

Name : Gokul Leburu
Official mail : gokul.leburu@bajajfinserv.in
Batch2
Trainer name : meghana

Case Study - 5th Feb Dec 2021:

Global-tech incorporation is leading Biotech & Medical distribution company, has decided to migrate their data warehouse (around volume of 300TB uncompressed) to Cloud. Also, this organization has decided to migrate all downstream applications to Azure. Since its COVID – pandemic situation, hence its critical time & ETA is very less, the whole migration had to happen seamlessly, Using Azure cloud Service – we have to develop solutions for Global-tech. and migration activity to be performed.

Cases: -

1. Create new Azure VM Instance (instance name: globetechvm231) & install docker into it, explain all steps with screenshots

Sol:

1-select virtual machines services in azure services

The screenshot shows the Microsoft Azure portal homepage. At the top, there is a search bar and a user profile icon. Below the search bar, there is a navigation bar with various service icons: Create a resource, Virtual machines (which is highlighted in yellow), Kubernetes services, Storage accounts, App Services, Azure Databricks, Data factories, Subscriptions, Quickstart Center, and All services. Under the 'Virtual machines' icon, there is a sub-menu with options: 'Create a VM', 'Compute', 'Virtual machine scale sets', 'Virtual machinealleries', and 'Virtual machine sizes'. In the center of the page, there is a 'Navigate' section with links to Subscriptions, Resource groups, All resources, and Dashboard. Below that is a 'Tools' section with links to Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management. At the bottom, there is a 'Useful links' section with links to Technical Documentation, Azure Services, Recent Azure Updates, and Azure mobile app download links for the App Store and Google Play.

2-Create a virtual machine in create option

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes tabs for 'Subscription Details | Nuvapro', 'Virtual machines - Microsoft Azure', '(2) WhatsApp', and 'General (BFL-Data Track_Batch 2)'. The main title is 'Virtual machines' with a 'Create' button. Below the title, there are filters for 'Subscription == all', 'Resource group == all', and 'Location == all'. A search bar and a 'List view' button are also present. The main content area displays a message: 'No virtual machines to display. Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.' It includes links to 'Learn more about Windows virtual machines' and 'Learn more about Linux virtual machines'.

3-create a virtual machine with resource group as rscgrp ,machine name globetechvm231, image ubuntu and select SSH key for the session.

The screenshot shows the 'Create a virtual machine' wizard on the 'Basics' tab. The top navigation bar includes tabs for 'Virtual machines' and 'Create'. The main title is 'Create a virtual machine' with a 'Review + create' button. The 'Basics' tab is selected. The 'Project details' section shows a subscription of 'unextazurebaja155' and a resource group of '(New) gokul'. The 'Instance details' section includes fields for 'Virtual machine name' (set to 'globetechvm231'), 'Region' (set to '(US) East US'), 'Availability options' (set to 'No infrastructure redundancy required'), 'Security type' (set to 'Standard'), and 'Image' (set to 'Ubuntu Server 20.04 LTS - Gen2'). Navigation buttons at the bottom include 'Review + create', '< Previous', and 'Next : Disks >'.

Create a virtual machine

Administrator account

Authentication type (i)

SSH public key

Password

i Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username * (i)

azureuser



SSH public key source

Generate new key pair



Key pair name * (i)

globetechvm231_key



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 * (i)

None

Allow selected ports

Select inbound ports *

SSH (22)



⚠ This will allow all IP addresses to access your virtual machine. This is only

Review + create

< Previous

Next : Disks >

4-Create and review:

Microsoft Azure Search resources, services, and docs (G+)

Home > Virtual machines > Unetbajaj 164356958... MANIPAL PRO LEARN (MANIPAL)

Virtual machines + Create Switch to classic

No virtual machines to display

Create a virtual machine ...

✓ Validation passed

Basics

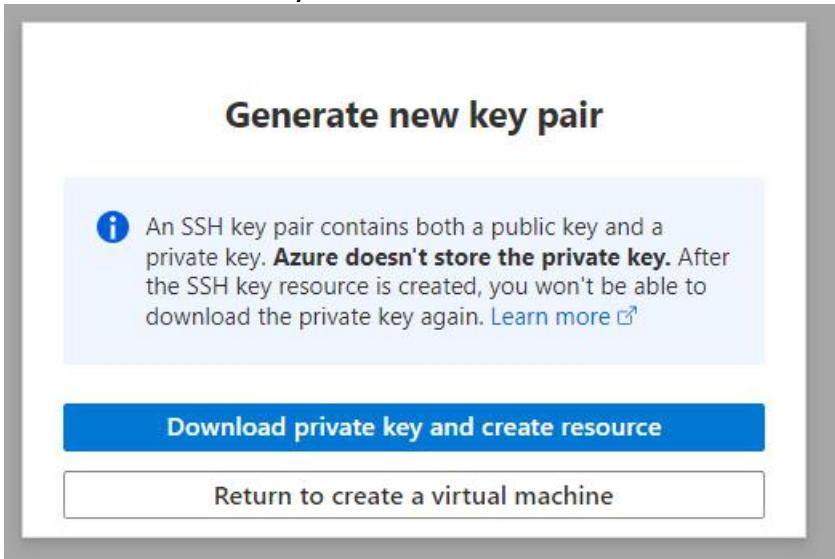
Subscription	unetbajaj155 (new) gokul
Resource group	globetechvm231
Virtual machine name	East US
Region	No infrastructure redundancy required
Availability options	Standard
Security type	Ubuntu Server 20.04 LTS - Gen2
Image	Standard D2s v3 (2 vcpus, 8 GiB memory)
Size	SSH public key
Authentication type	azuser
Username	globetechvm231_key
Key pair name	SSH
Public inbound ports	Azure Spot
Azure Spot	No

Disks

OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled

Create < Previous Next > Download a template for automation

5-Download the key



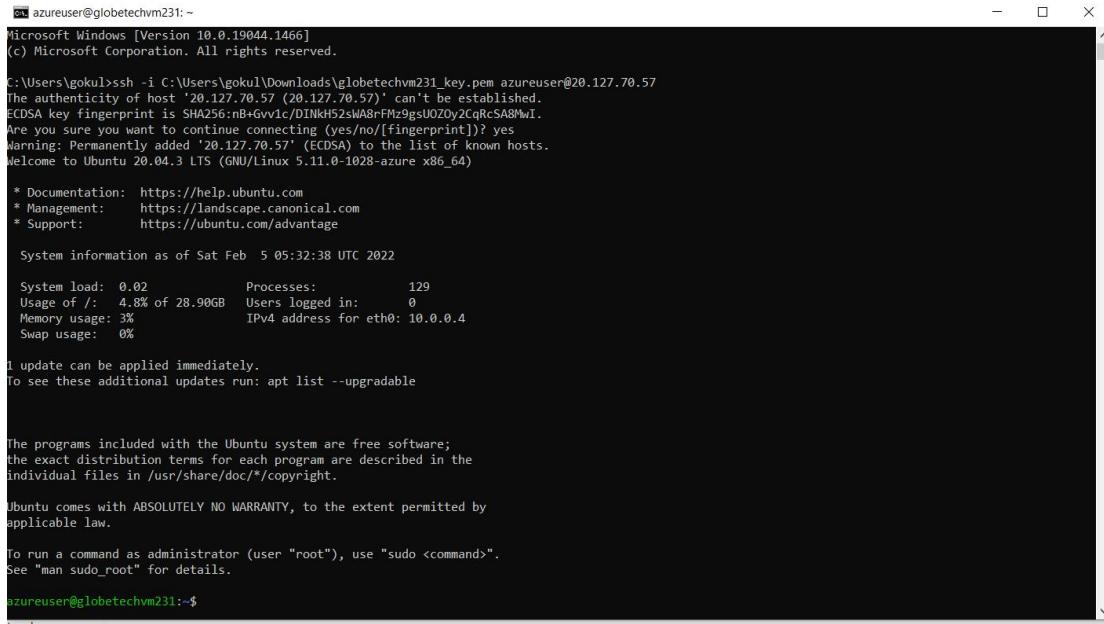
6-deployment done successfully

The screenshot shows the Azure Deployment Overview page for a deployment named "CreateVm-canonical.0001-com-ubuntu-server-focal-2-20220205105333". The status is "Your deployment is complete". Deployment details include: Deployment name: CreateVm-canonical.0001-com-ubuntu-server-focal-2-20220205105333; Start time: 2/5/2022, 10:58:58 AM; Subscription: unextbajaj155; Correlation ID: 1b0f21b0-a2c7-4981-9d7d-ba77def15d19. The page also shows sections for "Deployment details" (with a "Download" link), "Next steps", and "Cost Management". There are also links for "Microsoft Defender for Cloud", "Free Microsoft tutorials", "Start learning today", and "Work with an expert".

7-go to resource and use connect option to select SSH and run the command shown their with proper filepath

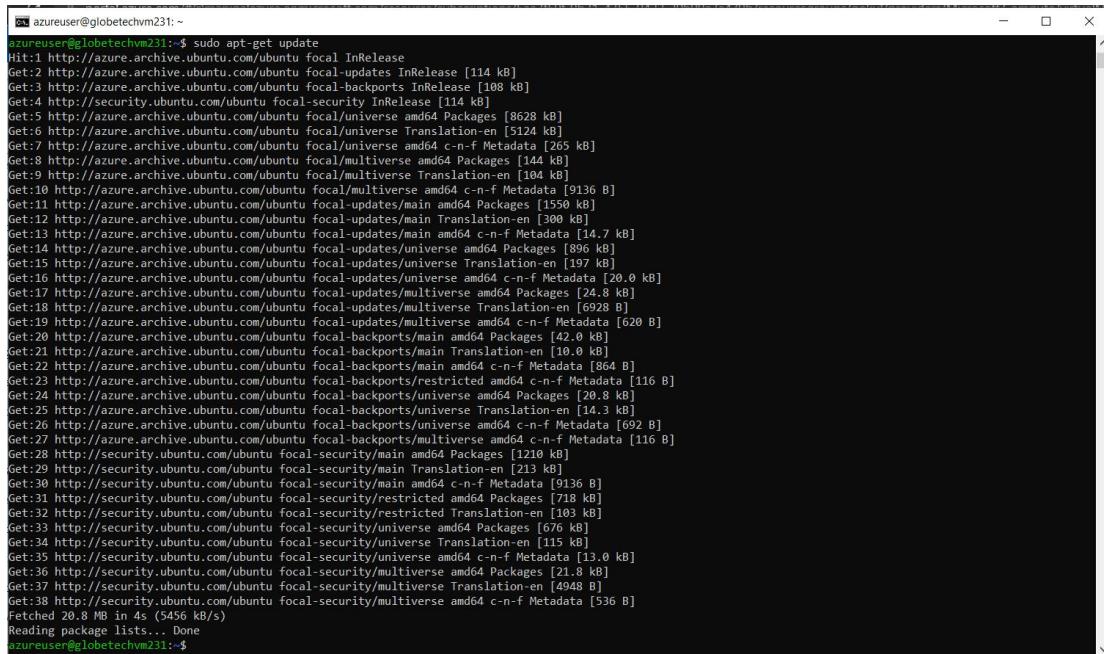
The screenshot shows the Azure Virtual Machine Connect page for a VM named "globetechvm231". The "SSH" tab is selected. Instructions for connecting via SSH client are provided: 1. Open the client of your choice, e.g. PuTTY or other clients. 2. Ensure you have read-only access to the private key. A text input field shows the command "chmod 400 azureuser.pem". 3. Provide a path to your SSH private key file. A text input field shows the path "/-ssh/azureuser". 4. Run the example command below to connect to your VM. A text input field shows the command "ssh -i <private key path> azureuser@20.127.70.57". Below the instructions, there are links for "Test your connection" and "Troubleshoot SSH connectivity issues".

8-connection to VM is successful



```
az azureuser@globetechvm231:~  
Microsoft Windows [Version 10.0.19044.1466]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\gokul>ssh -i C:\Users\gokul\Downloads\globetechvm231_key.pem azureuser@20.127.70.57  
The authenticity of host '20.127.70.57 (20.127.70.57)' can't be established.  
ECDSA key fingerprint is SHA256:nB+6v1c/DINkH52sWA8rFMZ9gsUOZOy2GqRcSA8WjL.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '20.127.70.57' (ECDSA) to the list of known hosts.  
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-1028-azure x86_64)  
  
 * Documentation: https://help.ubuntu.com  
 * Management: https://landscape.canonical.com  
 * Support: https://ubuntu.com/advantage  
  
System information as of Sat Feb 5 05:32:38 UTC 2022  
  
System load: 0.02 Processes: 129  
Usage of /: 4.8% of 28.90GB Users logged in: 0  
Memory usage: 3% IPv4 address for eth0: 10.0.0.4  
Swap usage: 0%  
  
1 update can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
az azureuser@globetechvm231:~$
```

9-sudo apt-get update - is used to download package information



```
az azureuser@globetechvm231:~$ sudo apt-get update  
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease  
Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]  
Get:3 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]  
Get:4 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]  
Get:5 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]  
Get:6 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]  
Get:7 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]  
Get:8 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]  
Get:9 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]  
Get:10 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 kB]  
Get:11 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [1550 kB]  
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [300 kB]  
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [14.7 kB]  
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [896 kB]  
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [197 kB]  
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [20.0 kB]  
Get:17 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [24.8 kB]  
Get:18 http://archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [6928 kB]  
Get:19 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 c-n-f Metadata [620 kB]  
Get:20 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [42.0 kB]  
Get:21 http://archive.ubuntu.com/ubuntu focal-backports/main Translation-en [10.0 kB]  
Get:22 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 c-n-f Metadata [864 B]  
Get:23 http://archive.ubuntu.com/ubuntu focal-backports/restricted amd64 c-n-f Metadata [116 B]  
Get:24 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [20.8 kB]  
Get:25 http://archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [14.3 kB]  
Get:26 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [692 B]  
Get:27 http://archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]  
Get:28 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [1210 kB]  
Get:29 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [213 kB]  
Get:30 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [9136 kB]  
Get:31 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [718 kB]  
Get:32 http://security.ubuntu.com/ubuntu focal-security/restricted Translation-en [103 kB]  
Get:33 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [676 kB]  
Get:34 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [115 kB]  
Get:35 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [13.0 kB]  
Get:36 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [21.8 kB]  
Get:37 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [4948 B]  
Get:38 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [536 B]  
Fetched 20.8 MB in 4s (5456 kB/s)  
Reading package lists... Done  
az azureuser@globetechvm231:~$
```

10-installing docker and checking the version to know if it has successfully installed

```
azureuser@globetechvm231:~$ sudo apt install docker.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base libidn11 pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debootstrap docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io libidn11 pigz runc ubuntu-fan
0 upgraded, 9 newly installed, 0 to remove and 10 not upgraded.
Need to get 74.5 MB of archives.
After this operation, 361 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://azure.archive.ubuntu.com/ubuntu focal/universe amd64 pigz amd64 2.4-1 [57.4 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 bridge-utils amd64 1.6-2ubuntu1 [30 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 runc amd64 1.0.1-0ubuntu2~20.04.2 [46 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 containerd amd64 1.5.5-0ubuntu2~20.04.2 [5300 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 dns-root-data all 2019052802 [5300 kB]
Get:6 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 libidn11 amd64 1.33-2.2ubuntu2 [46 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 dnsmasq-base amd64 2.80-1.1 [34.5 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu focal-updates/universe amd64 docker.io amd64 20.10.7 [10.4 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 ubuntu-fan all 0.12.13 [34.5 kB]
Fetched 74.5 MB in 2s (32.6 MB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 59863 files and directories currently installed.)
```

```
azureuser@globetechvm231:~$ sudo docker --version
Docker version 20.10.7, build 20.10.7-0ubuntu5~20.04.2
azureuser@globetechvm231:~$
```

2. Explain with screenshots - how Docker images will be installed in a VM & explain various features of Docker?

Sol:

To install any image into dockers we use

“sudo docker run <name of image> ”

1-Demo with hello-world image installation

```
azureuser@globetechvm231:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:507ecde44b8eb741278274653120c2bf793b174c06ff4eaa672b713b3263477b
Status: Downloaded newer image for hello-world:latest
```

Hello from Docker!

This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
(amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it to your terminal.

To try something more ambitious, you can run an Ubuntu container with:

```
$ docker run -it ubuntu bash
```

Share images, automate workflows, and more with a free Docker ID:

```
https://hub.docker.com/
```

For more examples and ideas, visit:

```
https://docs.docker.com/get-started/
```

```
azureuser@globetechvm231:~$
```

To view the image and container present inside the docker we can use these command to get it:

```
azureuser@globetechvm231:~$ sudo docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
hello-world    latest    feb5d9fea6a5  4 months ago   13.3kB
azureuser@globetechvm231:~$ sudo docker ps -a
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
103ff65a3967    hello-world    "/hello"    About a minute ago   Exited (0) About a minute ago   infallible_mendelev
azureuser@globetechvm231:~$
```

Docker provides various features, some of which are listed and discussed below:

1. Faster and easier configuration
2. Application isolation
3. Increase in productivity
4. Swarm
5. Services
6. Routing Mesh
7. Security Management
8. Rapid scaling of Systems
9. Better Software Delivery
10. Software-defined networking
11. Has the Ability to Reduce the Size

Components of docker include:-

1) Docker client and server:-

Docker Client is accessed from the terminal and a Docker Host runs the Docker Daemon and registry. A user can build Docker Images and run Docker Containers by passing commands from the Docker Client to Docker server.

2) Docker image:-

Docker Image is a template with instructions, which is used for creating Docker Containers.

3) Docker container:-

Docker Container is a standalone, executable software package which includes applications and their dependencies.

4) Docker registry:-

It is a server side service used for hosting and distributing images

3. In Azure - please create Kubernetes cluster called: Bajajkubeccluster67 & Create a sample Voting app & explain all steps with screenshots.

1. Creating a Kubernetes cluster and deploying it.

Create Kubernetes cluster

Cluster details

Cluster preset configuration

Kubernetes cluster name *: bajajkubeccluster67

Region *: (US) East US

Availability zones: Zones 1,2,3

Kubernetes version *: 1.21.7 (default)

Validation passed

Basics

Subscription: unextazurebaja155
Resource group: gokul
Region: East US
Kubernetes cluster name: bajajkubeccluster67
Kubernetes version: 1.21.7

Node pools

Node pool: 1
Enable virtual nodes: Disabled
Enable virtual machine scale sets: Enabled

Authentication

microsoft.aks-20220205120123 | Overview

Deployment

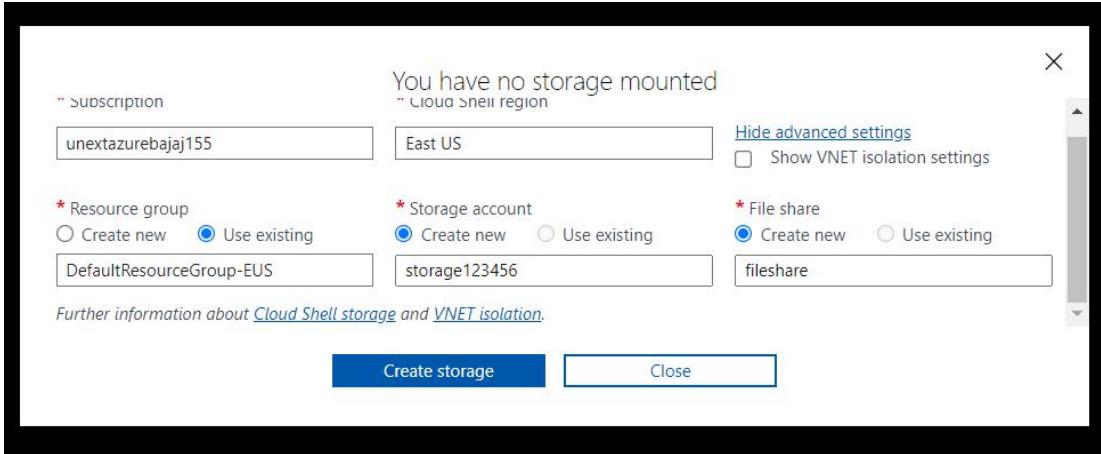
Deployment details (Download)

Next steps

- Create a Kubernetes deployment Recommended
- Integrate automatic deployments within your cluster Recommended
- Connect to cluster Recommended

Go to resource **Connect to cluster**

2. Starting the Azure CLI



3. Configure kubectl to connect to your Kubernetes cluster using the az aks get-credentials command and verify connection to the cluster.

```
Bash | ⌂ ? ⚙️ 🖊 { } 🎯
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

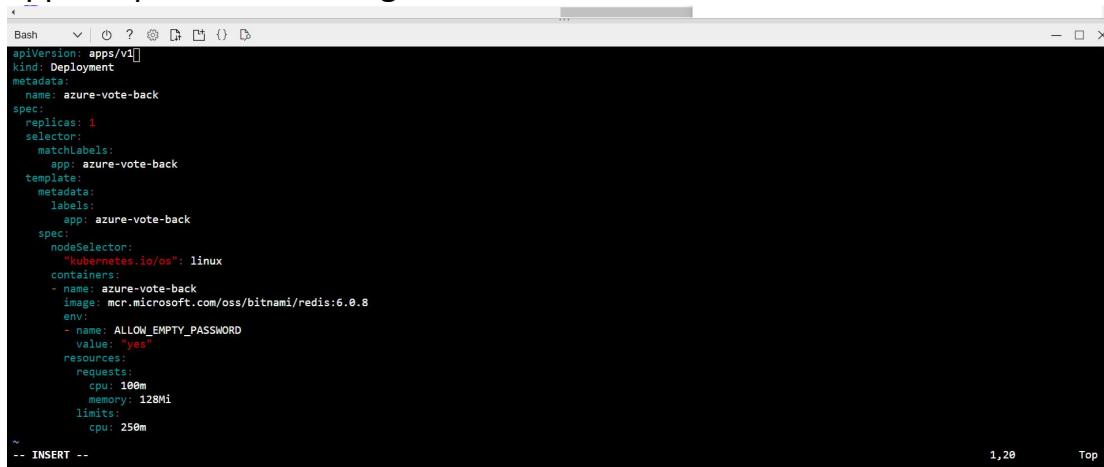
Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

unextbajaj_1643556958007@Azure:~$ az account set --subscription 5aa3f59f-9b31-4355-9422-30b99a3a479b
unextbajaj_1643556958007@Azure:~$ az aks get-credentials --resource-group gokul --name bajajkubecluster678
Merged "bajajkubecluster678" as current context in /home/unextbajaj_1643556958007/.kube/config
unextbajaj_1643556958007@Azure:~$ █
```

```
unextbajaj_1643556958007@Azure:~$ kubectl get nodes
NAME                  STATUS  ROLES   AGE      VERSION
aks-agentpool-26321381-vmss000000  Ready   agent   5m22s  v1.21.7
aks-agentpool-26321381-vmss000001  Ready   agent   5m21s  v1.21.7
aks-agentpool-26321381-vmss000002  Ready   agent   5m28s  v1.21.7
unextbajaj_1643556958007@Azure:~$
```

4. Create a file named azure-vote.yaml and putting definition of a voting app template into it using vi editor.



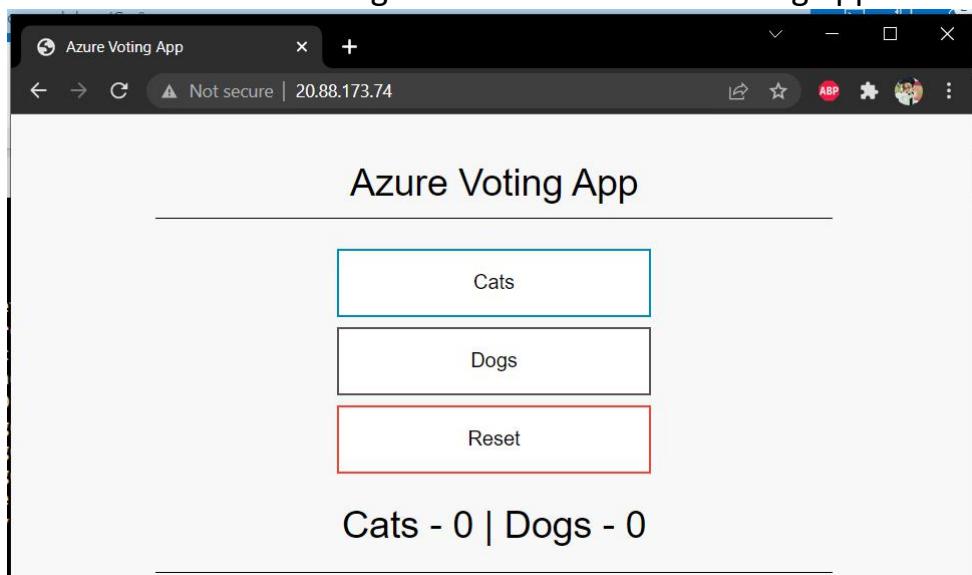
```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: azure-vote-back
spec:
  replicas: 1
  selector:
    matchLabels:
      app: azure-vote-back
  template:
    metadata:
      labels:
        app: azure-vote-back
    spec:
      nodeSelector:
        "kubernetes.io/os": linux
      containers:
        - name: azure-vote-back
          image: mcr.microsoft.com/oss/bitnami/redis:6.0.8
          env:
            - name: ALLOW_EMPTY_PASSWORD
              value: "yes"
          resources:
            requests:
              cpu: 100m
              memory: 128Mi
            limits:
              cpu: 250m

```

5. Deploying the application using the kubectl apply. When the application runs, the Kubernetes service exposes the application's front end to the internet. The watch argument is used to watch the progress of deployment.

```
unextbajaj_1643556958007@Azure:~$ kubectl apply -f azure-vote.yaml
deployment.apps/azure-vote-back created
service/azure-vote-back created
deployment.apps/azure-vote-front created
service/azure-vote-front created
unextbajaj_1643556958007@Azure:~$ kubectl get service azure-vote-front --watch
NAME           TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
azure-vote-front   LoadBalancer   10.0.33.26   <pending>     80:30753/TCP   6s
azure-vote-front   LoadBalancer   10.0.33.26   20.88.173.74  80:30753/TCP   10s
```

6. Go to the external IP generated to view the voting app.



4. In Azure, please create Windows Server 2019 Datacenter VM & connect the VM with RDP & explain all steps with screenshots.

1-creating a VM with windows server 2019 data center and create user name and password for the VM

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The configuration details are as follows:

- Subscription:** unextazurebajaj155
- Resource group:** gokul
- Virtual machine name:** windowssystem
- Region:** East US
- Availability options:** No Infrastructure redundancy required
- Security type:** Standard
- Image:** Windows Server 2019 Datacenter - Gen2
- Size:** Standard D2s v3 (2 vcpus, 8 GiB memory)
- Username:** gokul
- Public inbound ports:** RDP
- Already have a Windows license?** No
- Azure Spot:** No
- Disk Configuration:**
 - OS disk type:** Premium SSD LRS
 - Use managed disks:** Yes
 - Delete OS disk with VM:** Enabled
 - Ephemeral OS disk:** No

At the bottom, there are buttons for 'Create', 'Previous', 'Next', and 'Download a template for automation'.

2-successfully deployed

The screenshot shows the 'windowssystem' virtual machine details page in the Microsoft Azure portal. Key information includes:

- Resource group:** (move) : gokul
- Status:** Running
- Location:** East US
- Subscription:** (move) : unextazurebajaj155
- Subscription ID:** 5aa3f59f-9b31-4355-9422-30b99a3a479b
- Tags:** Click here to add tags
- Properties:**
 - Virtual machine:** Computer name: windowssystem, Health state: -, Operating system: Windows, Publisher: MicrosoftWindowsServer, Offer: WindowsServer, Plan: 2019-datacenter-gensecond, VM generation: V2, Agent status: Not Ready
 - Networking:** Public IP address: 52.170.67.191, Private IP address (IPv6): -, Virtual network/subnet: gokul-vnet/default, DNS name: Not configured
 - Size:** 10.0.0.5

3-connecting using RDP

⚠ To improve security, enable just-in-time access on this VM. →

RDP SSH Bastion

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address *

Public IP address (52.170.67.191) ▼

Port number *

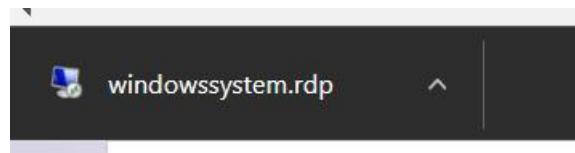
3389

Download RDP File

Can't connect?

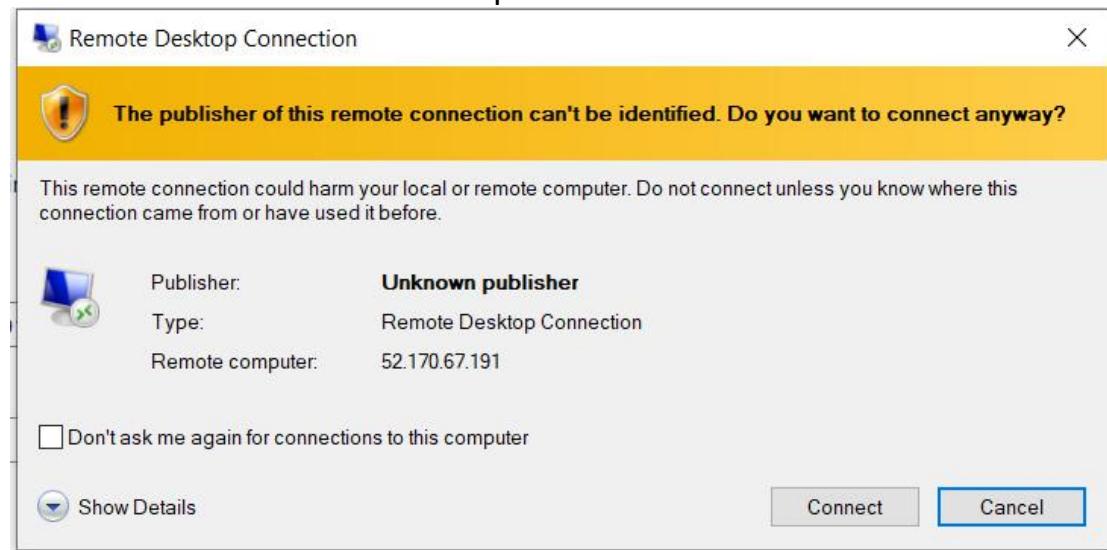
🔗 Test your connection

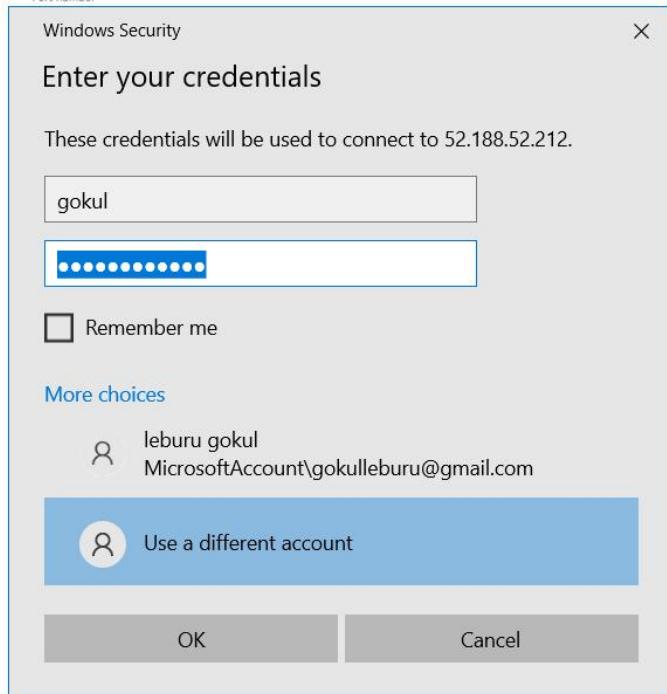
🔗 Troubleshoot RDP connectivity issues



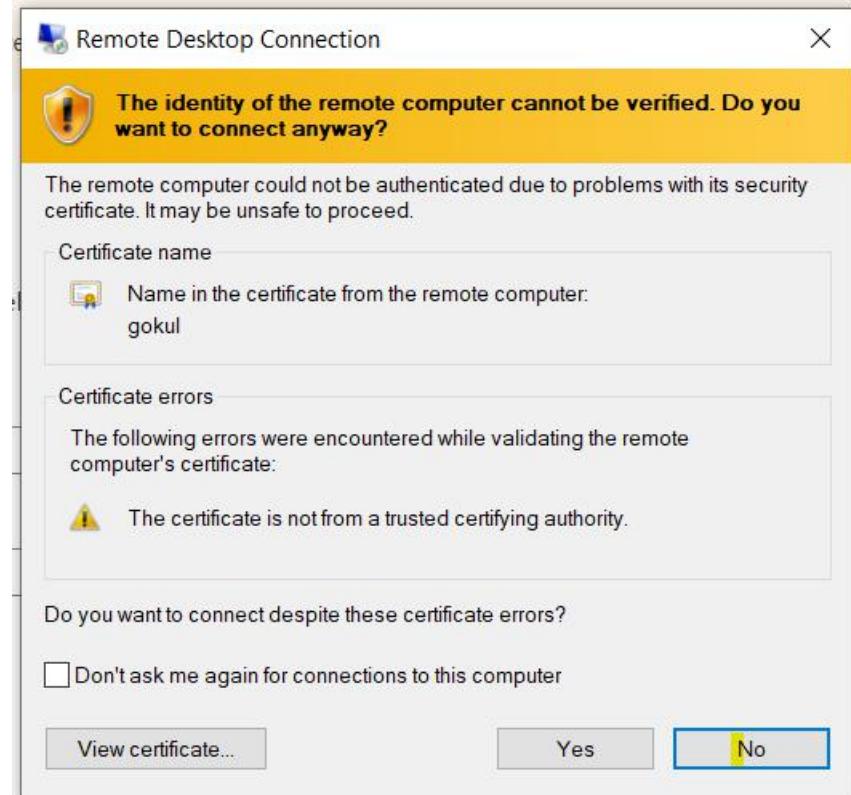
Download the RDP and open it.

4-connect to the remote desktop

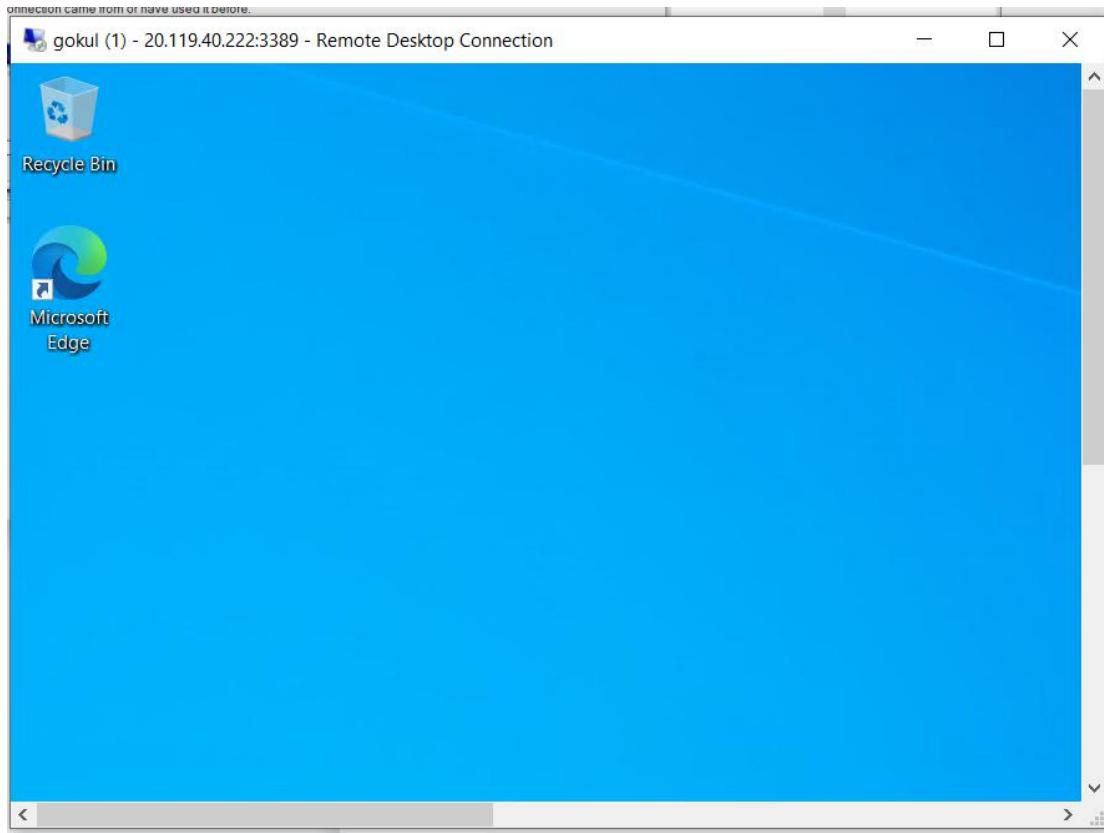




While giving the user and password in different account next you will be getting these



5-connection to VM successful



5. Explain various cloud Service & deployment models with block diagrams & examples?

There are the following three types of cloud service models -

- Infrastructure as a service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)
-

Infrastructure as a Service (IaaS)

IaaS is a hardware form of service. 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.

Example: DigitalOcean, Linode, Amazon Web Services (AWS)

Platform as a Service (PaaS)

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

Example: AWS Elastic Beanstalk, Windows Azure

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.

Example: Google Apps, Salesforce, Dropbox

Different types of cloud computing deployment models are:

- Public cloud
- Private cloud
- Hybrid cloud
- Community cloud
- Multi-cloud

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 for everyone. The public cloud is one in which cloud infrastructure services are provided over the internet to the general people or major industry groups.

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). There is no need to share your hardware with anyone else. The distinction between private and public cloud is in how you handle all of the hardware.

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.

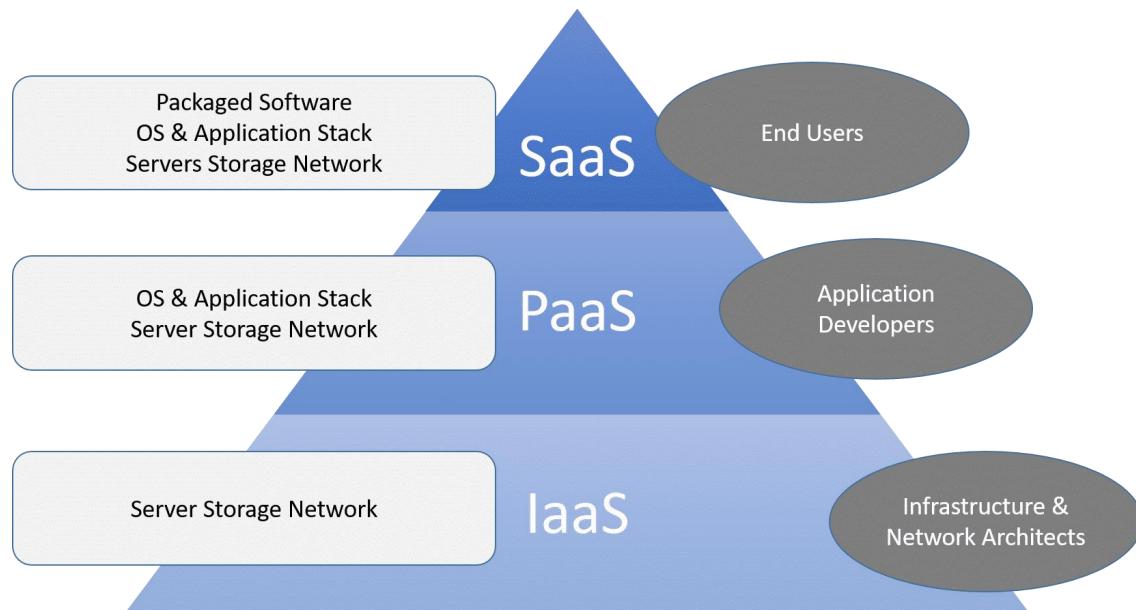
Community cloud

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.

Multi-cloud

We're talking about employing multiple cloud providers at the same time under this paradigm, as the name implies. It's similar to the hybrid cloud deployment approach, which combines public and private cloud resources.

Cloud Service Models



6. Explain what is cloud security & how virtualization is achieved with block diagram?

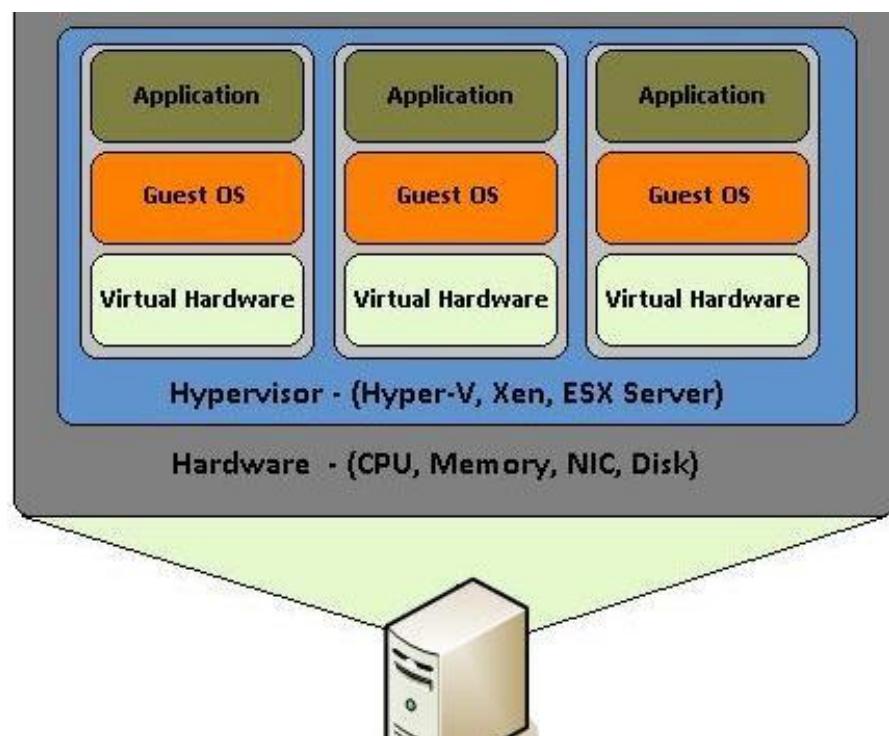
Cloud security, also known as cloud computing security, is the practice of protecting cloud-based data, applications and infrastructure from cyber attacks and cyber threats.

In virtualization, the server and the software application which are required by the cloud providers maintain by the third party and in this, the cloud provider please some amount to the third party.

It is done because it will be costly if a new version of an application is released and it has to be introduced to the customers.

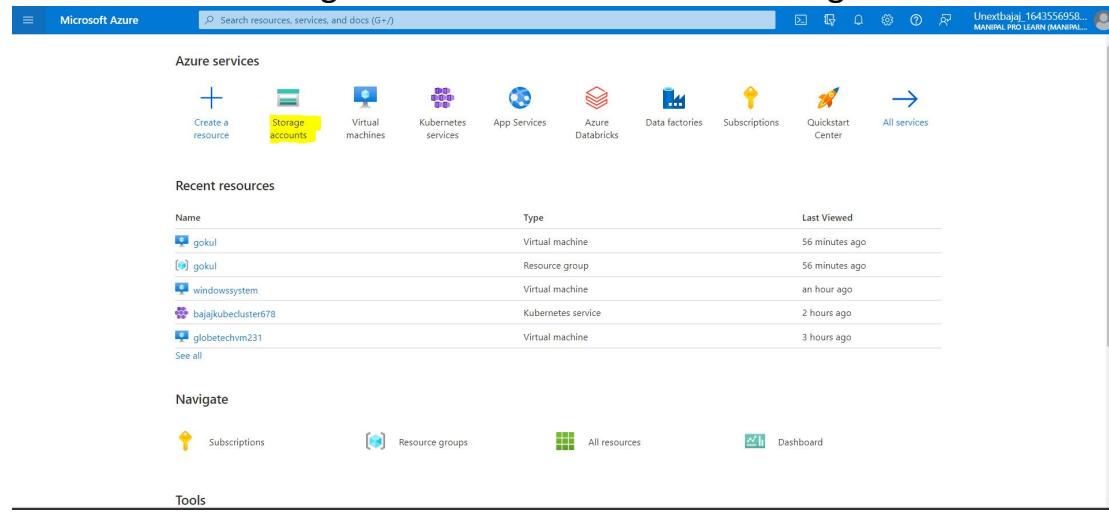
There are many advantages of virtualization in cloud security.

- It ensures to make backup servers and maintain them so that in case of any natural disasters or any situation when a particular server goes down, we can switch to other servers and make use of them.
- Moreover, it helps us to set IAM polices, firewall policies to monitor and maintain who has the access to particular resources and what can they do with it.
- It helps in monitoring the servers and notifies us in case of any suspicious activities like if a hacker is trying to attack or someone from inside is transferring insider information to outside which could cause loss.
- There is CSA (Cloud Security Alliance) which looks after cyber security issues so that there won't be any possible cyber security attacks anywhere in the world.



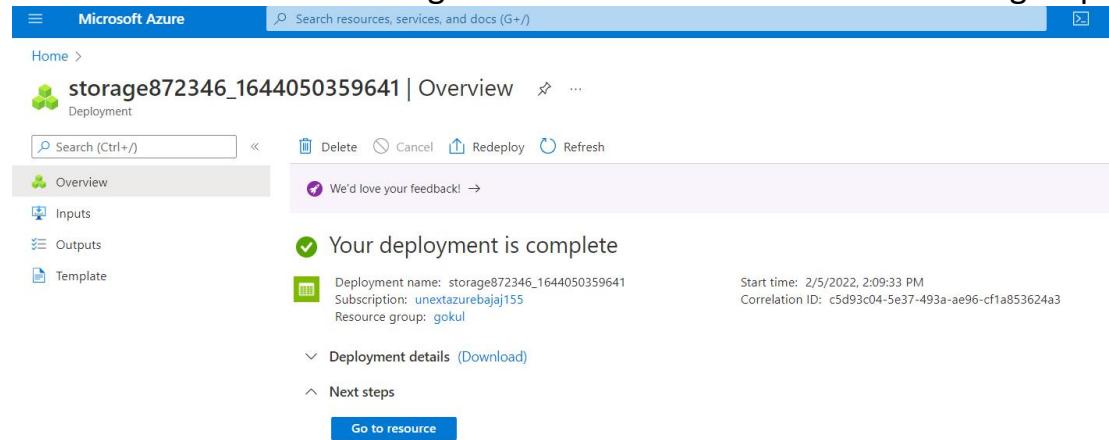
7. In azure please create Azure Blob & upload sample CSV, Excell, TXT files in it & explain all steps with screenshots?

1- Select azure storage service and create a new storage



The screenshot shows the Microsoft Azure portal homepage. At the top, there's a search bar and several navigation icons. Below the header, the 'Azure services' section is visible, with 'Storage accounts' highlighted by a yellow box. Other services shown include Virtual machines, Kubernetes services, App Services, Azure Databricks, Data factories, Subscriptions, Quickstart Center, and All services. A 'Recent resources' table lists five items: 'gokul' (Virtual machine), 'gokul' (Resource group), 'windowssystem' (Virtual machine), 'bajajkubercluster678' (Kubernetes service), and 'globetechvm231' (Virtual machine). Below this is a 'Navigate' section with links for Subscriptions, Resource groups, All resources, and Dashboard. At the bottom, there's a 'Tools' section.

2. Give a name to the storage account and attach it to a resource group.



The screenshot shows the 'storage872346_1644050359641 | Overview' page. At the top, there's a search bar and a feedback link. On the left, a sidebar has 'Overview' selected. The main area displays a message: 'Your deployment is complete'. It shows deployment details: Deployment name: storage872346_1644050359641, Subscription: unextazurebajaj155, Resource group: gokul. To the right, deployment statistics are listed: Start time: 2/5/2022, 2:09:33 PM and Correlation ID: c5d93c04-5e37-493a-ae96-cf1a853624a3. Below this are 'Deployment details' (Download) and 'Next steps' sections, with a 'Go to resource' button at the bottom.

3. After deployment, go to the resource and go to Containers. Create a new container.

Name	Last modified	Public access level	Lease state
\$logs	2/5/2022, 2:10:20 PM	Private	Available

4. Give name to the new container as cont1 and set the public access level as BLOB.

Name	Last modified	Public access level	Lease state
\$logs	2/5/2022, 2:10:20 PM	Private	Available
cont1	2/5/2022, 2:17:35 PM	Blob	Available

5. After creating the blob, open it and select Upload. In the upload menu select the files to be uploaded in the blob and press upload.

Name	Modified	Access tier	Archive st
No results			

Upload blob

X

container1/

Files ⓘ

"assignment.docx" "assignment.pdf"



Overwrite if files already exist

✓ Advanced

Upload

6.The files have now been uploaded and can be accessed using the container option via blobs

Upload Change access level Refresh Delete Change tier Acquire lease Break lease View snapshots Create snapshot

Authentication method: Access key (Switch to Azure AD User Account)
Location: container1

Search blobs by prefix (case-sensitive)

Add filter

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
<input type="checkbox"/> assignment.docx	2/5/2022, 2:20:21 PM	Hot (Inferred)		Block blob	1.46 MiB	Available
<input type="checkbox"/> assignment.pdf	2/5/2022, 2:20:25 PM	Hot (Inferred)		Block blob	1.91 MiB	Available

8.In Azure, please create Azure Data factory, create source & destination storage blobs, - try to copy a few files from Source blob to destination blob using Azure Data factory.

1-select azure data brick service and create a new one but mark ignoring the git

The screenshot shows the Microsoft Azure portal interface for creating a new Data Factory. The top navigation bar includes the Microsoft Azure logo, a search bar, and various navigation links. The main left sidebar is titled "Data factories" and shows a "No data factories to display" message with a "Create data factory" button. The right panel is titled "Create Data Factory" and is divided into several sections:

- Basics**: Sub-sections include "Subscription" (set to "unextazurebajaj155"), "Resource group" (set to "gokul"), "Region" (set to "East US"), "Name" (set to "adatrafac"), and "Version" (set to "V2 (Recommended)").
- Instance details**: Sub-sections include "Region" (set to "East US"), "Name" (set to "adatrafac"), and "Version" (set to "V2 (Recommended)").
- Review + create**: A green banner at the bottom indicates "Validation Passed".
- TERMS**: A legal agreement section stating: "By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; and (b) 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."
- Basics**: Summary of selected values: Subscription: unextazurebajaj155, Resource group: gokul, Region: East US, Name: adatrafac, Version: V2 (Recommended).
- Networking**: Summary of selected values: Connect via: Public endpoint.

At the bottom of the right panel, there are buttons for "Create", "< Previous", "Next >", and "Download a template for automation".

The screenshot shows the Microsoft Azure Data Factory Overview page for a deployment named "Microsoft.DataFactory-20220205142513". The status is "Your deployment is complete". Deployment details include a start time of 2/5/2022, 2:31:11 PM, and a correlation ID of 12c3fc57-a545-4931-8c99-2afe97bf8d42. A resource group named "gokul" is listed. There are links for "Deployment details (Download)" and "Next steps". A "Go to resource" button is at the bottom. A sidebar on the right titled "Cost Management" encourages setting up cost alerts.

2-open azure data factory and go to ingest

The screenshot shows the "Copy Data tool" wizard in the Azure Data Factory interface. The current step is "Properties". It provides instructions to use the Copy Data Tool to perform a one-time or scheduled data load from 90+ data sources. It highlights the "Built-in copy task" which generates a single pipeline to copy data from 90+ data sources easily. Task cadence or task schedule options include "Run once now", "Schedule", and "Tumbling window", with "Run once now" selected. The sidebar on the right shows the "Cost Management" section.

Creating source link

The screenshot shows the "Source data store" configuration step in the "Copy Data tool" wizard. It asks to specify the source data store for the copy task. The "Source type" dropdown is set to "All". The "Connection" dropdown is set to "Select...". On the right, a "New connection" dialog is open for "Azure Blob Storage". It shows fields for "Name" (set to "AzureBlobStorage1"), "Description", "Connect via integration runtime" (set to "AutoResolveIntegrationRuntime"), "Authentication method" (set to "Account key"), and "Account selection method" (set to "From Azure subscription"). It also lists "Azure subscription" (set to "unextbajaj|155 (5aa3f59f-9b31-4355-9422-30b99a3a479b)"), "Storage account name" (set to "storage1124234"), and "Additional connection properties". Buttons at the bottom include "Create", "Back", "Test connection", and "Cancel".

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory. The left sidebar lists steps: Properties, Source, Dataset, Configuration, Target, Settings, and Review and finish. The 'Source' step is selected. The main panel is titled 'Source data store'. It includes fields for 'Source type' (set to 'All'), 'Connection' (set to 'AzureBlobStorage1'), 'File or folder' (containing '/'), 'Compression type' (None), and 'Options' (Binary copy checked). There are also sections for 'Max concurrent connections' and 'Filter by last modified'.

Creating target link

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory. The left sidebar lists steps: Properties, Source, Target, Dataset, Configuration, Settings, and Review and finish. The 'Target' step is selected. The main panel is titled 'Destination data store'. It includes fields for 'Target type' (set to 'Azure Blob Storage'), 'Connection' (set to 'AzureBlobStorage1'), 'Folder path' (cont2), 'File name' (Filenames are defined by source), 'Compression type' (None), and 'Copy behavior' (None). There are also sections for 'Max concurrent connections', 'Block size (MB)', and 'Metadata'.

3-creating a pipeline:

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory. The left sidebar lists steps: Properties, Source, Target, Settings, and Review and finish. The 'Settings' step is selected. The main panel is titled 'Settings'. It includes fields for 'Task name' (set to 'CopyPipeline_u75'), 'Task description' (empty), 'Data consistency verification' (radio button), 'Fault tolerance' (set to 'Skip missing files'), 'Enable logging' (checkbox), 'Enable staging' (checkbox), and an 'Advanced' section.

4-reviewing and creating it:

The screenshot shows the Microsoft Azure Data Factory Copy Data tool interface. On the left, a vertical navigation pane lists steps: Properties, Source, Target, Settings, Review and finish, Review, and Deployment. The 'Review and finish' step is currently selected. The main area displays a 'Summary' section with a diagram showing data flowing from 'Azure Blob Storage' to 'Azure Blob Storage'. Below the diagram, the 'Properties' section shows task details: Task name (CopyPipeline_u75), Task description (empty), Source connection (AzureBlobStorage1), Source dataset (SourceDataset_u75), Source file (assignment.pdf), Source container (cont1), Target connection (AzureBlobStorage1), Target dataset (DestinationDataset_u75). At the bottom, there are 'Previous' and 'Next' buttons, and a 'Cancel' button.

The screenshot then transitions to the 'Deployment complete' screen. The navigation pane remains the same. The main area shows a summary of deployment steps: Validating copy runtime environment (Succeeded), Creating datasets (Succeeded), Creating pipelines (Succeeded), and Running pipelines (Succeeded). A message at the bottom states: 'Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.' At the bottom, there are 'Finish', 'Edit pipeline', and 'Monitor' buttons.

5-finally checking the whether the file has been sent to other blob that is from cont1 to cont2

The screenshot shows the Microsoft Azure Storage Accounts interface. The top navigation bar includes 'Microsoft Azure', a search bar, and user information. The main navigation bar shows 'Home > Storage accounts > storage1124234 >'. The left sidebar shows a tree view with 'cont2' selected, which is a 'Container'. The main content area shows a table of blobs. The table has columns: Name, Modified, Access tier, Archive status, Blob type, Size, and Lease state. One row is visible: 'assignment.pdf' with details: Modified (2/5/2022, 3:02:37 PM), Access tier (Hot (Inferred)), Archive status (Not yet archived), Blob type (Block blob), Size (1.91 MiB), and Lease state (Available). There are also 'Upload', 'Change access level', 'Refresh', 'Delete', 'Change tier', 'Acquire lease', 'Break lease', 'View snapshots', and 'Create snapshot' buttons. A 'Search (Ctrl+I)' input field and a 'Show deleted blobs' toggle are also present.

Successfully sent the file sent from one blob to another blob

9. Explain Azure Data factory pipeline process with the diagram

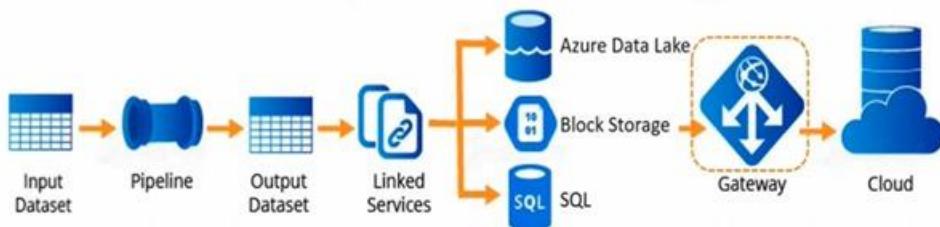
Big data requires service that can orchestrate and operationalize processes to refine these enormous stores of raw data into actionable business insights.

Azure Data Factory is a managed cloud service that's built for these complex hybrid extract-transform-load (ETL), extract-load-transform (ELT), and data integration projects.

It is the cloud-based ETL and data integration service that allows you to create data-driven workflows for orchestrating data movement and transforming data at scale. Using Azure Data Factory, you can create and schedule data-driven workflows (called pipelines) that can ingest data from disparate data stores. You can build complex ETL processes that transform data visually with data flows.

A data factory might have one or more pipelines. A pipeline is a logical grouping of activities that performs a unit of work. Together, the activities in a pipeline perform a task. For example, a pipeline can contain a group of activities that ingests data from an Azure blob, and then copies it to another blob.

The benefit of this is that the pipeline allows you to manage the activities as a set instead of managing each one individually. The activities in a pipeline can be chained together to operate sequentially, or they can operate independently in parallel



10. In Azure, please create a Python app service & explain all the steps with screenshots?

1-go the azure app services:

Create Web App

Basics

Subscription: unextbajaj155

Resource Group: gokul

Name: gokul123

Runtime stack: Python 3.9

Operating System: Linux

Select resource group and runtime stack as python 3.9

Summary

Web App by Microsoft

Premium V2 (P1v2) sku

Subscription	sa3f59f-9b31-4355-9422-30b99a3a479b
Resource Group	gokul
Name	gokul123
Publish	Code
Runtime stack	Python 3.9

App Service Plan (New)

Name	ASP-gokul-8651
Operating System	Linux
Region	Central US
SKU	Premium V2
Size	Small
ACU	210 total ACU

Microsoft.Web-WebApp-Portal-faf9ddc4-8cbd | Overview

Deployment name: Microsoft.Web-WebApp-Portal-faf9ddc4-8cbd

Start time: 2/5/2022, 3:13:22 PM

Subscription: unextbajaj155

Resource group: gokul

Cost Management

Get notified to stay within your budget and prevent unexpected charges on your bill.

Microsoft Defender for Cloud

Secure your apps and infrastructure

Free Microsoft tutorials

Start learning today >

Work with an expert

Azure experts are service provider partners who can help manage your assets on Azure

2-now go to deployment centre and connect the github and select the repo which u want to host and save

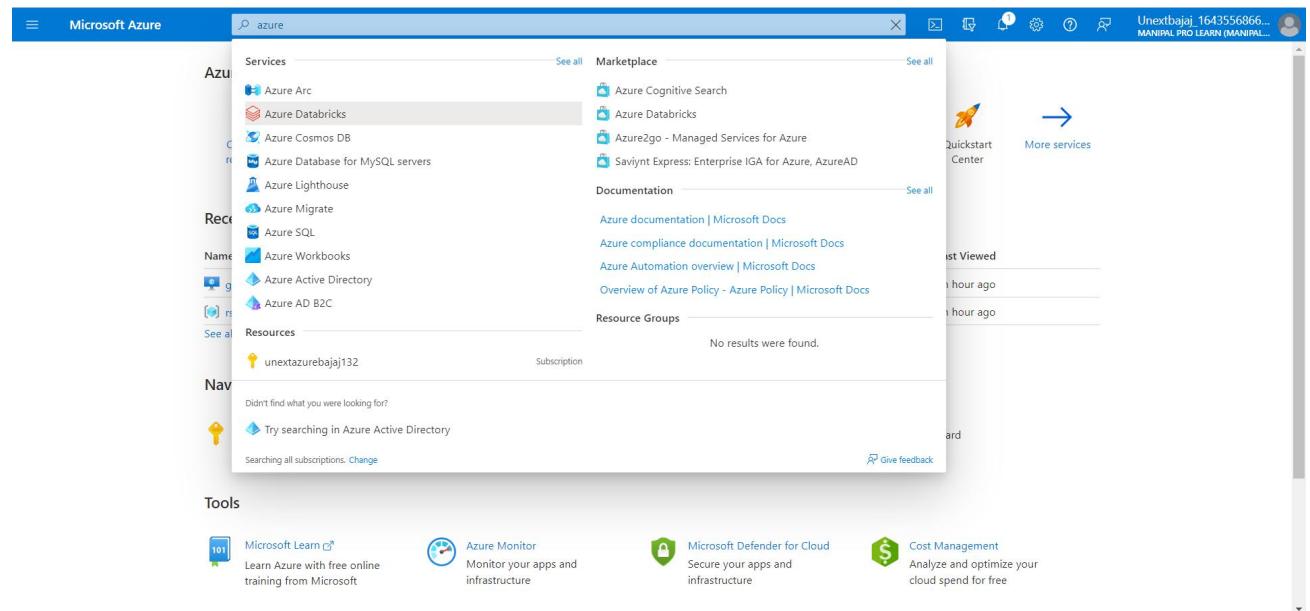
The screenshot shows the Microsoft Azure Deployment Center interface for an App Service named 'gokul123'. The 'Settings' tab is selected. Under 'Source*', 'GitHub' is chosen. In the 'GitHub' section, 'Signed in as' is set to 'gokul-leburu' with a 'Change Account' link. 'Organization*' is set to 'gokul-leburu', 'Repository*' to 'python-docs-hello-django', and 'Branch*' to 'main'. A note at the top states: 'You're now in the production slot, which is not recommended for setting up CI/CD. Learn more'.

3-now use the url which is given by the app service to go to the website

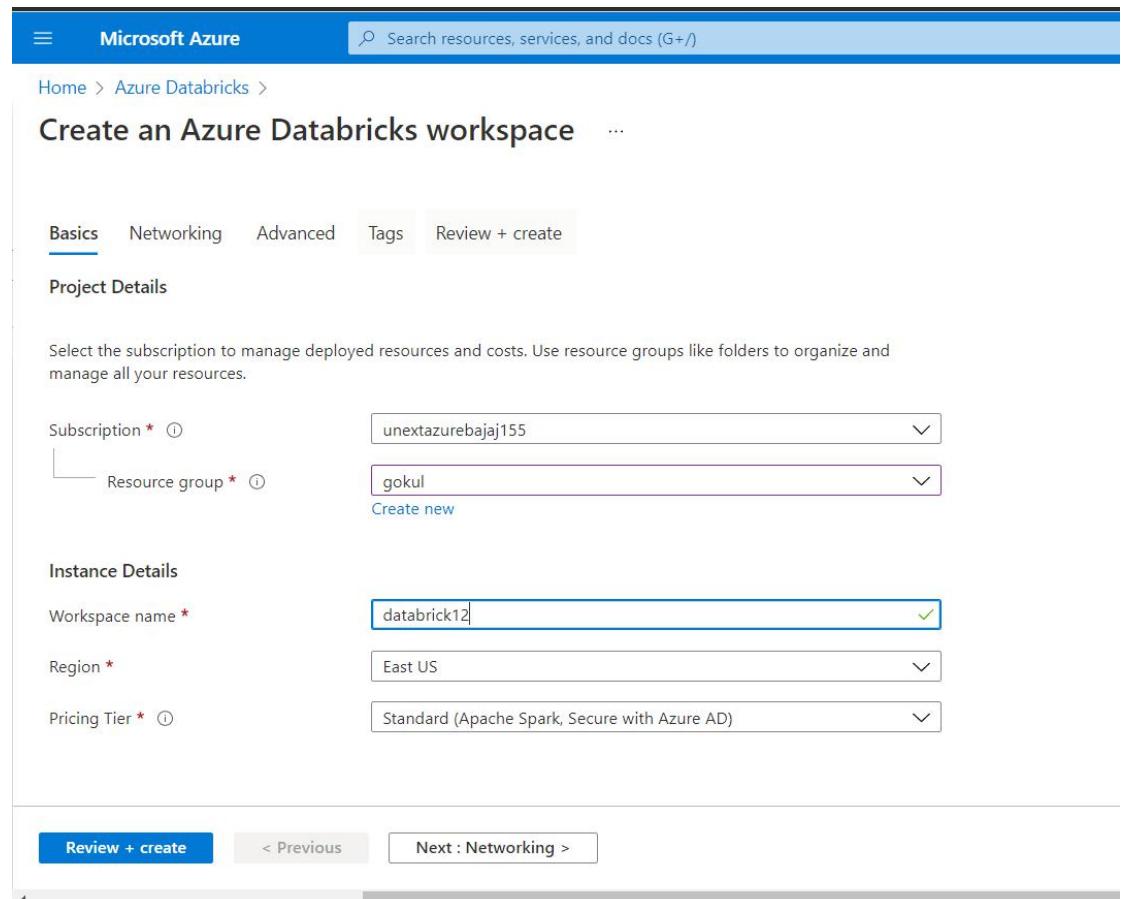
The screenshot shows a web browser window with the URL 'https://gokul123.azurewebsites.net'. The page content is 'Hello, World!'. At the bottom of the browser window, network activity is shown with two entries: '100' and '90' on the left, and '80kB' and '70kR' on the right.

Website hosted successfully

11. Please create Azure data bricks & explain with all steps & screenshots ?



The screenshot shows the Microsoft Azure portal homepage. The search bar at the top contains the text "azure". Below the search bar, there is a sidebar titled "Services" which lists various Azure services such as Azure Arc, Azure Databricks, Azure Cosmos DB, Azure Database for MySQL servers, Azure Lighthouse, Azure Migrate, Azure SQL, Azure Workbooks, Azure Active Directory, and Azure AD B2C. To the right of the sidebar, there is a "Marketplace" section with links to Azure Cognitive Search, Azure Databricks, Azure2go - Managed Services for Azure, and Savynt Express: Enterprise IGA for Azure, AzureAD. Below the Marketplace is a "Documentation" section with links to Azure documentation, Azure compliance documentation, Azure Automation overview, and Overview of Azure Policy. A "Resource Groups" section indicates "No results were found." On the far right, there is a "Quickstart Center" with an arrow pointing to "More services", and a "Last Viewed" section showing "unextazurebajaj132" and "unextazurebajaj155" both viewed 1 hour ago.



The screenshot shows the "Create an Azure Databricks workspace" wizard page. The title is "Create an Azure Databricks workspace". The "Basics" tab is selected. The "Project Details" section asks to select a subscription and resource group. The subscription dropdown shows "unextazurebajaj155" and the resource group dropdown shows "gokul" with a "Create new" option. The "Instance Details" section asks for a workspace name, region, and pricing tier. The workspace name is "databrick12", the region is "East US", and the pricing tier is "Standard (Apache Spark, Secure with Azure AD)". At the bottom, there are buttons for "Review + create", "< Previous", and "Next : Networking >".

Deployed successfully

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "gokul_databrick12". The main message is "Your deployment is complete". Deployment details include name: gokul_databrick12, subscription: unextazurebajaj155, and resource group: gokul. The deployment started at 2/5/2022, 3:27:31 PM. A "Go to resource" button is visible.

launch work space:

The screenshot shows the Microsoft Azure Databricks Service Overview page for a service named "databrick12". It displays basic information like location (East US), subscription (unextazurebajaj155), and pricing tier (standard). A "Launch Workspace" button is present. Below the overview, there are several quick access links: Documentation, Getting Started, Import Data from File, Import Data from Azure Storage, Notebook, Admin Guide, and Link Azure ML workspace. The bottom part of the screenshot shows the actual Data Science & Engineering workspace interface, featuring sections for Data Import, Guide: Quickstart tutorial, and Recent items. The workspace also includes links for Documentation, Release notes, and Blog posts.

12. Creating a table using ui mode:

The screenshot shows the 'Create New Table' interface in Databricks. On the left is a dark sidebar with various icons. At the top, it says 'Microsoft Azure | Databricks' and 'Portal'. The main area is titled 'Create New Table'. Under 'Data source', 'Upload File' is selected. In the 'DBFS Target Directory' field, '/FileStore/tables/' is entered. Below that, a file named 'annual-enterprise-survey-2020-financial-year-provisional-' is shown, with a progress bar indicating it's 5.9 MB and a 'Cancel upload' button.

Select the cluster and select create table with UI

This screenshot continues from the previous one. The file 'annual-enterprise-survey-2020-financial-year-provisional-' now has a green checkmark next to its name. Below the file list, a message says '✓ File uploaded to /FileStore/tables/annual_enterprise_survey_2020_financial_year_provisional_csv.csv'. At the bottom, there are two buttons: 'Create Table with UI' (highlighted in blue) and 'Create Table in Notebook'. Below these buttons, a section titled 'Select a Cluster to Preview the Table' asks to choose a cluster. A dropdown menu shows 'bokul' selected. A 'Preview Table' button is at the bottom.

Preview:

The screenshot shows the 'Create New Table' wizard in the Microsoft Azure Databricks interface. The 'Cluster' dropdown is set to 'gokul'. The 'Table Name' field contains 'annual_enterprise_survey_'. The 'Create in Database' dropdown is set to 'default'. The 'File Type' dropdown is set to 'CSV'. The 'Column Delimiter' dropdown is set to ','.

Specify Table Attributes

Table Preview

Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units	Variable_code	Value
2020	Level 1	99999	All industries	Dollars (millions)	H01	Total
2020	Level 1	99999	All industries	Dollars (millions)	H04	Services
2020	Level 1	99999	All industries	Dollars (millions)	H05	Industries
2020	Level 1	99999	All industries	Dollars (millions)	H07	Natural resources
2020	Level 1	99999	All industries	Dollars (millions)	H08	Total

Create Table

Create Table in Notebook

Using notepad

This screenshot shows a Microsoft Azure Databricks notebook titled '2022-02-05 - DBFS Example' in Python mode. The notebook has three cells:

Cmd 1:

Overview

This notebook will show you how to create and query a table or DataFrame that you uploaded to DBFS. DBFS is a Databricks File System that allows you to store data for querying inside of Databricks. This notebook assumes that you have a file already inside of DBFS that you would like to read from.

This notebook is written in **Python** so the default cell type is Python. However, you can use different languages by using the `%LANGUAGE` syntax. Python, Scala, SQL, and R are all supported.

Cmd 2:

```
1 # File location and type
2 file_location = "/FileStore/tables/annual_enterprise_survey_2020_financial_year_provisional_csv.csv"
3 file_type = "csv"
4
5 # CSV options
6 infer_schema = "false"
7 first_row_is_header = "false"
8 delimiter = ","
9
10 # The applied options are for CSV files. For other file types, these will be ignored.
11 df = spark.read.format(file_type) \
12 .option("inferSchema", infer_schema) \
13 .option("header", first_row_is_header) \
14 .option("sep", delimiter) \
15 .load(file_location)
16
17 display(df)
```

Cmd 3:

This screenshot shows the continuation of the notebook from the previous one. It has five cells:

Cmd 3:

```
1 # Create a view or table
2
3 temp_table_name = "annual_enterprise_survey_2020_financial_year_provisional_csv_csv"
4
5 df.createOrReplaceTempView(temp_table_name)
```

Cmd 4:

```
1 %sql
2
3 /* Query the created temp table in a SQL cell */
4
5 select * from `annual_enterprise_survey_2020_financial_year_provisional_csv_csv`
```

Cmd 5:

```
1 # With this registered as a temp view, it will only be available to this particular notebook. If you'd like other users to be able to query this table, you can also create a
2 # table from the DataFrame.
3 # Once saved, this table will persist across cluster restarts as well as allow various users across different notebooks to query this data.
4 #
5 permanent_table_name = "annual_enterprise_survey_2020_financial_year_provisional_csv_csv"
6
7 # df.write.format("parquet").saveAsTable(permanent_table_name)
```

Shift+Enter to run

preview

_c0	_c1	_c2	_c3	_c4	_c5	_c6
1	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units	Variable_code
2	2020	Level 1	99999	All industries	Dollars (millions)	H01
3	2020	Level 1	99999	All industries	Dollars (millions)	H04
4	2020	Level 1	99999	All industries	Dollars (millions)	H05
5	2020	Level 1	99999	All industries	Dollars (millions)	H07
6	2020	Level 1	99999	All industries	Dollars (millions)	H08
	2020	Level 1	99999	All industries	Dollars (millions)	H09

Truncated results: showing first 1000 rows.
Click to re-execute with maximum result limits.

Command took 0.89 seconds -- by unextbajaj_1643556958007@manipalazure.onmicrosoft.com at 2/5/2022, 3:46:58 PM on gokul

12. In Azure data bricks - please create Cluster & explain with all steps with screenshots?

Creating a cluster

Go to create and create a new cluster with single node to cluster mode

Microsoft Azure | Databricks

Clusters / gokul

gokul

Configuration Notebooks Libraries Event log Spark UI Driver Logs Metrics Apps Spark cluster UI - Master

Cluster mode: Single Node

Databricks Runtime Version: 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12)

Autopilot options: Terminate after 120 minutes of inactivity

Node type: Standard_DS3_v2

DBU / hour: 0.75

UI | JSON

Microsoft Azure | Databricks

Clusters / gokul

gokul

Configuration Notebooks Libraries Event log Spark UI Driver Logs Metrics Apps Spark cluster UI - Master

Cluster mode: Single Node

Databricks Runtime Version: 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12)

Autopilot options: Terminate after 120 minutes of inactivity

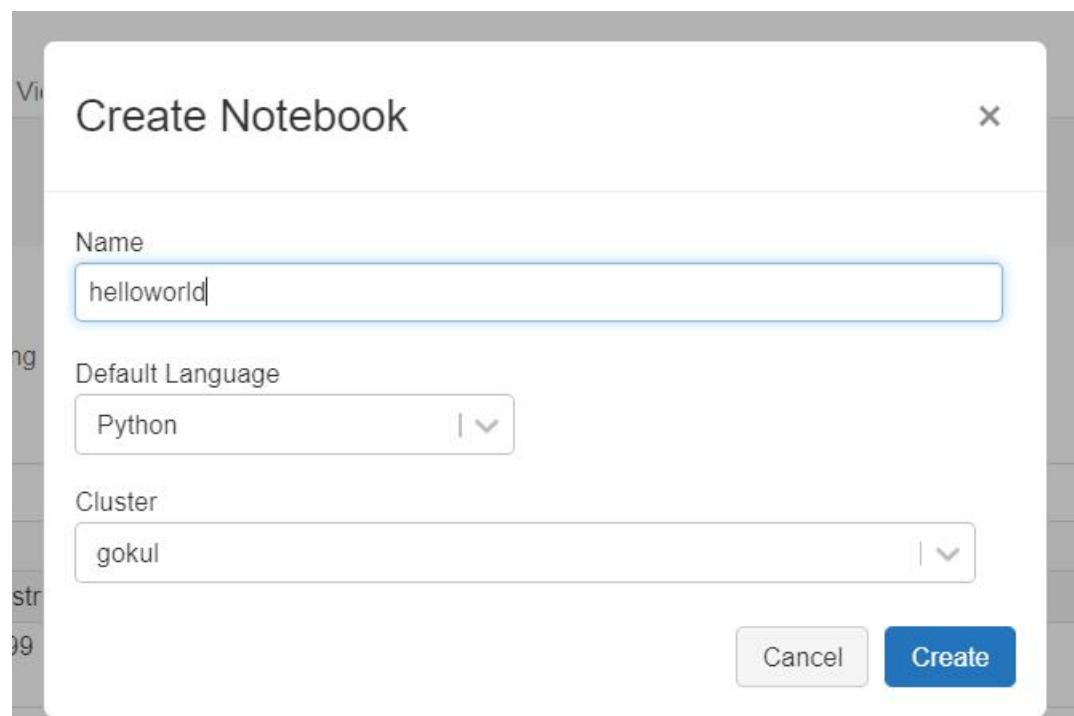
Node type: Standard_DS3_v2

DBU / hour: 0.75

UI

13. In Azure data bricks - please create sample Notebook & jobs, further assign sample notebook to jobs & run it, explain with all steps with screenshots?

First create a notebook



The screenshot shows the Azure Databricks notebook interface. A code cell contains the Python command `print("Hello world")`. The output pane shows the result: `Hello world`. Below the output, a note says "Command took 0.05 seconds -- by unextbaja[...]

```
1 print("Hello world")
hello world
Command took 0.05 seconds -- by unextbaja[...]
```

creating a job

The screenshot shows the Microsoft Azure Databricks interface for creating a new job. The main title bar reads "Microsoft Azure | Databricks" and "Jobs / Create". The top right corner shows the user's email address: "Portal unextbajaj_1643556958007@manipalazure.onmicrosoft.com". On the left, there is a vertical sidebar with various icons for navigation. The main content area has tabs for "Runs" and "Tasks", with "Tasks" currently selected. A modal dialog box is open, prompting the user to "Add a name for your job...". Inside the dialog, the "Task name" field contains "helloworldtask". The "Type" section shows "Notebook" selected in a dropdown, with a "Select Notebook" button next to it. Below that, the "Cluster" section shows "New Job Cluster (126.00 GB | 36 Cores | DBR 9.1 LTS | Spark 3.1.2 | Sca..." with a dropdown arrow. The "Parameters" section has an "Add" button and links for "UI" and "JSON". At the bottom of the dialog are "Cancel" and "Create" buttons, with "Create" being highlighted in blue.

Selecting the notebook

The screenshot shows a "Select Notebook" dialog box. The title bar says "Select Notebook" and has a close button "x". The dialog is divided into three main sections: "Repos" on the left, "unextbajaj_1643556958007@ma..." in the center, and "Trash" on the right. The "Repos" section contains "Shared" and "Users" options, with "Users" currently selected. The central section displays a list of notebooks under the user's account, including "helloworld" (which is highlighted with a gray background). The "Trash" section shows a single item: "2022-02-05 - DBFS Example". At the bottom of the dialog are "Cancel" and "Confirm" buttons, with "Confirm" being highlighted in blue.

Running the job: