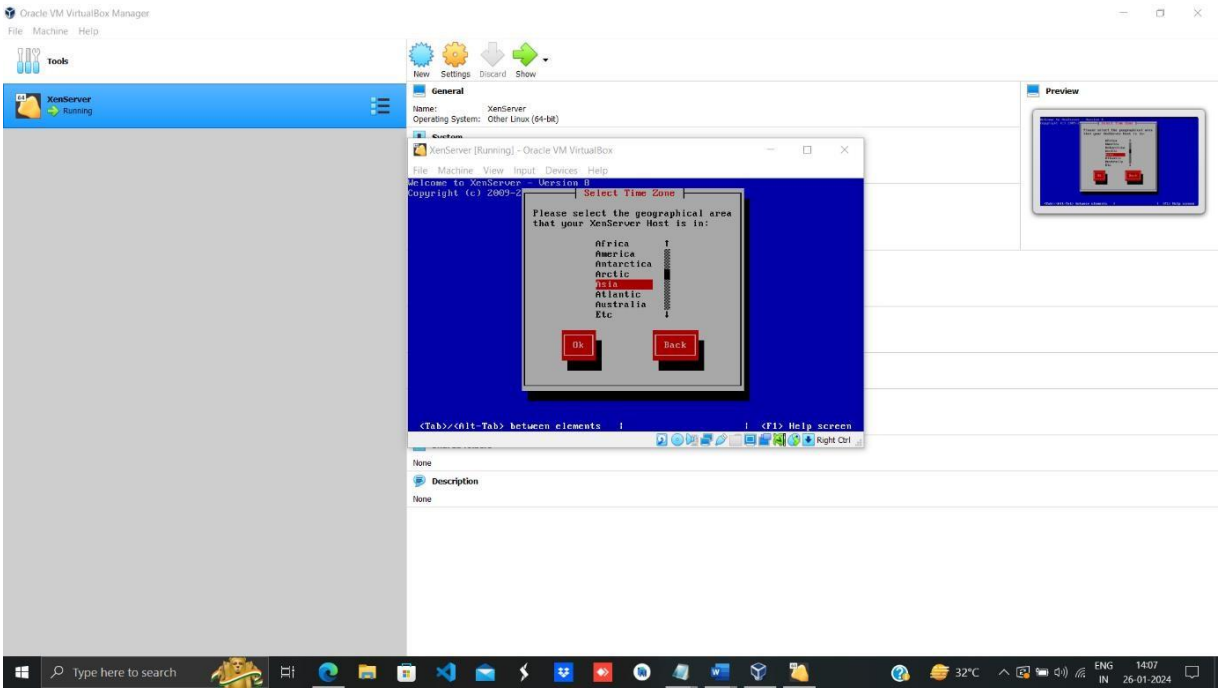
Step 9: Set the password as per your choice it should must contain at least 6 characters.



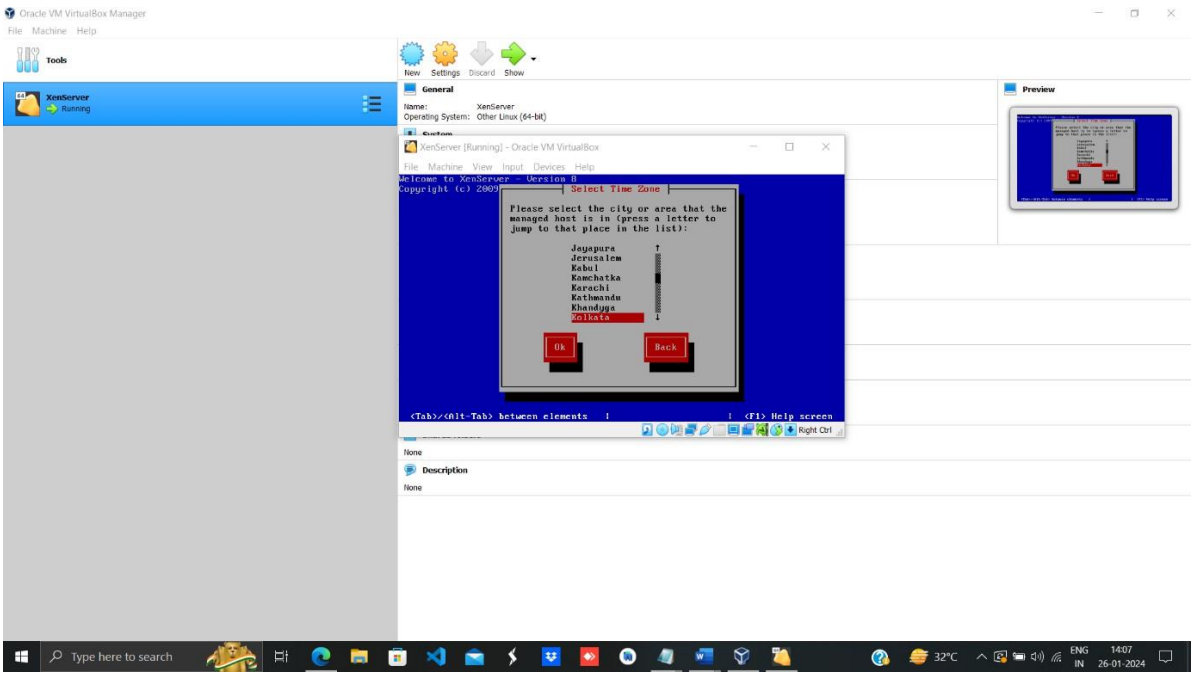
Step 10: Select Automatic Configuration and click on Ok.



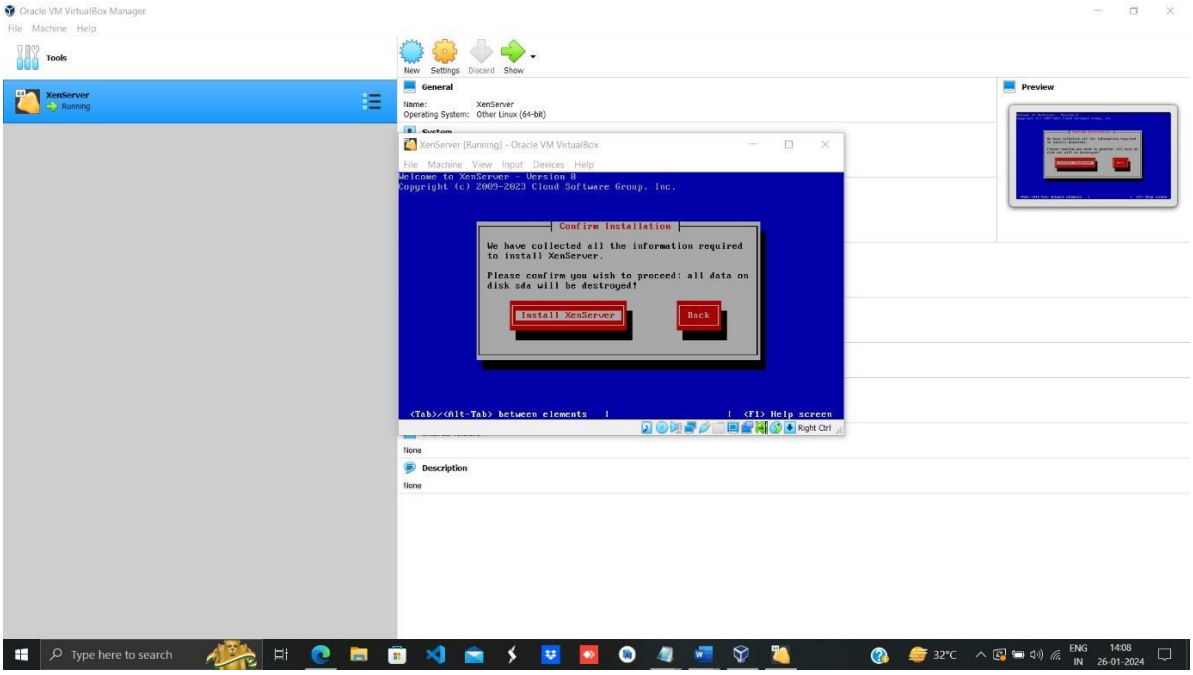
Step 11: Select Time Zone as Asia and click on ok.



Step 12: Select Kolkata and click on Ok.

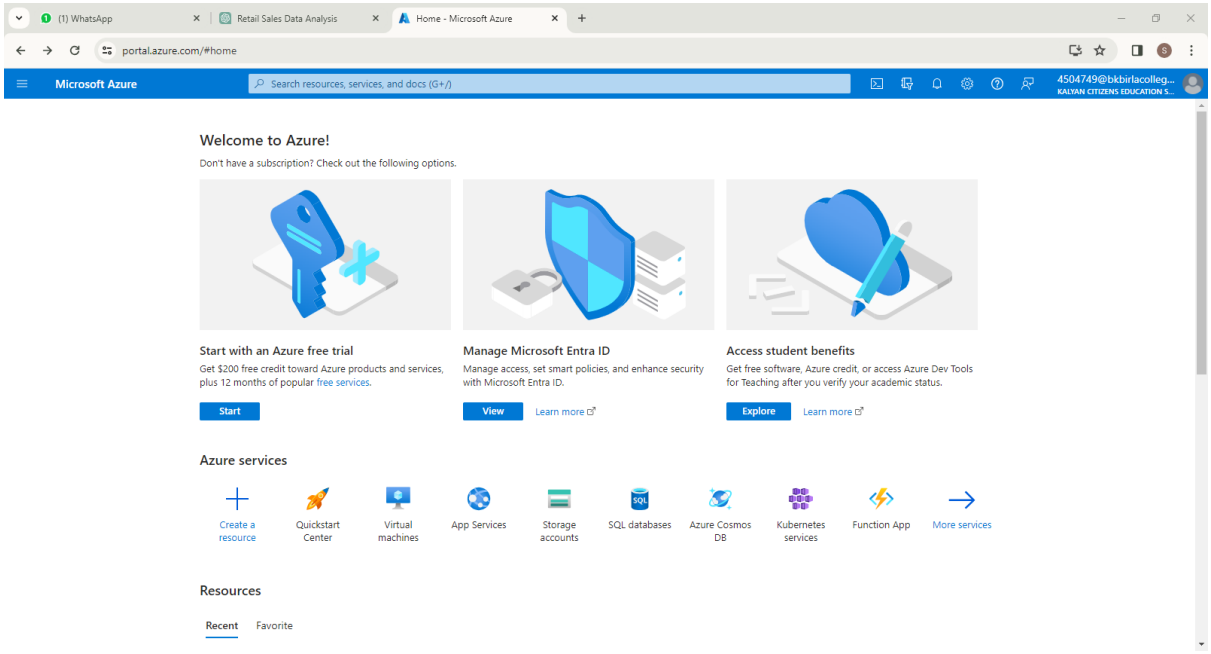


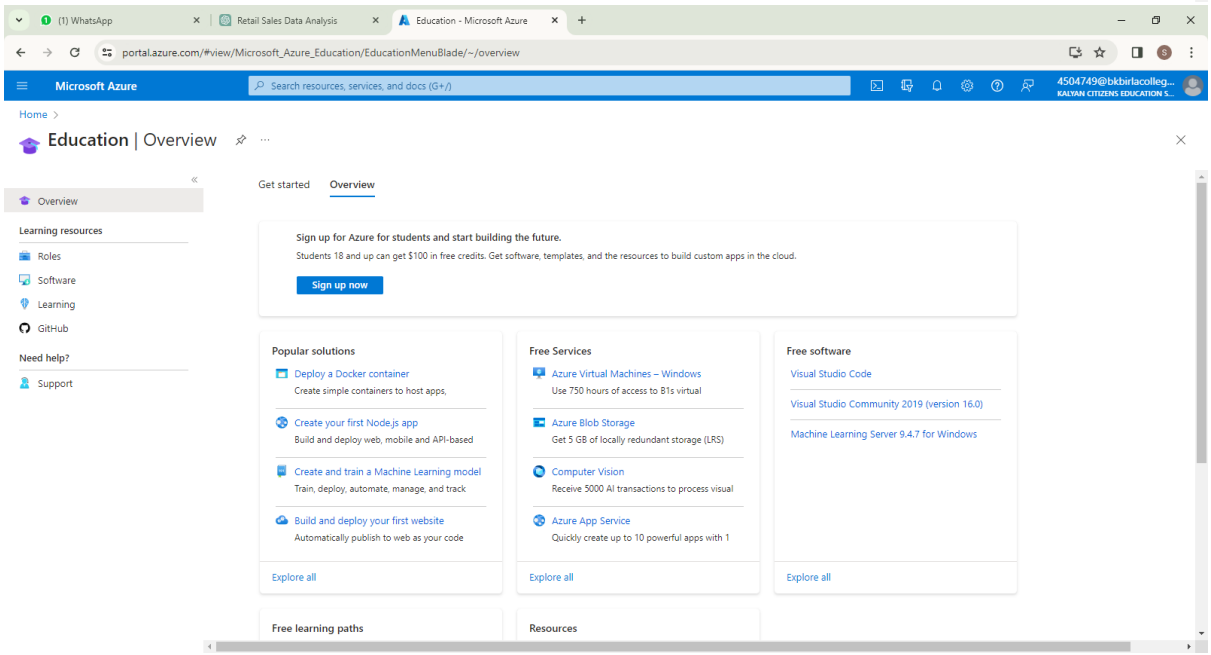
Step 13: Click on Install XenServer.

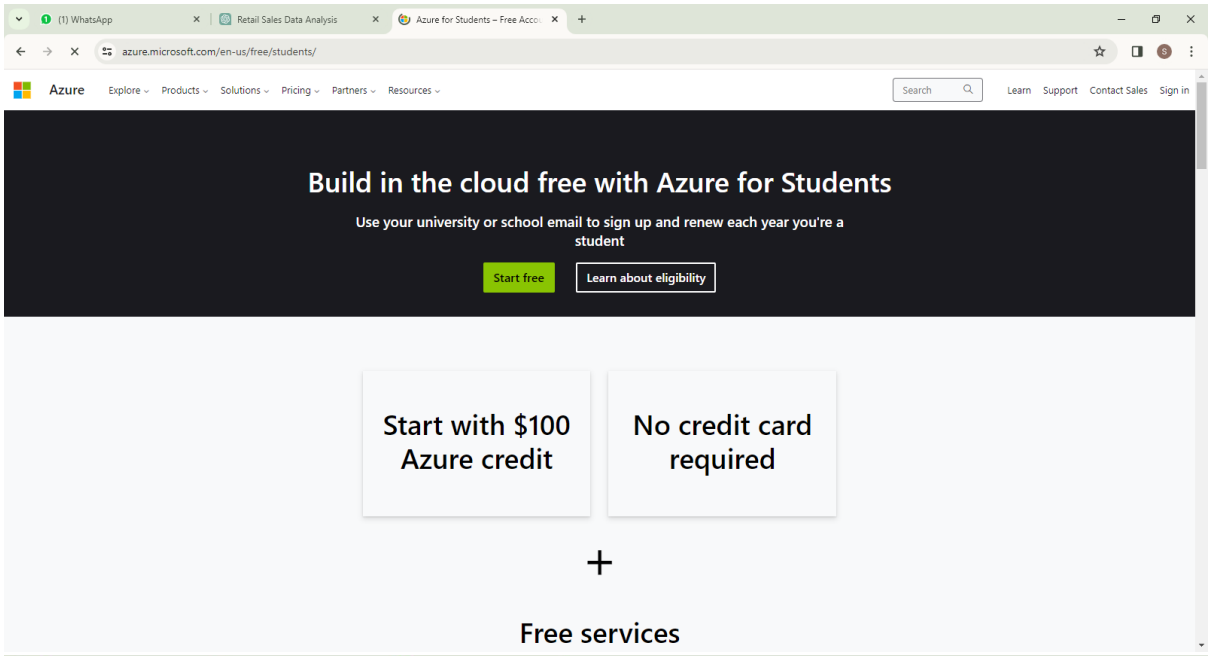


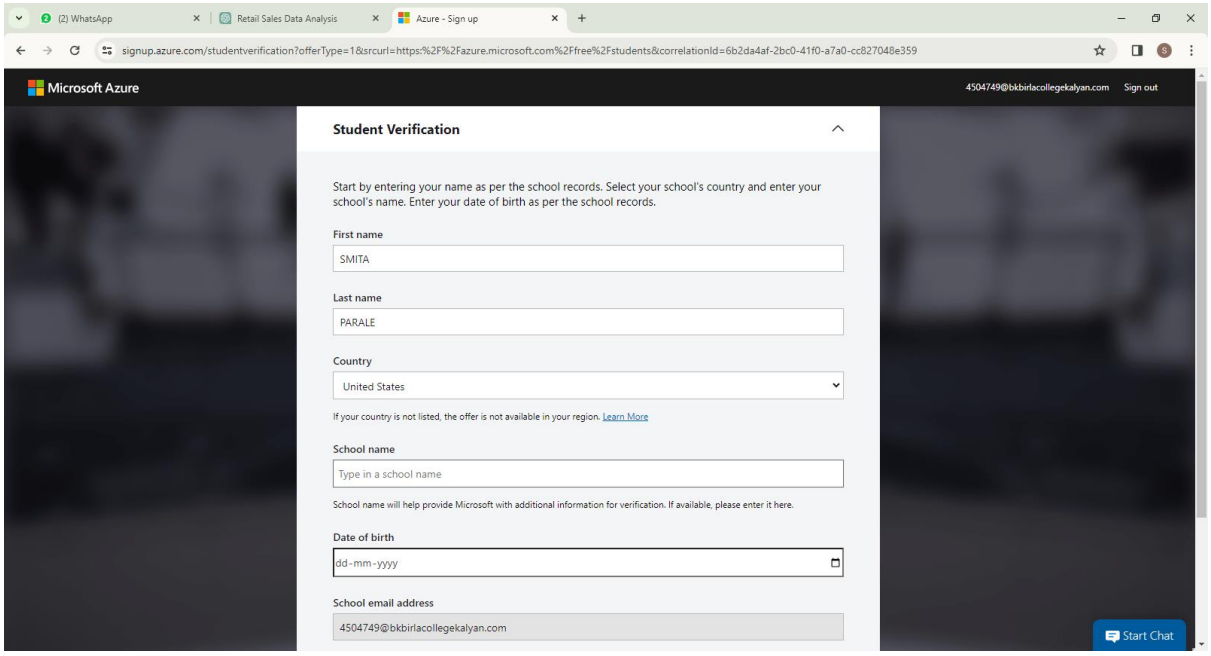
Practical No.7

Step 1: Visit https://portal.azure.com. Open your web browser and go to https://portal.azure.com. Login to Azure using Birla college email id Log in with your Birla college email credentials.

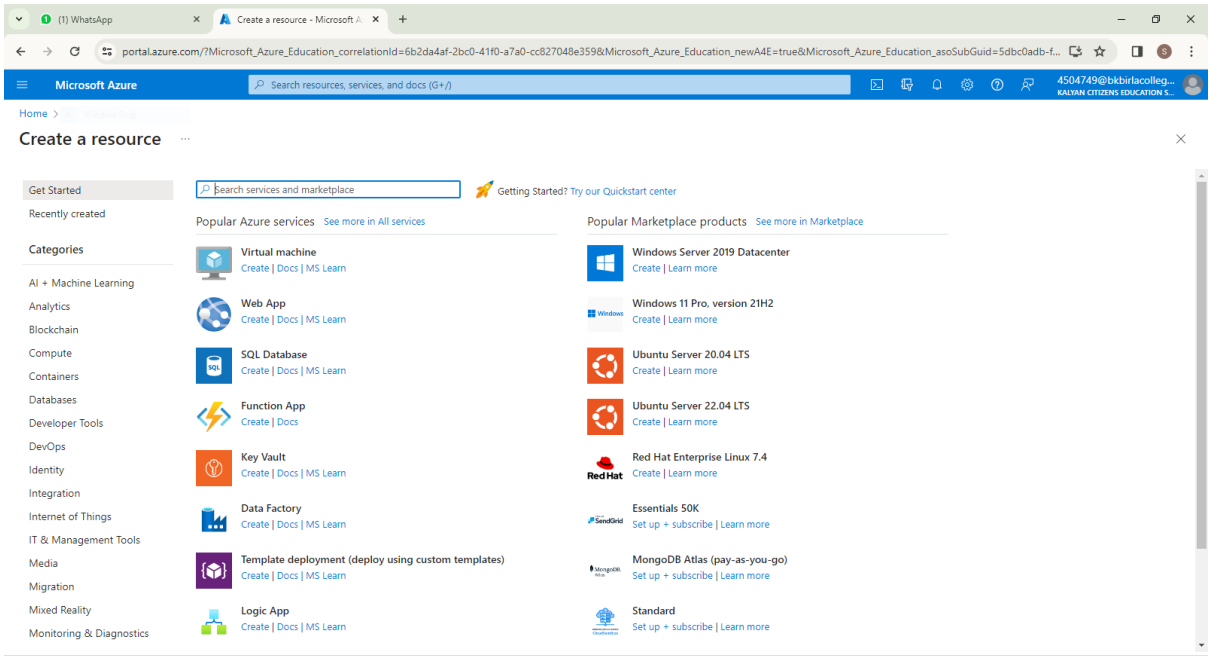


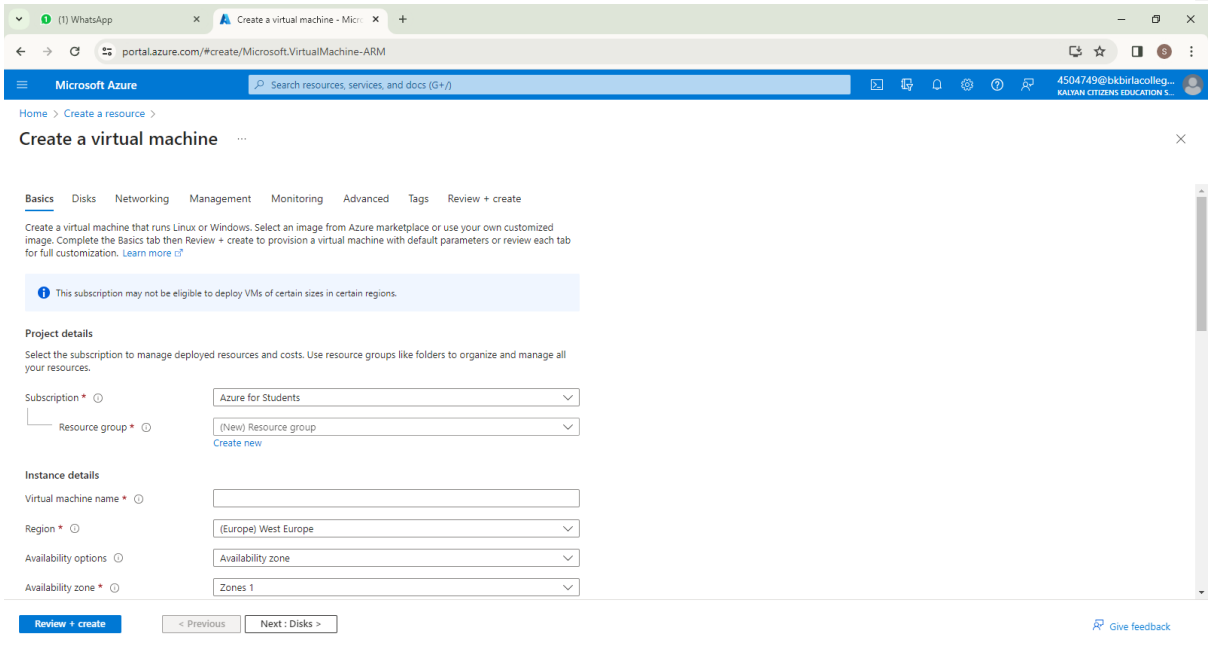


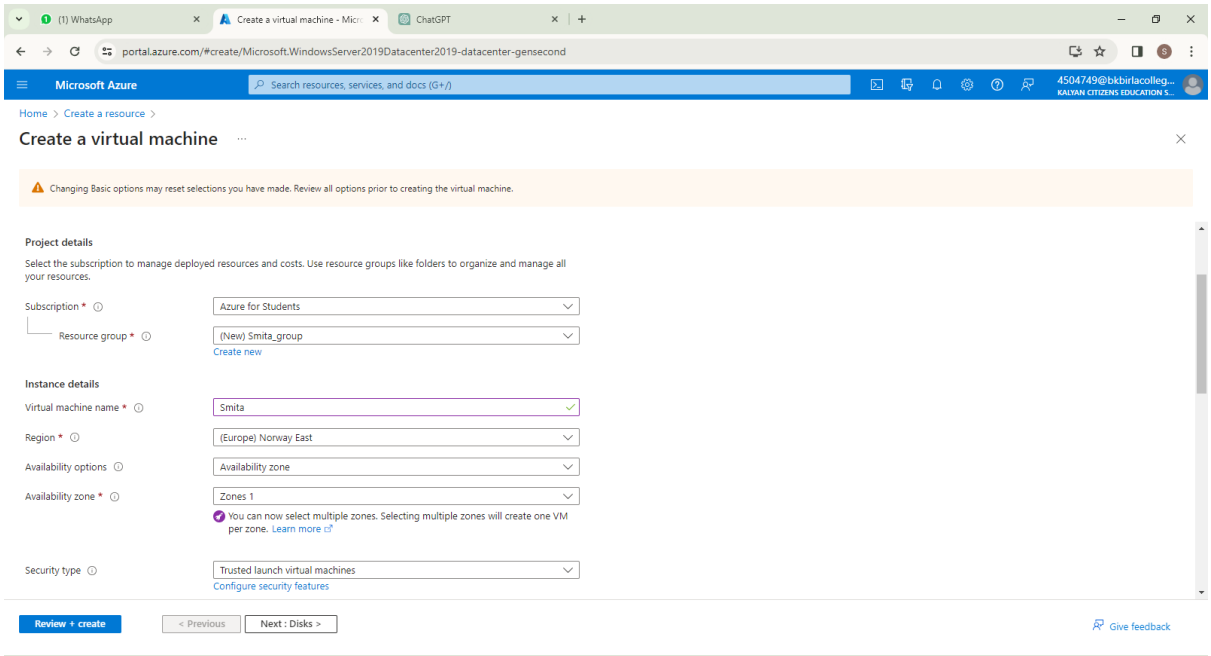

azure.microsoft.com/en-us/free/students/
Azure
Explore
Products
Solutions
Pricing
Partners
Resources
Search
Learn
Support
Contact Sales
Sign in
Build in the cloud free with Azure for Students
Use your university or school email to sign up and renew each year you're a student
Start free
Learn about eligibility
Start with $100 Azure credit
No credit card required
+
Free services

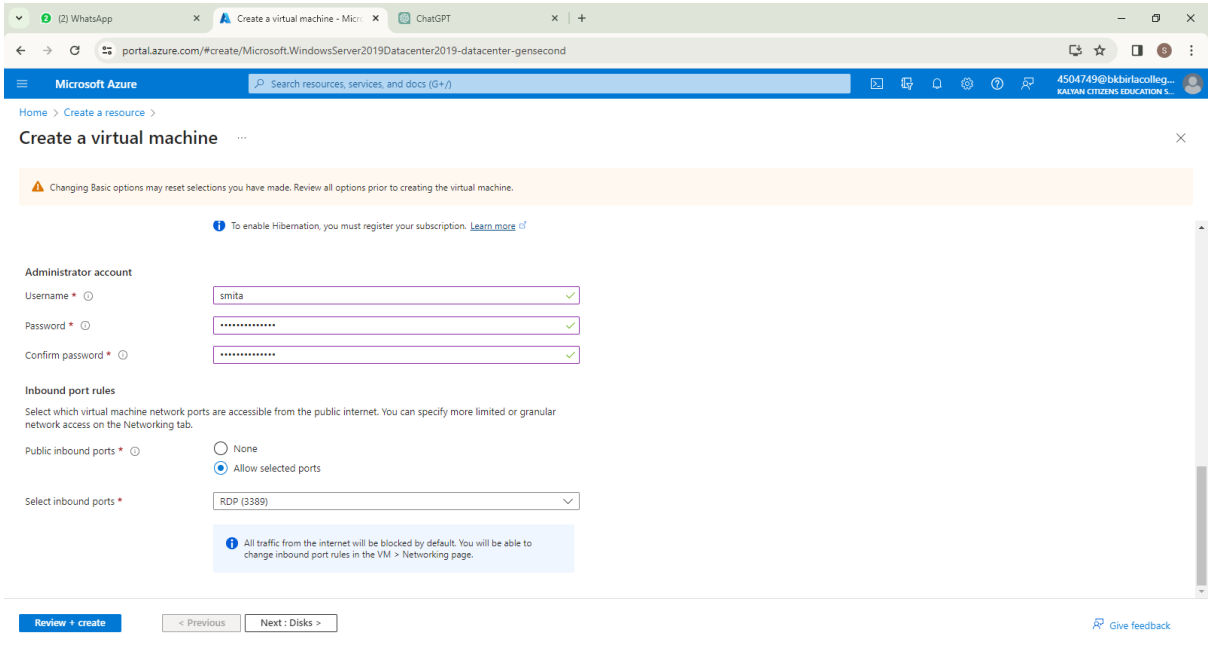

signup.azure.com/studentverification?offerType=1&srcurl=https%2F%2Fazure.microsoft.com%2Ffree%2Fstudents&correlationId=6b2da4af-2bc0-41f0-a7a0-cc827048e359
Microsoft Azure
4504749@bkbirlacollegekalyan.com
Sign out
Student Verification
Start by entering your name as per the school records. Select your school's country and enter your school's name. Enter your date of birth as per the school records.
First name
SMITA
Last name
PARALE
Country
United States
If your country is not listed, the offer is not available in your region. Learn More
School name
Type in a school name
School name will help provide Microsoft with additional information for verification. If available, please enter it here.
Date of birth
dd-mm-yyyy
School email address
4504749@bkbirlacollegekalyan.com
Start Chat

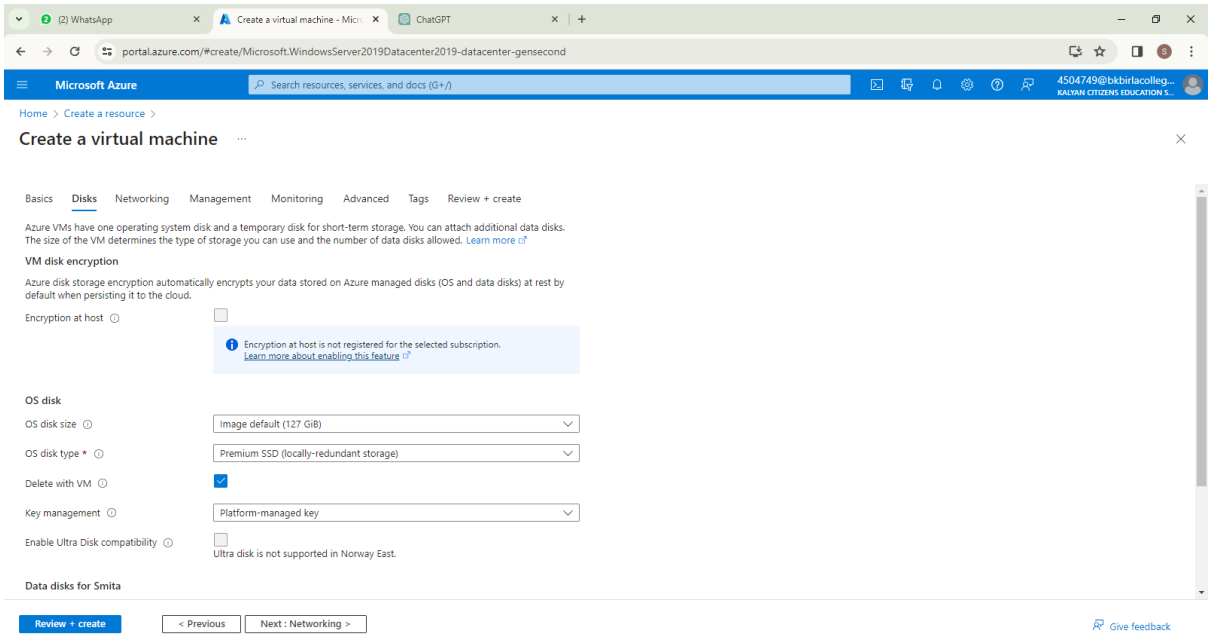
Step 2: Create Windows Server VM






(1) WhatsApp
Create a virtual machine - Micr
ChatGPT
portal.azure.com/#create/Microsoft.WindowsServer2019Datacenter2019-datacenter-gensecond
Microsoft Azure
Search resources, services, and docs (G+/)
4504749@bkbirlacolleg...
KALYAN CITIZENS EDUCATION S...
Home > Create a resource >
Create a virtual machine
Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Azure for Students
Resource group *
(New) Smita_group
Create new
Instance details
Virtual machine name *
Smita
Region *
(Europe) Norway East
Availability options
Availability zone
Availability zone *
Zones 1
You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more
Security type
Trusted launch virtual machines
Configure security features
Review + create
< Previous
Next : Disks >
Give feedback


(2) WhatsApp
Create a virtual machine - Micr
ChatGPT
portal.azure.com/#create/Microsoft.WindowsServer2019Datacenter2019-datacenter-gensecond
Microsoft Azure
Search resources, services, and docs (G+/)
4504749@bkbirlacolleg...
KALYAN CITIZENS EDUCATION S...
Home > Create a resource >
Create a virtual machine
Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.
To enable Hibernation, you must register your subscription. Learn more
Administrator account
Username *
smita
Password *
Confirm password *
Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports *
None
Allow selected ports
Select inbound ports *
RDP (3389)
All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.
Review + create
< Previous
Next : Disks >
Give feedback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Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. Learn more
VM disk encryption
Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.
Encryption at host
Encryption at host is not registered for the selected subscription.
Learn more about enabling this feature
OS disk
OS disk size
Image default (127 GiB)
OS disk type *
Premium SSD (locally-redundant storage)
Delete with VM
Key management
Platform-managed key
Enable Ultra Disk compatibility
Ultra disk is not supported in Norway East.
Data disks for Smita
Review + create
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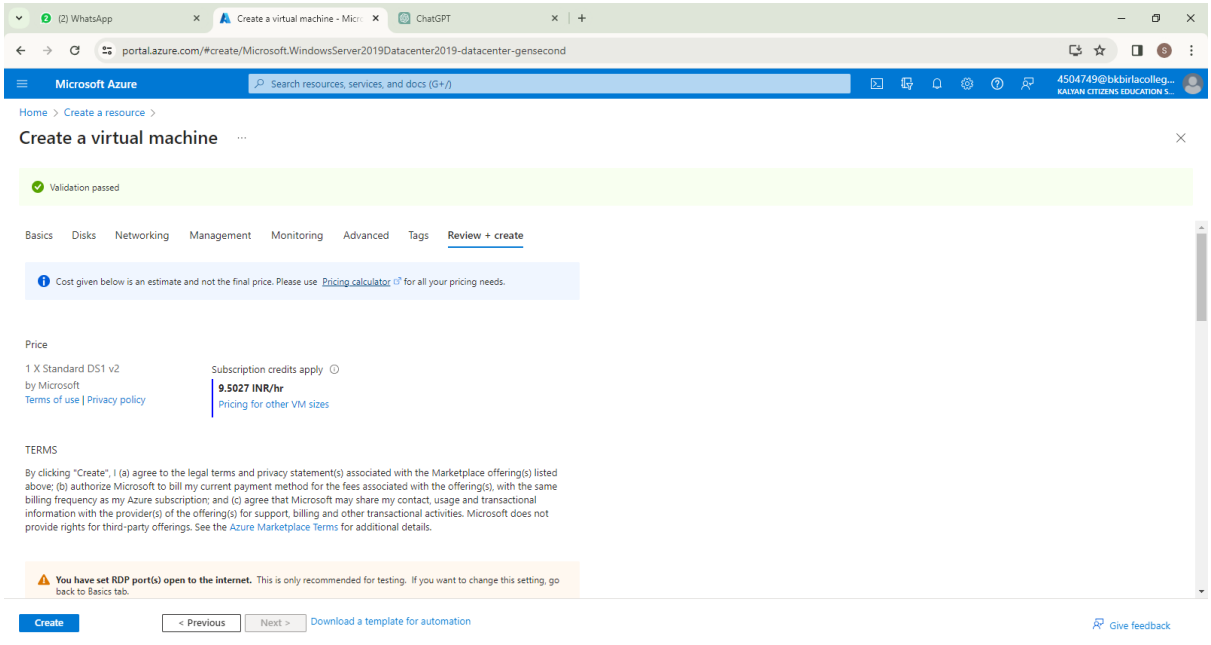
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Cost given below is an estimate and not the final price. Please use Pricing calculator for all your pricing needs.
Price
1 X Standard DS1 v2
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9.5027 INR/hr
Pricing for other VM sizes
TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the Azure Marketplace Terms for additional details.
You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.
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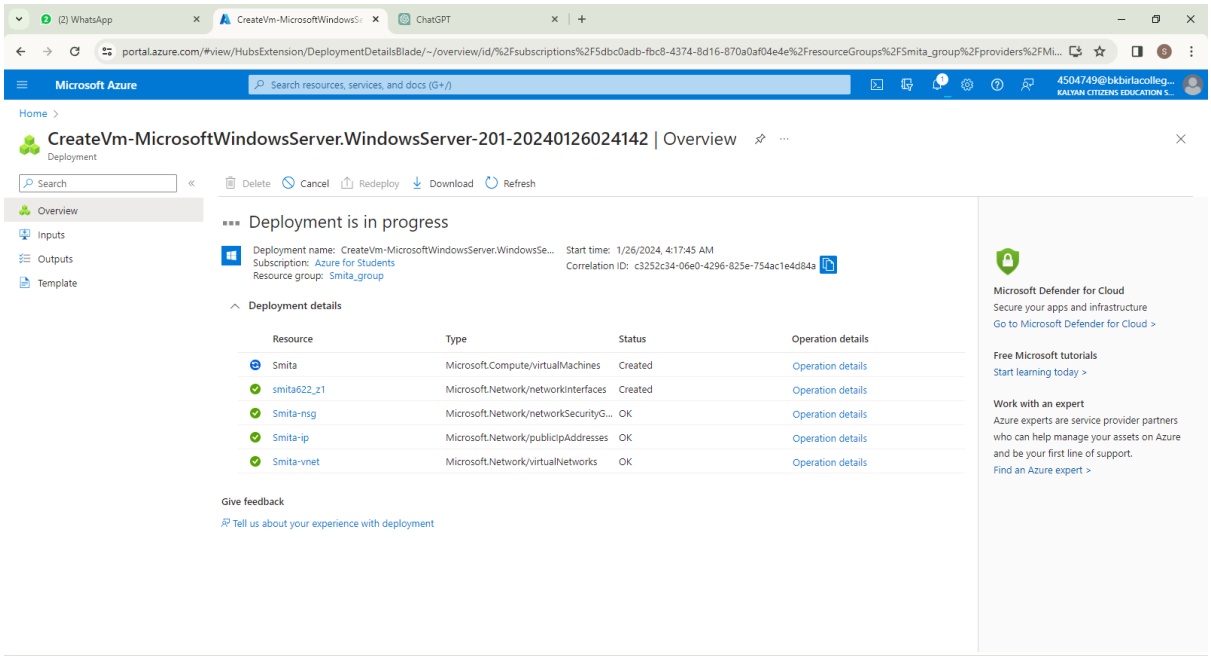
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CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240126024142 | Overview
Deployment
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Outputs
Template
Delete
Cancel
Redeploy
Download
Refresh
Deployment is in progress
Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe...
Subscription: Azure for Students
Resource group: Smita_group
Start time: 1/26/2024, 4:17:45 AM
Correlation ID: c3252c34-06e0-4296-825e-754ac1e4d84a
Deployment details
Resource
Type
Status
Operation details
Smita
Microsoft.Compute/virtualMachines
Created
Operation details
smita622_z1
Microsoft.Network/networkInterfaces
Created
Operation details
Smita-nsg
Microsoft.Network/networkSecurityG...
OK
Operation details
Smita-ip
Microsoft.Network/publicIpAddresses
OK
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Smita-vnet
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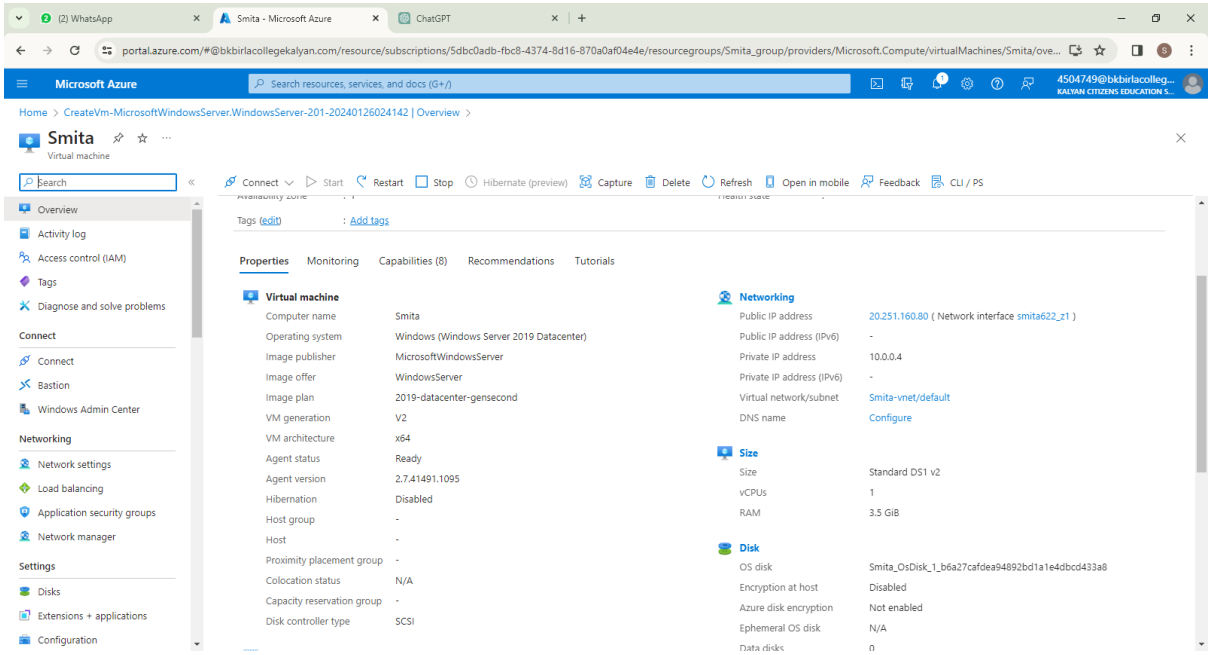
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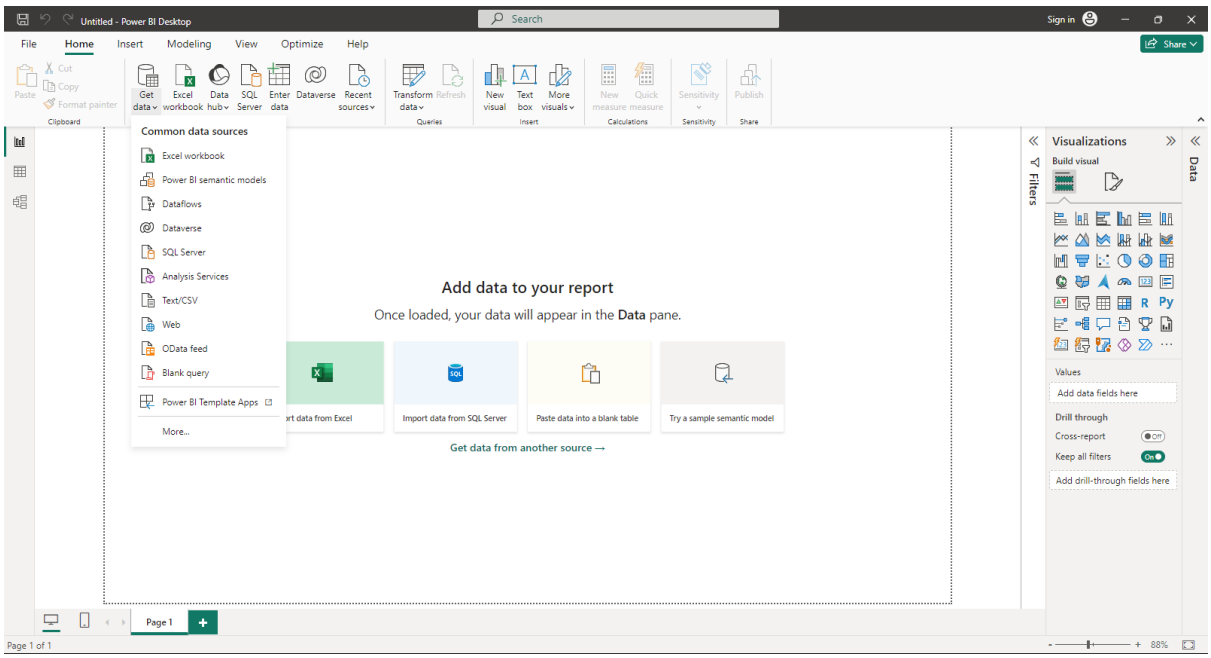
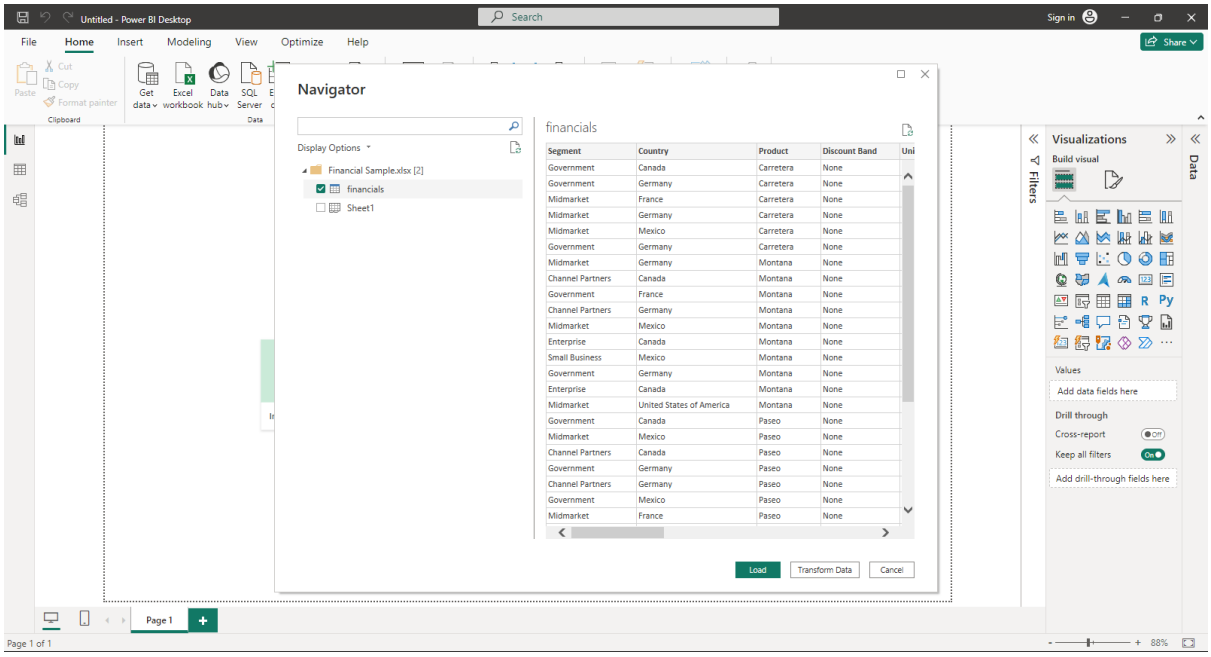
Connect
Connect
Bastion
Windows Admin Center
Networking
Network settings
Load balancing
Application security groups
Network manager
Settings
Disks
Extensions + applications
Configuration
Connect
Start
Restart
Stop
Hibernate (preview)
Capture
Delete
Refresh
Open in mobile
Feedback
CLI / PS
Tags (edit)
Add tags
Properties
Monitoring
Capabilities (8)
Recommendations
Tutorials
Virtual machine
Computer name
Smita
Operating system
Windows (Windows Server 2019 Datacenter)
Image publisher
MicrosoftWindowsServer
Image offer
WindowsServer
Image plan
2019-datacenter-gensecond
VM generation
V2
VM architecture
x64
Agent status
Ready
Agent version
2.7.41491.1095
Hibernation
Disabled
Host group
-
Host
-
Proximity placement group
-
Colocation status
N/A
Capacity reservation group
-
Disk controller type
SCSI
Networking
Public IP address
20.251.160.80 (Network interface smita622_z1)
Public IP address (IPv6)
-
Private IP address
10.0.0.4
Private IP address (IPv6)
-
Virtual network/subnet
Smita-vnet/default
DNS name
Configure
Size
Size
Standard DS1 v2
vCPUs
1
RAM
3.5 GiB
Disk
OS disk
Smita_OsDisk_1_b6a27cafdea94892bd1a1e4dbcd433a8
Encryption at host
Disabled
Azure disk encryption
Not enabled
Ephemeral OS disk
N/A

Practical No.8

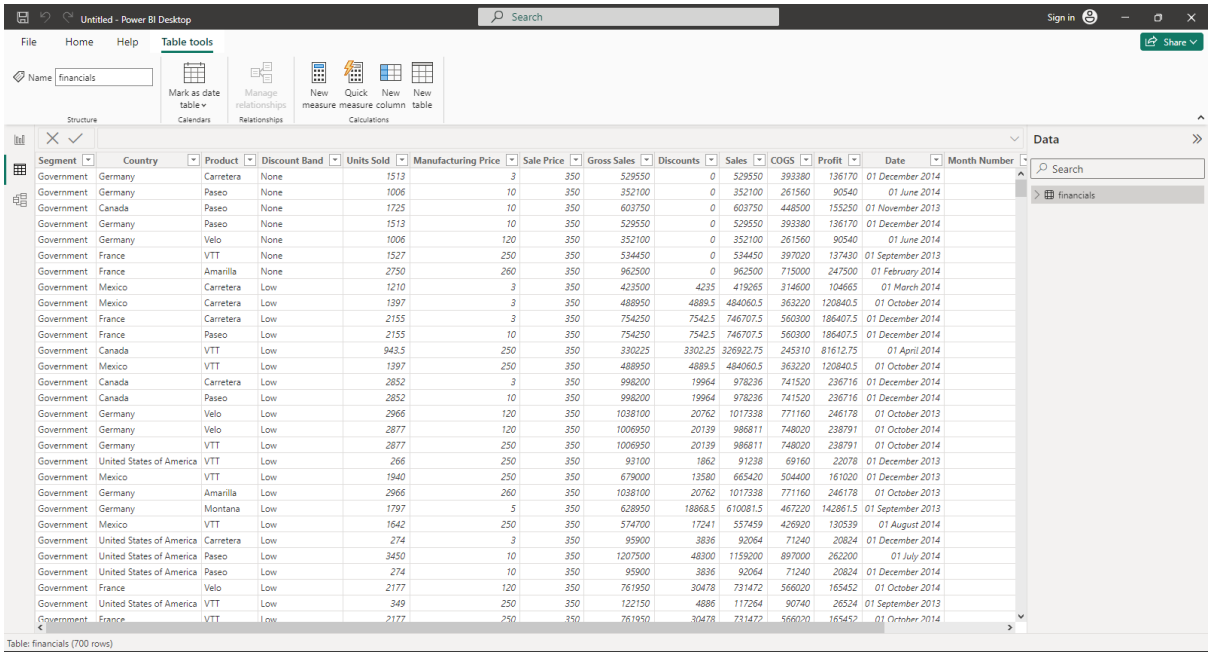
Step1: Open Power BI Desktop. In the Home tab, click on the "Get Data" option. Choose the type of data source you want to connect to. Common options include Excel, CSV.



Step2: Click "Transform Data" if you need to make adjustments in Power Query Editor. Click the "Close & Apply" button to load the data into Power BI.



Step3: Once loaded, you'll see the data fields in the Fields pane on the right side of the Power BI window. Now, your dataset is loaded into Power BI, and you can start creating visualizations, reports, and dashboards with the imported data.



Step4: Go to the "Visualizations" pane on the right side. Drag and drop fields from your dataset into the "Fields" pane to create visualizations.

Here, 10 quetsion are cretaed based on dataset to show the visualizations

1. **What is the overall sales trend over time?**
   "Gross Sales Trend": Line chart showing gross sales.

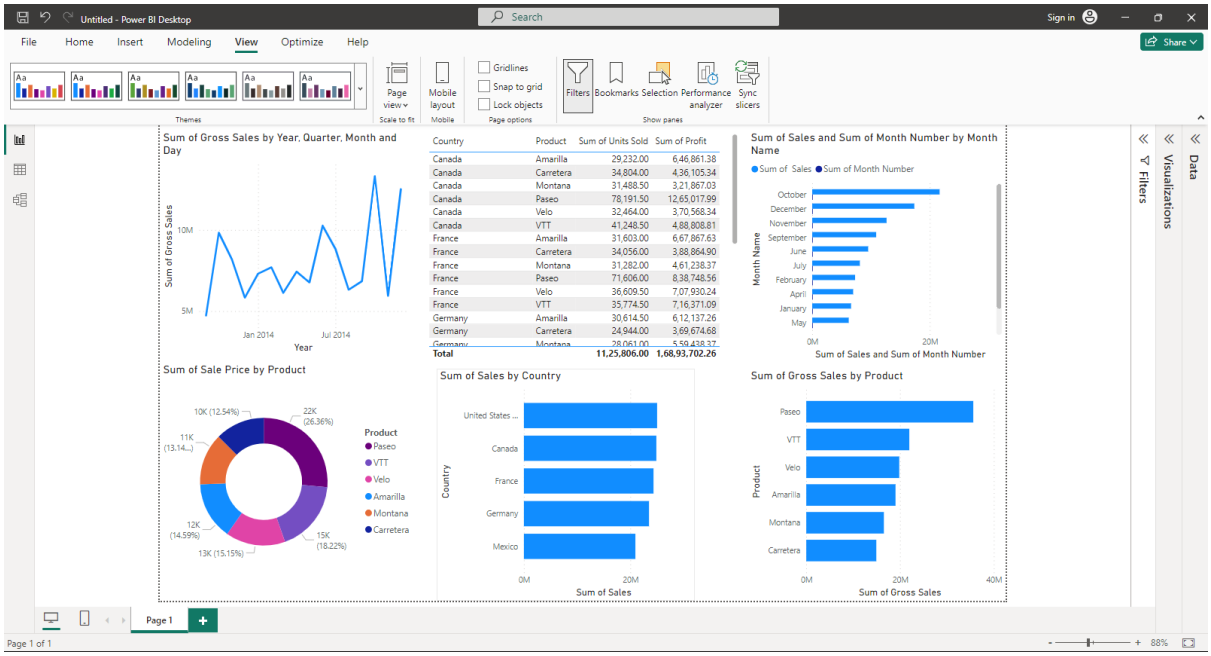
2. **Which product category contributes the most to total sales?**
   "Product Category Contribution": Donut chart depicting the percentage contribution of each product category.

3. **Who are the top customers based on purchase amount?**
   "Top Customers and Their Purchases": Donut chart depicting the percentage contribution of each product category.

4. **What is the distribution of sales across different countries?**
   "Regional Sales Distribution": Map visualization or stacked bar chart showing sales by country.

5. **Which month had the highest sales?**
   "Highest Sales Month Analysis": Bar chart highlighting sales for each month.

6. **What is the average gross value?**
   "Average Gross Value Overview": Bar Chart visualization displaying the average gross value.



7. **How does product vary by sales prices?**
   "Sales prices Analysis": Waterfall chart showing sales prices for each product.

8. **Which product category shows the high discount?**
   "Product discount Distribution": Pie chart showing the discount percentage of product based on the region.

9. **What is the correlation between sum of discounts and product category?**
   "Discounts vs. Product Correlation": Scatter plot showing the correlation between of discount and product category.

10. **What is the distribution of sales by time period?**
    "Sales Distribution": Ribbon chart to visualize the distribution of sales by time period.