

CASE STUDY

Name: Shashank Shukla

Trainer: Amit

Technology: Python, Docker & Azure

Domain: Container (Micro services) & Cloud

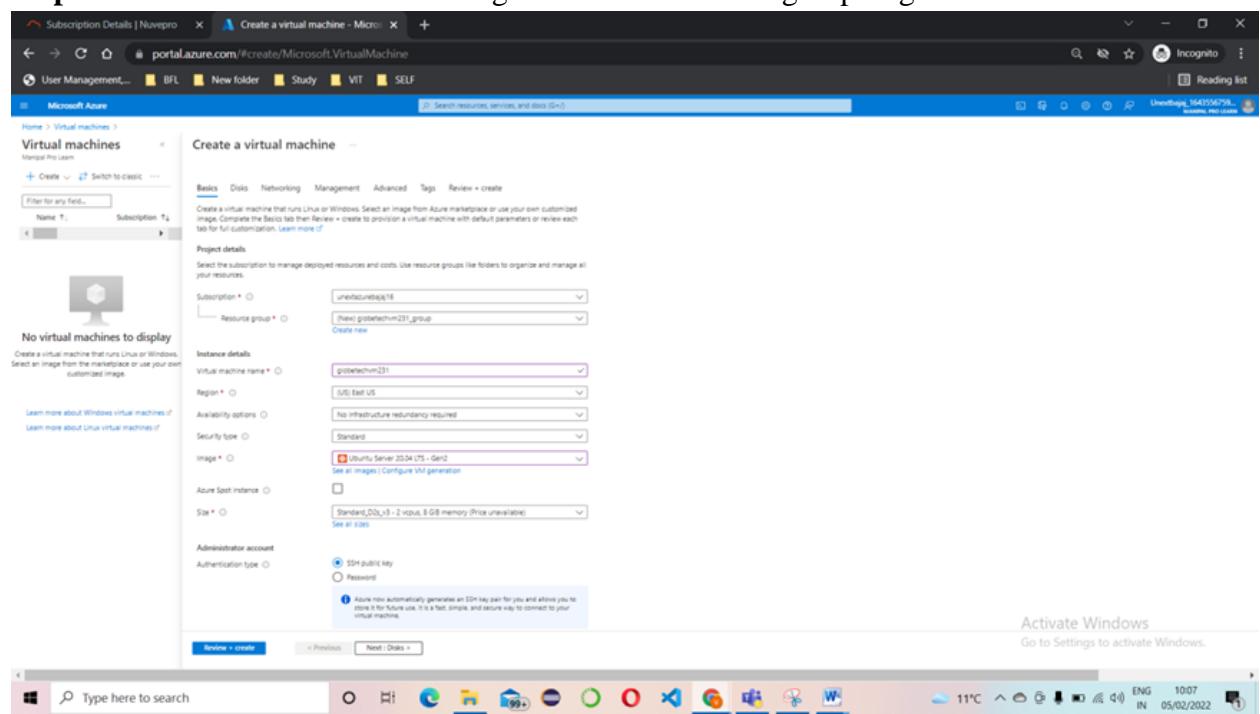
Date of submission: 05-02-2022

Company: Bajaj Finserv

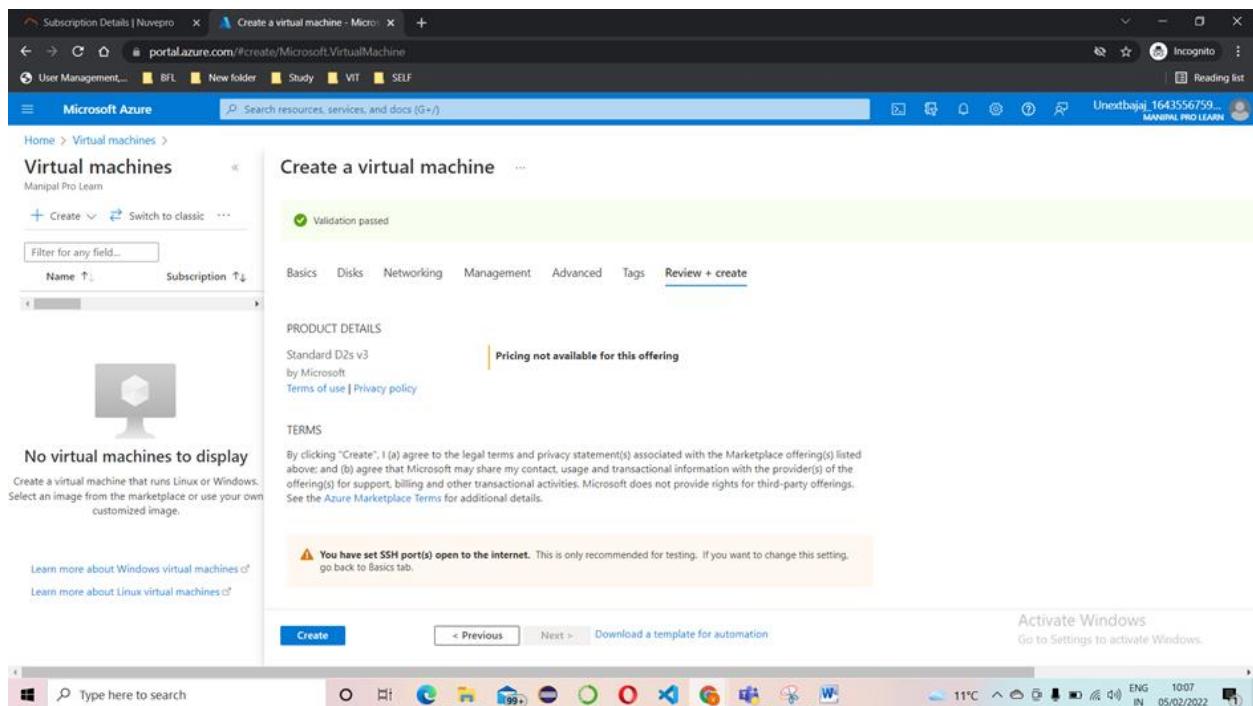
Total number of cases: 15

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

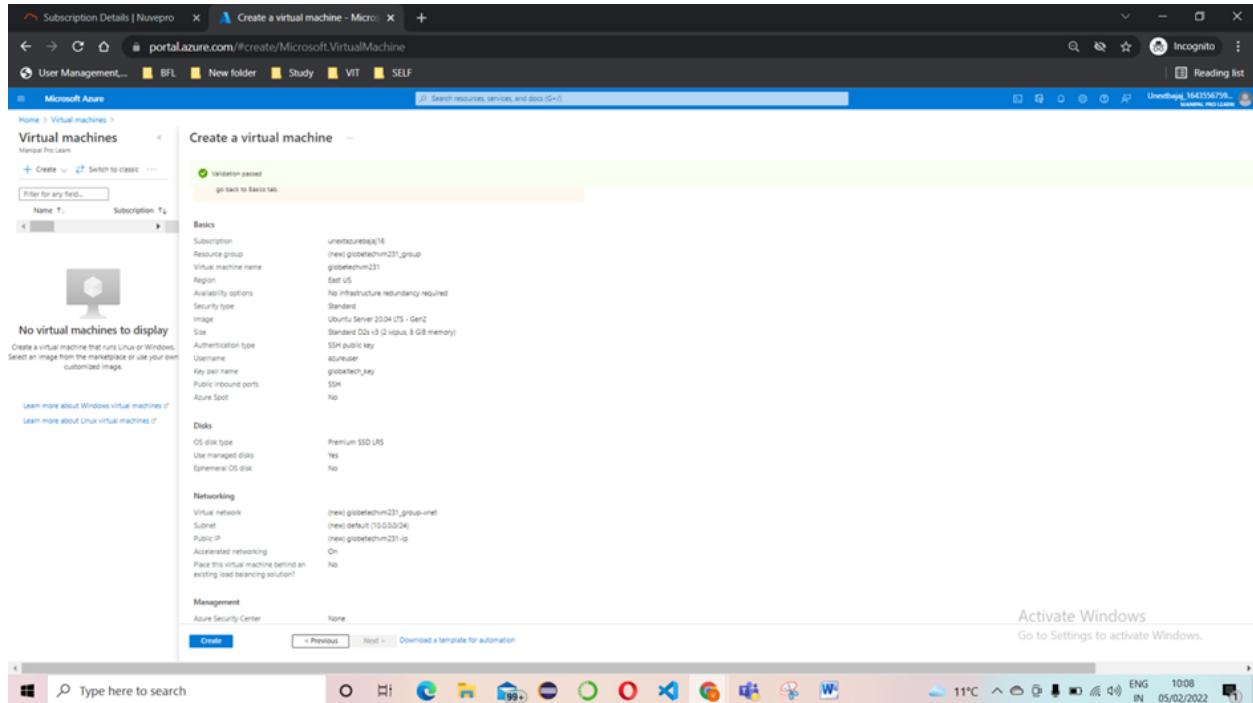
Step1: Create a Virtual Machine and give name to resource group as globetechvm231



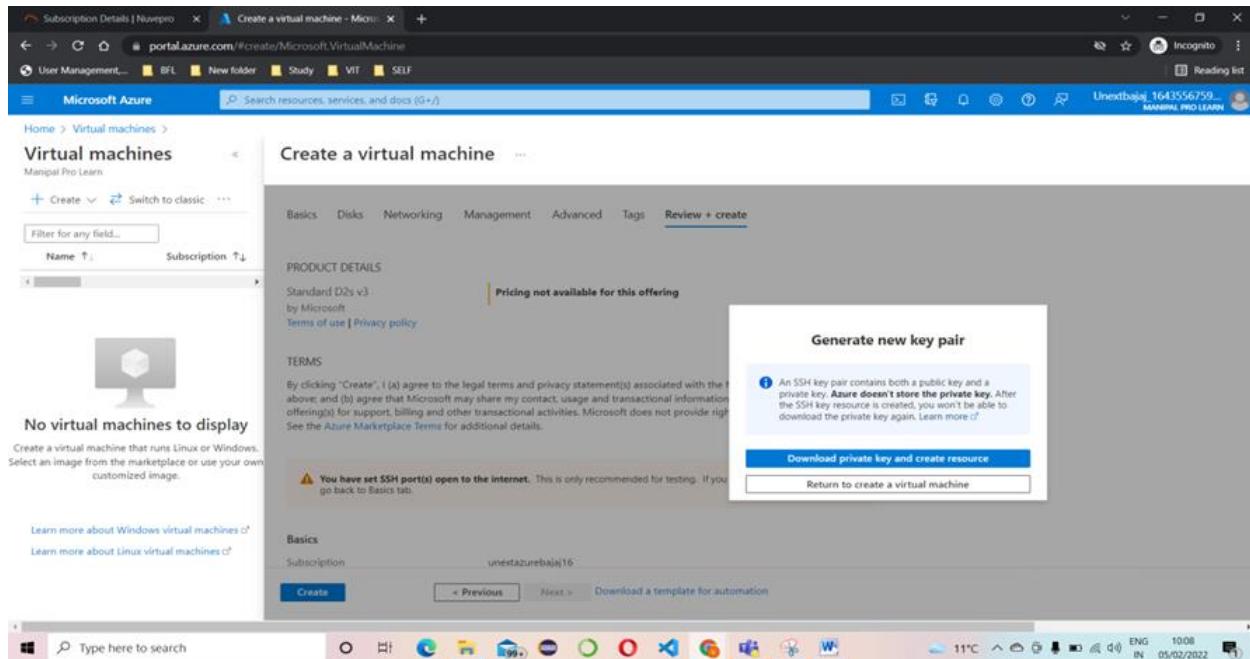
Step2: Review and create for validation



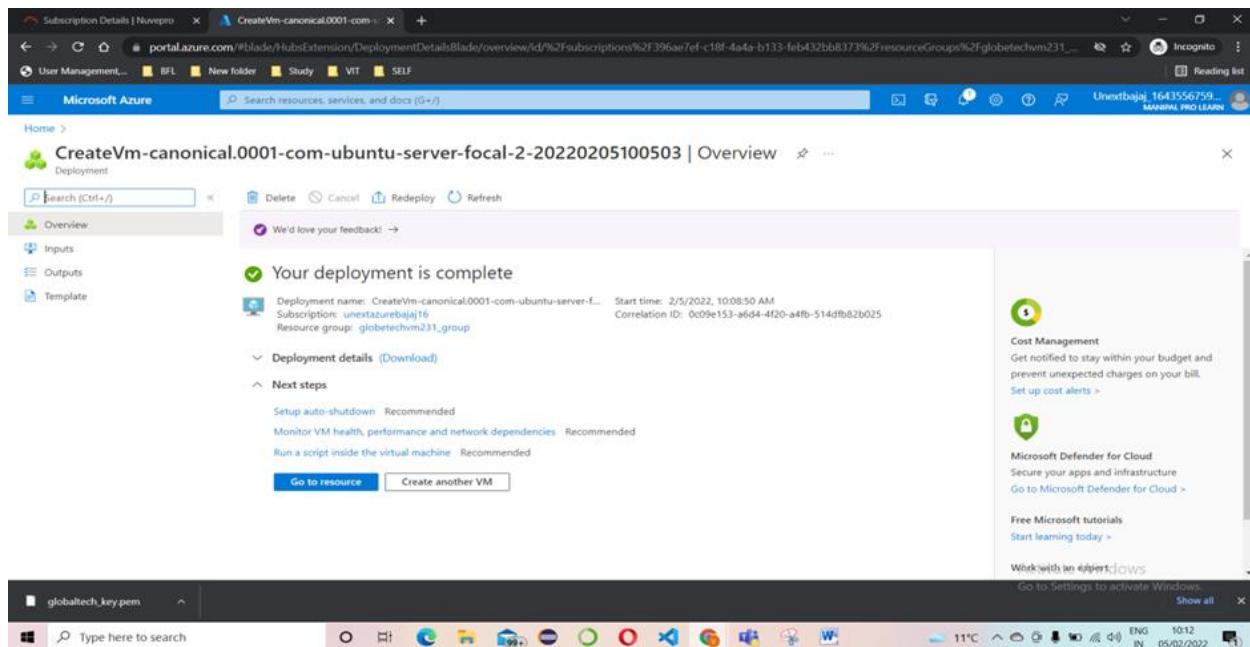
Step3: Validation is complete click on create



Step4: Download private key



Step5: Go to resources.



Step6: Copy the ssh key and run it on your cmd.

Subscription Details | Nuvelpro globetechvm231 - Microsoft Azure

portal.azure.com/#@d7cfc3b-5250-4333-bf2d-bff83bf2f17/resource/subscriptions/396ae7ef-c18f-4a4a-b133-feb432bb8373/resourcegroups/globetechvm231_group/providers/Micro... Incognito Reading list

User Management... BFL New folder Study VIT SELF

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

Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-2022050503 > globetechvm231

globetechvm231 | Connect

Virtual machine

Search (Ctrl+/
 Overview
 Activity log
 Access control (IAM)
 Tags
 Diagnose and solve problems
 Settings
 Networking
 Connect
 Disks
 Size
 Security
 Advisor recommendations
 Extensions + applications
 Continuous delivery

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

RDP SSH Bastion

Connect via SSH with client

- Open the client of your choice, e.g. PuTTY or other clients.
- Ensure you have read-only access to the private key.
chmod 400 azureuser.pem
- Provide a path to your SSH private key file.
Private key path
-./ssh/azureuser
- Run the example command below to connect to your VM.
ssh -i <private key path> azureuser@20.121.219.147

Can't connect?
Test your connection Troubleshoot SSH connectivity issues

Activate Windows Go to Settings to activate Windows. Show all

https://portal.azure.com/#

globaltech.key.pem

Type here to search

```
az user@globetechvm231:~  
Microsoft Windows [Version 10.0.19043.1466]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\hp>D:  
D:\>cd downloads  
D:\Downloads>ssh -i D:\Downloads\globaltech.key.pem user@20.121.219.147  
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 04:55:19 UTC 2022  
System load: 0.1 Processes: 126  
Usage of /: 4.8% of 28.00GB 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.  
user@globetechvm231:~$ sudo apt-get update  
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]  
Hit:2 http://azure.archive.ubuntu.com/ubuntu focal InRelease  
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]  
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]  
Get:5 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [329 kB]  
Get:6 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [133 kB]  
Get:7 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [132 kB]  
Get:8 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [718 kB]  
Get:9 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [676 kB]  
Get:10 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [103 kB]  
Get:11 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [115 kB]  
Get:12 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [13.0 kB]  
Get:13 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [21.8 kB]
```

Activate Windows Go to Settings to activate Windows. Show all

ENG 10:15 IN 05/02/2022

Type here to search

Step7: Install docker by updating sudo apt –get update and install by sudo apt install docker.io

```

azuser@globetechvm231:~$ 
[downloaded 20.8 MB in 4s (5289 kB/s)
Reading package lists...
Reading package lists...
azuser@globetechvm231:~$ sudo apt install docker.io
Building package lists... Done
Building dependency tree...
The following state information... Done
The following additional packages will be installed:
  libltdl0 libltdl0:amd64 dns-root-data dnsmasq-base libidn11 pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools cgroups-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 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 1.0.1-0ubuntu2~20.04.1 [4155 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 runc amd64 1.0.1-0ubuntu2~20.04.1 [4155 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 containerd amd64 1.5.5-0ubuntu3~20.04.1 [33.0 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 dns-root-data all 2019052802 [5300 B]
Get:6 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 libidn11 amd64 1.33-2~0ubuntu2 [46.2 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 dnsmasq-base amd64 2.80-1.1ubuntu1.4 [315 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu focal-updates/main amd64 libidn11:amd64 1.33-2~0ubuntu2~20.04.2 [315 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu focal/main amd64 ubuntu-fan all 0.32.13 [34.5 kB]
Fetched 74.5 MB in 1s (51.1 MB/s)
Preconfiguring packages ...
Preconfiguring previously unselected package pigz.
(Reading database ... 1 file and 0 directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package bridge-utils.
Preparing to unpack .../1-bridge-utils_1.0-2ubuntu1_amd64.deb ...
Unpacking bridge-utils_1.0-2ubuntu1_amd64.deb ...
Selecting previously unselected package runc.
Preparing to unpack .../2-runc_1.0.1-0ubuntu2~20.04.1_amd64.deb ...
Unpacking runc_1.0.1-0ubuntu2~20.04.1 ...
Selecting previously unselected package containerd.
Preparing to unpack .../3-containerd_1.5.5-0ubuntu3~20.04.1_amd64.deb ...
Unpacking containerd_1.5.5-0ubuntu3~20.04.1 ...
Selecting previously unselected package dns-root-data.
Preparing to unpack .../4-dns-root-data_2019052802_all.deb ...
Unpacking dns-root-data_2019052802 ...
Selecting previously unselected package libidn11:amd64.
Preparing to unpack .../5-libidn11_1.33-2~0ubuntu2_amd64.deb ...
Unpacking libidn11:amd64_1.33-2~0ubuntu2 ...
Selecting previously unselected package dnsmasq-base.
Preparing to unpack .../6-dnsmasq-base_2.80-1.1ubuntu1.4_amd64.deb ...
Unpacking dnsmasq-base_2.80-1.1ubuntu1.4 ...
Selecting previously unselected package docker.io.

```

Step8: Docker images

```

azuser@globetechvm231:~$ 
command 'docker' from deb docker.io (20.10.7-0ubuntu5-20.04.2)

Try: sudo apt install <deb name>

azuser@globetechvm231:~$ docker --version
Docker version 20.10.7, build 20.10.7-0ubuntu5-20.04.2
azuser@globetechvm231:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db297010123: Pull complete
Digest: sha256:507ecde4848eb741278274653120c2bf793b174c06ff4ea672b713b3263477b
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/

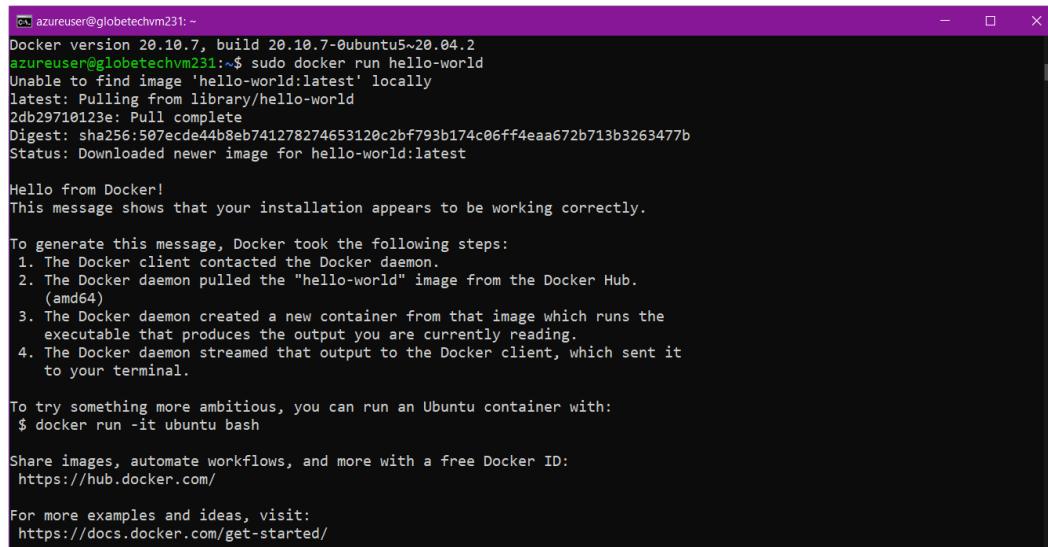
For more examples and ideas, visit:
https://docs.docker.com/get-started/

azuser@globetechvm231:~$ sudo docker images
REPOSITORY          TAG           IMAGE ID            CREATED             SIZE
hello-world         latest        feb59f6ea65   4 months ago        13.3kB
azuser@globetechvm231:~$ sudo docker ps -a
CONTAINER ID        IMAGE           COMMAND            CREATED             STATUS              PORTS               NAMES
15583d591b3        hello-world     "/hello"          24 seconds ago     Exited (0) 23 seconds ago          gallant_babbage
azuser@globetechvm231:~$ 


```

```
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker.io (20.10.7-0ubuntu5~20.04.2) ...
Adding group `docker` (GID 121) ...
Done.
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Setting up dnsmasq-base (2.80-1.1ubuntu1.4) ...
Setting up ubuntu-fan (0.12.13) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /lib/systemd/system/ubuntu-fan.service.
Processing triggers for systemd (245.4-4ubuntu3.15) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for dbus (1.12.16-2ubuntu2.1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
azureuser@globetechvm231:~$ docker --version
Docker version 20.10.7, build 20.10.7-0ubuntu5~20.04.2
azureuser@globetechvm231:~$
```

Step9: to create hello-world image we can using below command - sudo docker run hello-world



```
az user@globetechvm231:-
Docker version 20.10.7, build 20.10.7-0ubuntu5~20.04.2
az user@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

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```

Case2: Explain with screenshots - how docker images will be installed in a vm and explain various features of docker

A Docker image is a read-only template that contains a set of instructions for creating a container that can run on the Docker platform. It provides a convenient way to package up applications and preconfigured server environments, which you can use for your own private use or share publicly with other Docker users.

Solution

To create docker images use the following command

>>>to create hello-world image we can using below command

Command>>sudo docker run hello-world

```
az user@globetechvm231: ~
Docker version 20.10.7, build 20.10.7-0ubuntu5~20.04.2
az user@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
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https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
```

>>>to see how many images are present in docker by use by below command

Command>>sudo docker images

```
az user@globetechvm231: ~$ sudo docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
hello-world    latest    feb5d9fea6a5   4 months ago   13.3kB
az user@globetechvm231: ~$
```

Various features of docker-

- Faster and easier configuration.
- Application isolation.
- Increase in productivity.
- Swarm. · Services.
- Routing Mesh.
- Security Management.
- Rapid scaling of Systems.

Case 3. In Azure - please create kubernetes cluster called:

Bajajkubocluster678 & Create a sample Voting app & explain all steps with screenshots.

Step1: Create a kubernetes cluster

Create Kubernetes cluster

Project details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

| | |
|------------------|--|
| Subscription * | <input type="text" value="unextazurebajaj111"/> |
| Resource group * | <input type="text" value="bajajdemo"/> Create new |

Cluster details

| | |
|------------------------------|--|
| Cluster preset configuration | Standard (\$\$) Quickly customize your cluster by choosing the preset configuration applicable to your scenario. Depending on the selection, values of certain fields might change in different tabs. You can modify these values at any time. View all preset configurations |
| Kubernetes cluster name * | <input type="text" value="BajajKubecluster678"/> |
| Region * | <input type="text" value="(US) East US"/> |
| Availability zones | <input type="text" value="Zones 1,2,3"/> <small>High availability is recommended for standard configuration.</small> |
| Kubernetes version * | <input type="text" value="1.21.7 (default)"/> |

[Review + create](#)
< Previous
Next : Node pools >

Step2: Validation

Home > Kubernetes services >

Create Kubernetes cluster

Validation passed

| | | | | | | |
|------------------------|----------------------------|--------------------------------|----------------------------|------------------------------|----------------------|---------------------------------|
| Basics | Node pools | Authentication | Networking | Integrations | Tags | Review + create |
|------------------------|----------------------------|--------------------------------|----------------------------|------------------------------|----------------------|---------------------------------|

Basics

| | |
|-------------------------|---------------------|
| Subscription | unextazurebajaj111 |
| Resource group | bajajdemo |
| Region | East US |
| Kubernetes cluster name | BajajKubecluster678 |
| Kubernetes version | 1.21.7 |

Node pools

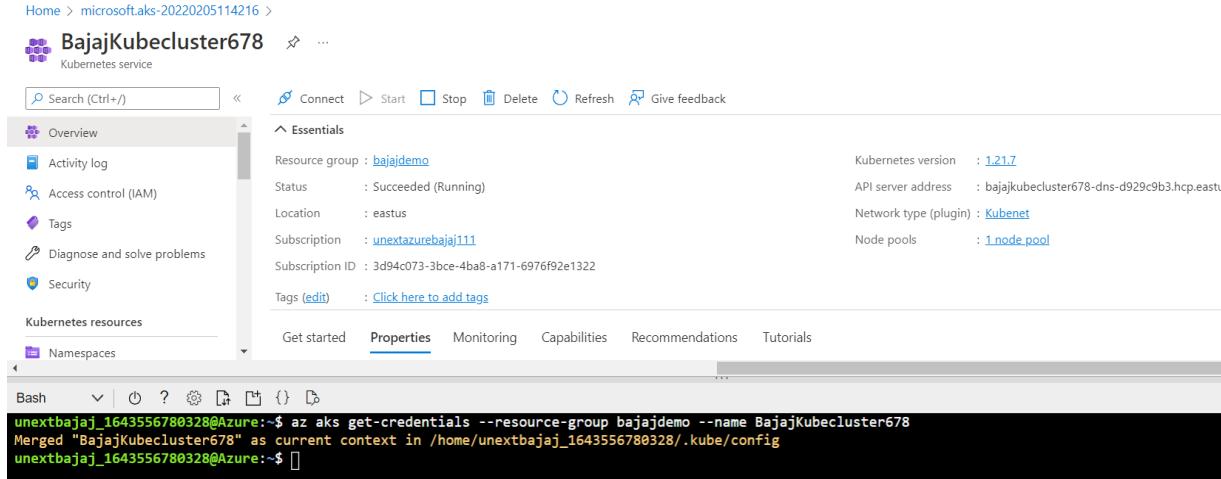
| | |
|-----------------------------------|----------|
| Node pools | 1 |
| Enable virtual nodes | Disabled |
| Enable virtual machine scale sets | Enabled |

Authentication

| | |
|----------------------------------|----------------------------------|
| Authentication method | System-assigned managed identity |
| Role-based access control (RBAC) | Enabled |

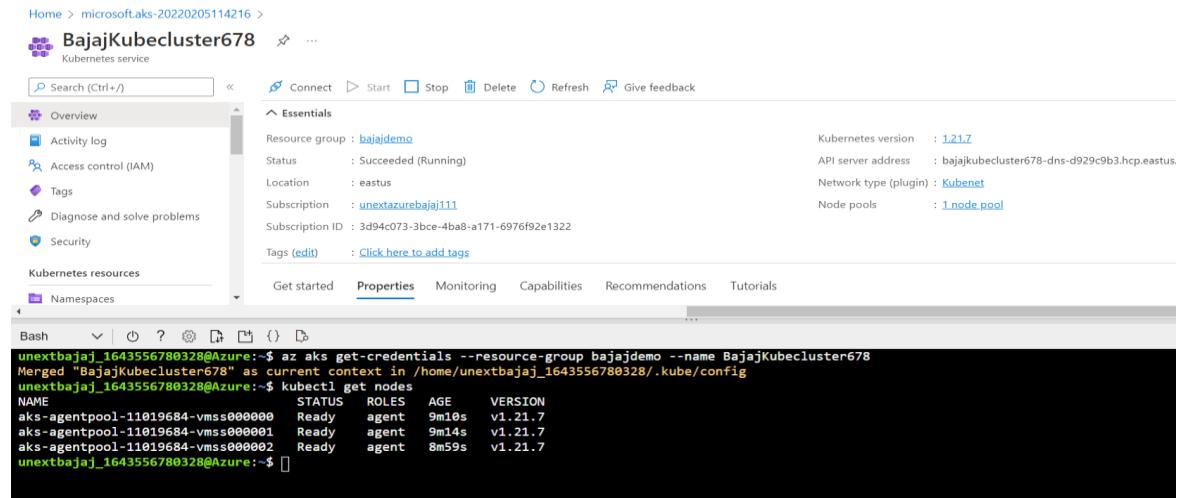
[Create](#)
< Previous
Next >
[Download a template for automation](#)

Step3: Configure kubectl to connect to your Kubernetes cluster using the [az aks get-credentials](#) command.



```
unextbajaj_1643556780328@Azure:~$ az aks get-credentials --resource-group bajajdemo --name BajajKubecluster678
Merged "BajajKubecluster678" as current context in /home/unextbajaj_1643556780328/.kube/config
unextbajaj_1643556780328@Azure:~$ 
```

Step4: Verify the connection to your cluster using kubectl get to return a list of the cluster nodes



```
unextbajaj_1643556780328@Azure:~$ az aks get-credentials --resource-group bajajdemo --name BajajKubecluster678
Merged "BajajKubecluster678" as current context in /home/unextbajaj_1643556780328/.kube/config
unextbajaj_1643556780328@Azure:~$ kubectl get nodes
NAME           STATUS    ROLES      AGE     VERSION
aks-agentpool-11019684-vmss000000  Ready    agent    9m10s   v1.21.7
aks-agentpool-11019684-vmss000001  Ready    agent    9m14s   v1.21.7
aks-agentpool-11019684-vmss000002  Ready    agent    8m59s   v1.21.7
unextbajaj_1643556780328@Azure:~$ 
```

Step5: Create application in cloud shell use an editor to create a file named azure-vote.yaml

```
unextbajaj_1643556780328@Azure:~$ vi azure-vote.yaml.
unextbajaj_1643556780328@Azure:~$ 
```

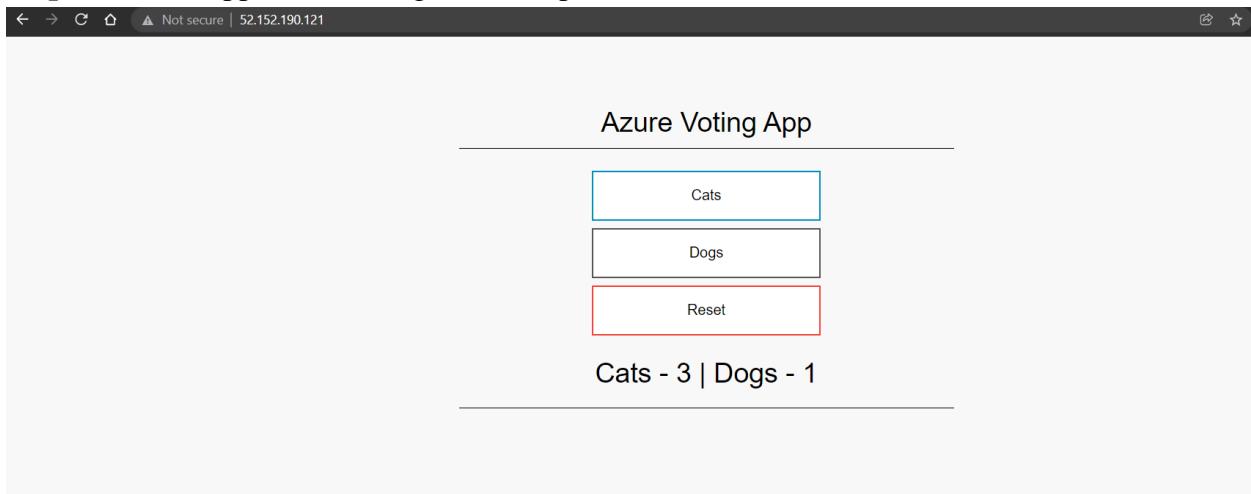
Step6: Deploy the application using the kubectl apply command and specify the name of your YAML manifest

```
unextbajaj_1643556780328@Azure:~$ kubectl apply -f azure1-vote.yaml.
deployment.apps/azure-vote-back configured
service/azure-vote-back unchanged
deployment.apps/azure-vote-front configured
service/azure-vote-front created
unextbajaj_1643556780328@Azure:~$ █
```

Step7: Now test the application

```
unextbajaj_1643556780328@Azure:~$ kubectl get service azure-vote-front -watch
NAME           TYPE      CLUSTER-IP   EXTERNAL-IP      PORT(S)        AGE
azure-vote-front   LoadBalancer   10.0.13.148   52.152.190.121   80:32765/TCP   2m43s
```

Step8: Run the application using external-ip



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

The cloud service models describe to what extent your resources are managed by yourself or by your cloud service providers.

The offers are mainly categorized into the following service models:

1. **On-premises:** On-premises describes a model in which the user manages all resources alone.
2. **Infrastructure as a Service (IaaS):** IaaS describes a model in which the cloud provider gives the consumer the ability to create and configure resources from the computing layer

upwards. This includes virtual machines, containers, networks, appliances, and many other infrastructure-related resources.

3. **Platform as a Service (PaaS)**: PaaS gives the consumer an environment from the operating system upwards. So the consumer is not responsible for the underlying infrastructure.
4. **Software as a Service (SaaS)**: SaaS is the model with the lowest levels of control and required management. A SaaS application is reachable from multiple clients and consumers, and the owning consumer doesn't have any control over the backend, except for application-related management tasks.

Cloud deployment models

Cloud deployment models describe the way in which resources are provided in the cloud.

1. A **private cloud** is an environment/infrastructure, built and operated by a single organization, which is only for internal use. The deployment model based on the on-premises service model is private cloud
2. A **public cloud** is an offer from a service provider (for example, Microsoft Azure), that can be accessed by the public. This includes individuals as well as companies. The deployment model based on the IaaS and the PaaS service model is public cloud

There are 3 types of cloud service models. They are:

- **IaaS**: It provides virtualized computing resources over the internet. No worries about the underlying physical machine. Abstract the user from the physical machine.
- **PaaS**: No control over the underlying architecture including OS, storage, servers, etc. The Cloud Provider gives the ability to the customer to deploy customer created apps using programming languages, tools etc that are provided by the Cloud Provider.
- **SaaS**: Cloud Provider leases applications or softwares are owned by them to its client. Example: Salesforce provides CRM (Customer Relation Manager)

Deployment models

There are 3 types of cloud deployment models. They are:

- **Public Cloud**: A service provider makes resources, such as applications and storage available to the general public over the internet. Easy and inexpensive set-up because hardware,

application and bandwidth costs are covered by the provider. No resources are wasted because we have to pay for what we use.

- **Private Cloud:** Offers hosted services to a limited number of people behind firewall, so it minimizes the security concerns. Private cloud gives companies direct control over their data.
- **Hybrid Cloud:** A cloud computing environment which uses a mix of on-premises, private cloud and third-party, public cloud services. It helps us to leverage best of both worlds.

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

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 policies, 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.

Virtualization is the process of creating a software-based or virtual representation of something, such as virtual applications, servers, storage, and networks.

We achieve virtualization by using cloud computing and Virtual Machines (VM). They allow the operating system of physical server to run on a virtual layer. It also allows us to run multiple virtual machines on the same hardware. Each virtual machine has its own OS, ram, CPU, and I/O resources.

Advantages of virtualization:

- Flexibility
- Less hardware maintenance
- Saving space
- More cost-effective

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

Problem:

With multiple storage tiers and automated lifecycle management, store massive amounts of infrequently or rarely accessed data in a cost-efficient way. Replace your tape archives with Blob storage and never worry about migrating across hardware generations.

Solution:

1. Create a data storage with unique name

The screenshot shows the Microsoft Azure portal's 'Create a storage account' wizard. The top navigation bar includes 'Microsoft Azure', a search bar, and user information. The main title is 'Create a storage account'. Below it, there are tabs for 'Basics', 'Advanced', 'Networking', 'Data protection', 'Encryption', 'Tags', and 'Review + create'. The 'Basics' tab is selected. Under 'Project details', it says 'Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.' A dropdown for 'Subscription' shows 'unextazurebajaj111'. Under 'Resource group', it shows 'bajajdemo' with a 'Create new' link. The 'Instance details' section asks if legacy storage account type is needed, with a link to click here. It shows 'Storage account name' as 'samplestorage135' and 'Region' as '(US) East US'. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next : Advanced >'.

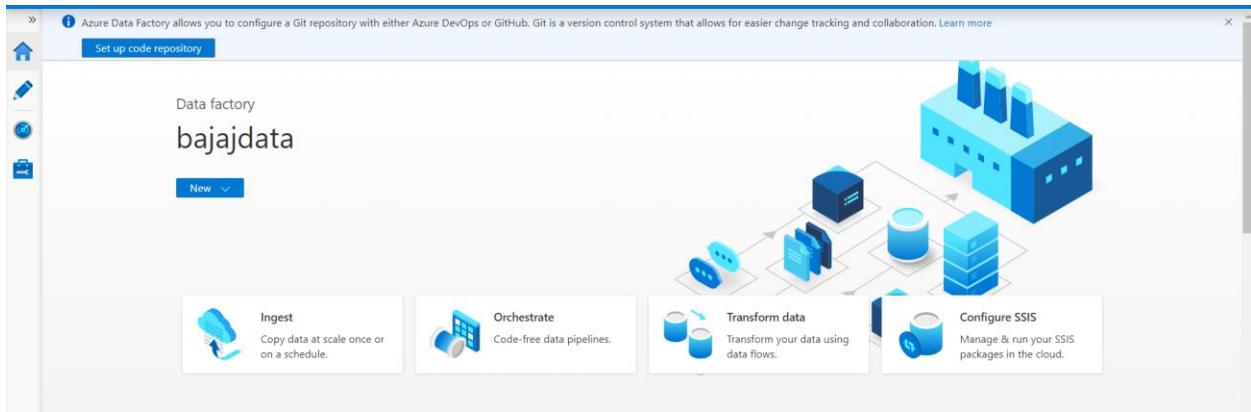
2. Create a container

The screenshot shows the Azure Storage Accounts blade for the 'samplestorage134' account. On the left, there's a navigation menu with options like Overview, Activity log, Tags, etc. The main area shows a table of existing containers, with one named '\$logs'. A modal window titled 'New container' is open on the right, prompting for a name ('source') and setting the public access level to 'Private (no anonymous access)'. At the bottom of the modal are 'Create' and 'Discard' buttons.

3. Create another container to receive the documents

The screenshot shows the Azure Storage Containers blade for the 'samplestorage134' account. The left sidebar has the 'Containers' option selected. The main area displays a table with three entries: '\$logs', 'destination', and 'source', all set to 'Private' and 'Available' status. A 'Show deleted containers' toggle switch is visible at the top right of the table area.

4. Create a data factory as a workplace to send and receive data



5. Click on ingest to create a blob

6. Create a new connection

7. Test the new connection and add the folder path of source file

Copy Data tool

Source data store

Specify the source data store for the copy task. You can use an existing data store connection or specify a new data store.

Source type: Azure Blob Storage

Connection: AzureBlobStorage1

File or folder: source/churn.csv

Options:

- Binary copy
- Recursively
- Enable partition discovery

Max concurrent connections: 100

Filter by last modified

Start time (UTC): 2023-10-01T00:00:00Z

End time (UTC): 2023-10-01T23:59:59Z

< Previous Next > Cancel

Copy Data tool

Deployment complete

Deployment step Status

| | |
|-------------------------------------|-----------|
| Validating copy runtime environment | Succeeded |
| Creating datasets | Succeeded |
| Creating pipelines | Succeeded |
| Running pipelines | Succeeded |

Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.

Finish Edit pipeline Monitor

8. Configure the delimiter

Copy Data tool

The screenshot shows the 'File format settings' section of the Copy Data tool. It includes fields for 'File format' (set to 'DelimitedText'), 'Column delimiter' (set to 'Comma (,)'), 'Row delimiter' (set to 'Default (\r\n, or \n\r)'), and 'Compression type' (set to 'None'). There are also sections for 'Additional columns' and a 'New' button.

Properties
Source
Dataset
Configuration
Target
Settings
Review and finish

File format settings

File format: DelimitedText
Column delimiter: Comma (,)
Row delimiter: Default (\r\n, or \n\r)
First row as header:
Advanced
Compression type: None
Additional columns: New

< Previous Next > Cancel

9. Confirm the settings

Copy Data tool

The screenshot shows the 'Settings' section of the Copy Data tool. It includes fields for 'Task name' (set to 'CopyPipeline_pay'), 'Task description' (empty), 'Data consistency verification' (radio button selected), 'Fault tolerance' (dropdown set to 'None'), 'Enable logging' (checkbox checked), 'Enable staging' (checkbox checked), and an 'Advanced' section.

Properties
Source
Target
Settings
Review and finish

Settings

Enter name and description for the copy data task; more options for data movement

Task name *: CopyPipeline_pay
Task description:
Data consistency verification:
Fault tolerance: None
Enable logging:
Enable staging:
Advanced

< Previous Next > Cancel

10. Validation

Copy Data tool

- Properties
- Source
- Target
- Settings
- Review and finish**
- Review
- Deployment

Deployment complete

| Deployment step | Status |
|-------------------------------------|-----------|
| Validating copy runtime environment | Succeeded |
| > Creating datasets | Succeeded |
| > Creating pipelines | Succeeded |
| > Running pipelines | Succeeded |

Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.

Buttons: Finish, Edit pipeline, Monitor

11. Check the file in destination folder

Home > Storage accounts > samplestorage134 >

destination Container

Search (Ctrl+ /) < X

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: destination

Search blobs by prefix (case-sensitive) Show deleted blobs

Add filter

| Name | Modified | Access tier | Archive status | Blob type | Size | Lease state | ... |
|-----------|-----------------------|----------------|----------------|------------|------------|-------------|-----|
| churn.csv | 2/5/2022, 10:41:42 AM | Hot (Inferred) | | Block blob | 954.59 KIB | Available | ... |

12. Follow the same steps for txt file

Home > Storage accounts > samplestorage134 >

destination Container

Search (Ctrl+ /) < X

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: destination

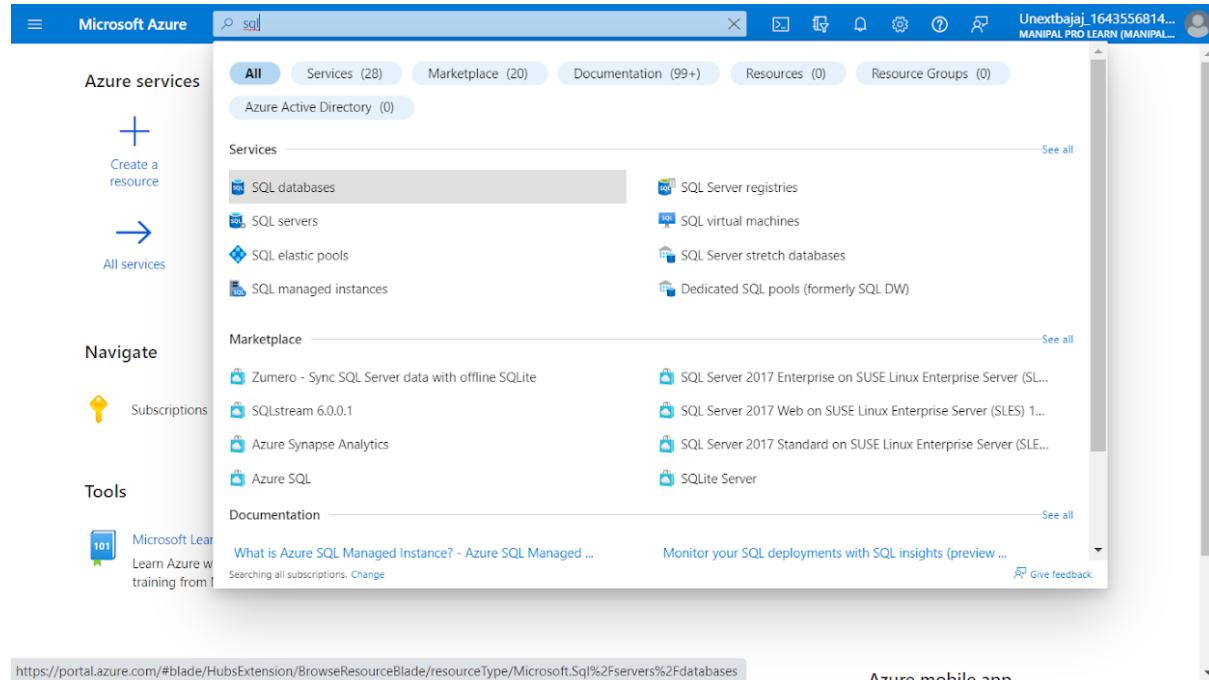
Search blobs by prefix (case-sensitive) Show deleted blobs

Add filter

| Name | Modified | Access tier | Archive status | Blob type | Size | Lease state | ... |
|------------------------|-----------------------|----------------|----------------|------------|------------|-------------|-----|
| case study 5th feb.txt | 2/5/2022, 10:48:02 AM | Hot (Inferred) | | Block blob | 2.46 KIB | Available | ... |
| churn.csv | 2/5/2022, 10:41:42 AM | Hot (Inferred) | | Block blob | 954.59 KIB | Available | ... |

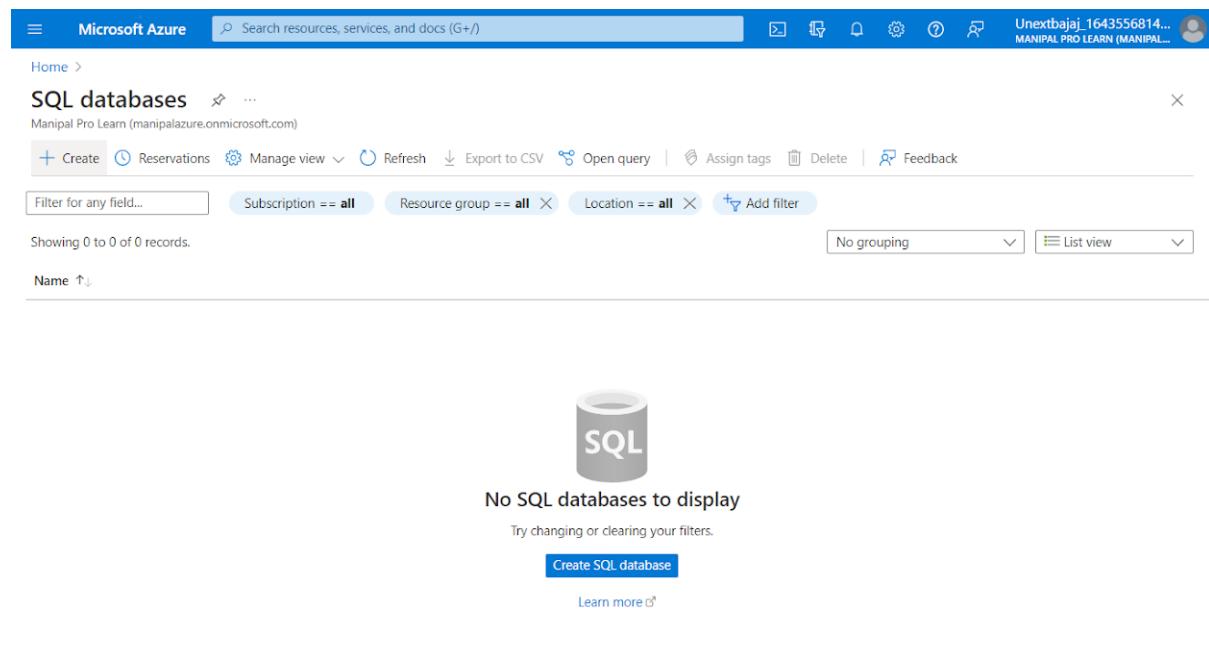
Case-8- In azure please create Azure SQL Database & Create the table as Bajajsq123 & Run at least 15 SQL Queries explain all steps with screenshots?

Step1- Search for SQL database in search tab of Microsoft Azure



The screenshot shows the Microsoft Azure portal interface. The search bar at the top contains the text 'sql'. Below the search bar, there are several navigation tabs: 'All' (selected), 'Services (28)', 'Marketplace (20)', 'Documentation (99+)', 'Resources (0)', and 'Resource Groups (0)'. Under the 'Services' tab, the 'SQL databases' option is highlighted. Other service options listed include 'SQL servers', 'SQL elastic pools', and 'SQL managed instances'. In the 'Marketplace' section, various Azure services are listed, such as 'Zumero - Sync SQL Server data with offline SQLite', 'SQLstream 6.0.0.1', 'Azure Synapse Analytics', 'Azure SQL', and 'SQLite Server'. A 'Documentation' section is also present, featuring a link to 'What is Azure SQL Managed Instance? - Azure SQL Managed ...'. The URL in the address bar is <https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.Sql%2Fservers%2fdatabases>.

Step2- Click on Create in SQL Databases window



The screenshot shows the 'SQL databases' blade in the Microsoft Azure portal. At the top, there is a breadcrumb navigation: 'Home > SQL databases'. The main title is 'SQL databases' with a 'Create' button and a three-dot ellipsis menu. Below the title, it says 'Manipal Pro Learn (manipalazure.onmicrosoft.com)'. There are several filter and sorting options: 'Subscription == all', 'Resource group == all', 'Location == all', 'Name ↑↓', 'No grouping', and 'List view'. A message at the top states 'Showing 0 to 0 of 0 records.' In the center, there is a large 'SQL' logo icon. Below the icon, the text 'No SQL databases to display' is displayed, followed by the instruction 'Try changing or clearing your filters.' A prominent blue 'Create SQL database' button is located at the bottom. The URL in the address bar is <https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.Sql%2Fservers%2fdatabases>.

Step3- Set Resource group name by clicking on Create New and add new unique.

Subscription * unextazurebajaj119

Resource group * bajajresource1
Create new

A resource group is a container that holds related resources for an Azure solution.

Name * bajaj

bajajmine1.azurecr.io/demo/custom-image-demo:v1

The value must not be empty.

Review + create Next : Networking >

Step4- Create database name by clicking on Create name

Resource group * bajajresource1
Create new

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name * bajajsqld1

Server * Select a server
Create new

The value must not be empty.

Want to use SQL elastic pool? * Yes No

Compute + storage * Please select a server first.
Configure database

Backup storage redundancy

Please select a server first.

Review + create Next : Networking >

Step5- Click on create server to add server name

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

Home > SQL databases > Create SQL Database >

Create SQL Database

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name *

bajajsqldb

Server *

Select a server

Create new

The value must not be empty.

Want to use SQL elastic pool? * Yes No

Compute + storage * Please select a server first.

Configure database

Backup storage redundancy

Choose how your PITR and LTR backups are replicated. Geo restore or ability to recover from regional outage is only available when geo-redundant storage is selected.

Review + create **Next : Networking >**

Step6- Add server name which is unique

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

Home > SQL databases > Create SQL Database >

Create SQL Database Server

Server details

Enter required settings for this server, including providing a name and location. This server will be created in the same subscription and resource group as your database.

Server name *

bajajsqldbserver123

.database.windows.net

Server name should not contain reserved words.

The specified server name is available.

Location *

(US) East US

Authentication

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication [Learn more](#) using an existing Azure AD user, group, or application as Azure AD admin [Learn more](#), or select both SQL and Azure AD authentication.

Authentication method

Use SQL authentication

Use only Azure Active Directory (Azure AD) authentication

Use both SQL and Azure AD authentication

OK

Step7- Add server admin login name and password

Microsoft Azure Search resources, services, and docs (G+/-) Home > SQL databases > Create SQL Database > Create SQL Database Server ...

Location * (US) East US

Authentication

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication [Learn more](#) using an existing Azure AD user, group, or application as Azure AD admin [Learn more](#), or select both SQL and Azure AD authentication.

Authentication method Use SQL authentication Use only Azure Active Directory (Azure AD) authentication Use both SQL and Azure AD authentication

Server admin login * bajajadmin123

Password * *****

Confirm password * *****

OK

Step7- Add server admin login name and password

Microsoft Azure Search resources, services, and docs (G+/-) Home > SQL databases > Create SQL Database > Create SQL Database Server ...

Server * (new) bajajsqserver123 (East US) Create new

Want to use SQL elastic pool? * Yes No

Compute + storage * General Purpose Gen5, 2 vCores, 32 GB storage, zone redundant disabled Configure database

Backup storage redundancy Locally-redundant backup storage Zone-redundant backup storage Geo-redundant backup storage

⚠️ Selected value for backup storage redundancy is Geo-redundant backup storage. Note that database backups will be geo-replicated to the paired region. Learn more

Review + create Next : Networking >

Step8- Click on Review + Create for validation

The screenshot shows the Microsoft Azure portal interface for creating a SQL database. At the top, there's a navigation bar with 'Microsoft Azure', a search bar, and various icons. Below it, the page title is 'Create SQL Database'. The main content area has tabs: 'Basics', 'Networking', 'Security', 'Additional settings', 'Tags', and 'Review + create'. The 'Review + create' tab is selected. On the left, under 'Product details', it says 'SQL database by Microsoft' and provides links to 'Terms of use' and 'Privacy policy'. To the right, there's a section titled 'Estimated cost per month' with a note '...'. Below that is a link 'View pricing details'. Under 'Terms', there's a detailed legal notice. The 'Basics' section shows subscription details: 'Subscription' (unextazurebajaj119), 'Resource group' (bajajresource1), and 'Region' (East US). At the bottom, there are buttons for 'Validating...', '< Previous', and 'Download a template for automation'.

Step9- Click on Create for initializing deployment

This screenshot is similar to the previous one but includes a modal window in the top right corner. The modal has a progress bar at the top with the text '*** Initializing deployment...' and a message below it stating 'Initializing template deployment to resource group 'bajajresource1''. The rest of the interface is identical to the first screenshot, showing the 'Review + create' step of the wizard.

Step10- After deployment is create, click on Go to Resource

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "Microsoft.SQLDatabase.newDatabaseNewServer_718a7507a2a843a9a8155". The status is "Your deployment is complete". Deployment details include a name, subscription, resource group, start time (2/5/2022, 10:42:50 AM), and correlation ID. A "Go to resource" button is present. The right sidebar features links for Microsoft Defender, Free Microsoft tutor, and Work with an expert.

Step10- In the resource page, click on Query Editor

The screenshot shows the Microsoft Azure SQL Database resource page for a database named "bajajsqldb". The left sidebar lists options like Overview, Activity log, Tags, and Query editor (preview). The main area displays database details such as Resource group, Status, Location, Subscription, and Pricing tier. A "Compute utilization" chart and a "Database data storage" donut chart (showing 0.01% used space) are also visible.

Step10- In the Query Editor, add password and click OK

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. The left sidebar contains navigation links for Activity log, Tags, Diagnose and solve problems, Quick start, and Query editor (preview). Under Power Platform, there are links for Power BI, Power Apps, and Power Automate. The main area displays the 'Welcome to SQL Database Query Editor' screen. It features two authentication methods: 'SQL server authentication' (selected) and 'Active Directory authentication'. The 'Login' field is populated with 'bajajadmin123'. A blue button labeled 'Continue as Unextbajaj_1643556814060...' is visible. Below the login fields is an 'OK' button. The URL in the browser bar is <https://portal.azure.com/#@manipalazure.onmicrosoft.com/resourceGroups/bajajsqldb/providers/Microsoft.DBforSQL/servers/bajajsqldb/databases/bajajsqldb>.

Step11- If the following error, click on Allowlist IP

The screenshot shows the same Microsoft Azure SQL Database Query Editor interface as the previous one. However, an error message has appeared below the login fields. The message states: 'Cannot open server 'bajajsqldb' requested by the login. Client with IP address '146.196.39.181' is not allowed to access the server. To enable access, use the Azure Portal or run sp_set_firewall_rule on the master database to create a firewall rule for this IP address or address range. It may take up to five minutes for this change to take effect.' Below the message, a link says 'Allowlist IP 146.196.39.181 on server bajajsqldb'. An 'OK' button is at the bottom of the message area.

Step12- After it is successfully updated firewall, click on OK to enter into the database

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. The left sidebar includes links for Activity log, Tags, Diagnose and solve problems, Quick start, and Query editor (preview). The main area displays the 'Welcome to SQL Database Query Editor' screen. It features two authentication options: 'SQL server authentication' (selected) and 'Active Directory authentication'. Under 'SQL server authentication', fields for 'Login' (bajajadmin123) and 'Password' (redacted) are filled. A note indicates that the server 'bajajsqldb' cannot be opened due to a firewall restriction from IP '146.196.39.181'. An 'OK' button is at the bottom right. A success message in the top right corner states 'Successfully updated server firewall rules'.

Step13- In the Query Editor page, run different queries

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. The left sidebar includes links for Activity log, Tags, Diagnose and solve problems, Quick start, and Query editor (preview). The main area displays the 'Query editor (preview)' screen. It shows a sidebar with 'bajajsqldb (bajajadmin123)' and icons for Tables, Views, and Stored Procedures. The main pane is titled 'Query 1' and contains a single line of code: '1'. Below the code, there are tabs for 'Results' and 'Messages', and a search bar. A status bar at the bottom says 'Ready'.

Step14- In the Query Editor, run the Create table query

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. In the top navigation bar, the user is signed in as 'Unextbajaj 1643556814... MANIPAL PRO LEARN (MANIPAL...)'. The main content area displays the 'Query editor (preview)' for the 'bajajsqldb' database. On the left, there's a sidebar with options like 'Tables', 'Views', and 'Stored Procedures'. The main pane shows a query titled 'Query 1' containing the following SQL code:

```
1  create table Bajajsqli23(
2      empid int,
3      empname text,
4      salary real
5 );
```

Below the code, the status bar indicates 'Query succeeded: Affected rows: 0'. At the bottom, a green message bar says 'Query succeeded | 0s'.

Step15- In the Query Editor, run the insert data into the table query

This screenshot shows the same Microsoft Azure portal interface as the previous one, but with three insert statements added to the 'Query 1' editor:

```
1  insert into Bajajsqli23 (empid, empname, salary) values(10, 'Bob', 10000);
2  insert into Bajajsqli23 (empid, empname, salary) values(11, 'Maxx', 20000);
3  insert into Bajajsqli23 (empid, empname, salary) values(12, 'Alex', 30000);
```

The status bar now shows 'Query succeeded: Affected rows: 3'. The green message bar at the bottom remains 'Query succeeded | 0s'.

Step16- In the Query Editor, run the select all table query

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. The left sidebar lists 'Tables', 'Views', and 'Stored Procedures'. The main area displays a query editor titled 'Query 1' with the following content:

```
1 select * from Bajajsq123;
```

The results pane shows the following data:

| empid | empname | salary |
|-------|---------|--------|
| 10 | Bob | 10000 |
| 11 | Maxx | 20000 |
| 12 | Alex | 30000 |

At the bottom, a message indicates 'Query succeeded | 0s'.

Step18- In the Query Editor, run the Alter table query

The screenshot shows the Microsoft Azure portal interface for a SQL database named 'bajajsqldb'. The left sidebar lists 'Tables', 'Views', and 'Stored Procedures'. The main area displays a query editor titled 'Query 1' with the following content:

```
1 alter table Bajajsq123 ALTER COLUMN empname varchar(20);
```

The results pane shows the message 'Query succeeded: Affected rows: 0'.

Step19- In the Query Editor, run the Update column table query

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

Home > Microsoft.SQLDatabase.newDatabaseNewServer_718a7507a2a843a9a8155 > bajajsqldb (bajajsqlserver123/bajajsqldb)

bajajsqldb (bajajsqlserver123/bajajsqldb) | Query editor (preview) ...

SQL database

Login New Query Open query Feedback

bajajsqldb (bajajadmin123)

Showing limited object explorer here. For full capability please open SSDT.

Tables Views Stored Procedures

Query 1

Run Cancel query Save query Export data as Show only Editor

```
1 update Bajajsql123 SET salary=40000 where empname='Bob';
2 select * from Bajajsql123;
```

Results Messages

| empid | empname | salary |
|-------|---------|--------|
| 10 | Bob | 40000 |
| 11 | Maxx | 20000 |
| 12 | Alex | 30000 |

Query succeeded | 0s

This screenshot shows the Microsoft Azure SQL Database Query Editor. The left sidebar lists the database 'bajajsqldb' and its owner 'bajajadmin123'. A message indicates a limited object explorer due to current restrictions. Below the sidebar are links for 'Tables', 'Views', and 'Stored Procedures'. The main area is titled 'Query 1' and contains a code editor with the following SQL script:

```
1 update Bajajsql123 SET salary=40000 where empname='Bob';
2 select * from Bajajsql123;
```

Below the code editor are tabs for 'Results' and 'Messages'. The 'Results' tab displays a table with three rows of data:

| empid | empname | salary |
|-------|---------|--------|
| 10 | Bob | 40000 |
| 11 | Maxx | 20000 |
| 12 | Alex | 30000 |

The status bar at the bottom shows 'Query succeeded | 0s'.

Step20- In the Query Editor, run the delete table query

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

Home > Microsoft.SQLDatabase.newDatabaseNewServer_718a7507a2a843a9a8155 > bajajsqldb (bajajsqlserver123/bajajsqldb)

bajajsqldb (bajajsqlserver123/bajajsqldb) | Query editor (preview) ...

SQL database

Login New Query Open query Feedback

bajajsqldb (bajajadmin123)

Showing limited object explorer here. For full capability please open SSDT.

Tables Views Stored Procedures

Query 1

Run Cancel query Save query Export data as Show only Editor

```
1 delete Bajajsql123;
```

Results Messages

Query succeeded: Affected rows: 3

Query succeeded | 0s

This screenshot shows the Microsoft Azure SQL Database Query Editor. The left sidebar lists the database 'bajajsqldb' and its owner 'bajajadmin123'. A message indicates a limited object explorer due to current restrictions. Below the sidebar are links for 'Tables', 'Views', and 'Stored Procedures'. The main area is titled 'Query 1' and contains a code editor with the following SQL script:

```
1 delete Bajajsql123;
```

Below the code editor are tabs for 'Results' and 'Messages'. The 'Messages' tab displays the message 'Query succeeded: Affected rows: 3'. The status bar at the bottom shows 'Query succeeded | 0s'.

Case-9- 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.

Step1- Search for Storage accounts in search tab of Microsoft Azure

The screenshot shows the Microsoft Azure search interface. The search bar at the top contains the text 'stor'. Below the search bar, there are several tabs: All, Services (66), Marketplace (20), Documentation (99+), Resources (0), and Resource Groups (0). The 'All' tab is selected. Under the 'Services' section, 'Storage accounts' is highlighted and selected. Other services listed include StorSimple Data Managers, StorSimple Device Managers, Advisor, and Monitor. The 'Recent resources' section shows two items: 'bajajsqldb' and 'bajajresource1'. The 'Navigate' section includes links for Subscriptions, Resource groups, All resources, and Dashboard. The URL in the address bar is https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.Storage%2FStorageAccounts.

Step2- Click on create in Storage accounts

The screenshot shows the Microsoft Azure 'Storage accounts' blade. At the top, there is a header with 'Storage accounts' and a 'Create' button. Below the header, there are filter options: 'Subscription == all', 'Resource group == all', 'Location == all', and an 'Add filter' button. The main area displays a table with one record. The table columns are: Name, Type, Kind, Resource group, Location, and Subscription. The single record shown is 'sqlvagdvcoipmaznqs', which is a Storage account of type StorageV2, located in 'bajajresource1' resource group, in 'East US' location, and associated with 'unextazurebajaj119' subscription. At the bottom, there are navigation links for 'Previous', 'Page 1 of 1', and 'Next'.

Step3- Add a new resource group name or select already existing resource group

Subscription: unextazurebajaj119

Resource group: bajajresource1

Name: bajaj

Step4- Enter any name for storage account name

Storage account name: bajajdb2

Region: (US) East US

Performance: Standard (selected)

Redundancy: Geo-redundant storage (GRS)

Make read access to data available in the event of regional unavailability:

Step5- Click on Review + Create for validation

Validation passed

Basics Advanced Networking Data protection Encryption Tags Review + create

Basics

| | |
|----------------------|--|
| Subscription | unextazurebajaj119 |
| Resource Group | bajajresource1 |
| Location | eastus |
| Storage account name | bajajdb2 |
| Deployment model | Resource manager |
| Performance | Standard |
| Replication | Read-access geo-redundant storage (RA-GRS) |

Advanced

| | |
|----------------------------------|---------|
| Secure transfer | Enabled |
| Allow storage account key access | Enabled |

Create < Previous Next > Download a template for automation

Step6- After validation is passed, click on create for initializing deployment

Deploying...

Initializing deployment...
Initializing template deployment to resource group 'bajajresource1'.

Basics Advanced Networking Data protection Encryption Tags Review + create

Basics

| | |
|----------------------|--|
| Subscription | unextazurebajaj119 |
| Resource Group | bajajresource1 |
| Location | eastus |
| Storage account name | bajajdb2 |
| Deployment model | Resource manager |
| Performance | Standard |
| Replication | Read-access geo-redundant storage (RA-GRS) |

Advanced

| | |
|----------------------------------|---------|
| Secure transfer | Enabled |
| Allow storage account key access | Enabled |

Create < Previous Next > Download a template for automation

Step7- After deployment is complete, click on go to resources

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named 'bajajdb2_1644043908199'. The main message is 'Your deployment is complete'. Deployment details include: Deployment name: bajajdb2_164404390..., Start time: 2/5/2022, 12:21:59 PM; Subscription: unextazurebajaj19; Resource group: bajajresource1. There are links for 'Deployment details' (Download) and 'Next steps'. A 'Go to resource' button is present. On the right, there are promotional cards for Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

Step8- Click on Containers in the resource tab for Azure Blob Storage

The screenshot shows the Microsoft Azure Storage account overview for 'bajajdb2'. The 'Containers' tab is selected under 'Data storage'. The page displays basic information about the storage account, including its resource group (bajajresource1), location (East US), replication type (Read-access geo-redundant storage), account kind (StorageV2), provisioning state (Succeeded), and creation date (2/5/2022, 12:22:08 PM). It also shows the account's tags and blob service settings (Hierarchical namespace: Disabled, Default access tier: Hot, Blob public access: Enabled).

Step9- Click on + Container and add Name of the container

The screenshot shows the Microsoft Azure Storage account interface for 'bajajdb2'. On the left, there's a navigation sidebar with links like Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, and Storage browser (preview). The main area is titled 'Containers' and shows a list of existing containers: '\$logs' (Last modified: 2/5/2022, 12:22:46 PM, Private). At the top right, a modal window titled 'New container' is open, prompting for a name ('input') and public access level ('Private (no anonymous access)'). Below the modal are 'Create' and 'Discard' buttons.

Step10- Similarly, create output folder

The screenshot shows the same Microsoft Azure Storage account interface for 'bajajdb2'. The 'Containers' blade now lists three containers: '\$logs', 'input', and 'output'. A success message at the top right states 'Successfully created storage container' and 'Successfully created storage container 'output''. The 'output' container was created just now, as shown by its creation timestamp of 2/5/2022, 12:24:29 PM.

Step11- Upload a file by going into the input folder and click on upload

The screenshot shows the Microsoft Azure Storage Container 'input' interface. On the left, there's a sidebar with options like Overview, Diagnose and solve problems, Access Control (IAM), Properties, and Metadata. The main area shows a table with columns Name, Modified, and Access tier. A search bar at the top right says 'Search blobs by prefix (case-sensitive)'. To the right, a modal window titled 'Upload blob' is open, showing a file input field with the path 'input/' and the file name 'service desk.txt'. There's also a checkbox for 'Overwrite if files already exist' and a large blue 'Upload' button.

Step12-Upload a file in the upload section

The screenshot shows the Microsoft Azure Storage Container 'input' interface after a file has been uploaded. The table now lists 'service desk.txt' with a modified date of 2/5/2022, 12:37:38 PM, and a status of 'Hot (Info)'. To the right, a modal window titled 'Upload Completed for service desk.txt' shows the file was uploaded in 27 B | bajajdb2. It includes a file selection input, an 'Advanced' section, and a large blue 'Upload' button. Below the table, a section titled 'Current uploads' shows the completed upload of 'service desk.txt'.

Step13- Search for data factory in the search tab

Microsoft Azure Unextbajaj_1643556814... MANIPAL PRO LEARN

Azure services Services (55) Marketplace (20) Documentation (99+) Resources (0) Resource Groups (0)

Create a resource All services

Recent resource bajajsqldb (bajajsqldb) See all

Navigate

Services

Datadog Data Lake Analytics
Data Catalog Data Share Invitations
Data factories Data Lake Storage Gen1
Data Shares Azure Database for MySQL servers

Marketplace

Dataameer Data Preparation and Exploration Datamatics TruBI Enterprise -Business Intelligence & Data Visua...
Dataguise Data Discovery + Protection Software Libelle DataMasking - Anonymize Your Data
DataSunrise Data & Database Security for Azure Imanis Data
Informatica Enterprise Data Preparation Azure Databricks

Documentation

Data partitioning guidance - Best practices for cloud ... Overview of the data management and analytics scenario ...

Searching all subscriptions.

<https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.DataFactory%2FdataFactories>

Step14- Click on Create in the Data factories tab

Microsoft Azure Unextbajaj_1643556814... MANIPAL PRO LEARN

Home >

Data factories

Filter for any field...

Showing 0 to 0 of 0 records.

Name

No data factories to display

Try changing or clearing your filters.

Step15- Enter a name for resource group or select from the existing ones

The screenshot shows the 'Create Data Factory' wizard in the Microsoft Azure portal. In the 'Project details' step, a modal dialog is open for creating a new resource group. The dialog title is 'Create new'. It contains a description: 'A resource group is a container that holds related resources for an Azure solution.' Below this is a 'Name' input field with 'bajaj' typed into it. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Step16- Enter the name of the data factory

The screenshot shows the 'Create Data Factory' wizard in the Microsoft Azure portal. In the 'Project details' step, the 'Name' field is filled with 'bajajadf1'. Other fields like Region (East US) and Version (V2 Recommended) are also set. A modal dialog for creating a new resource group is visible in the background.

Step17- Click on Review +Create for validation and then Click on Create for deployment

Validation Passed

Basics Git configuration Networking Advanced Tags Review + create

TERMS

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

| | |
|----------------|--------------------|
| Subscription | unextazurebajaj119 |
| Resource group | bajajresource1 |
| Region | East US |
| Name | bajajadf1 |
| Version | V2 (Recommended) |

Create < Previous Next Download a template for automation

Step18- Once deployment is complete, click on go to resources

Deployment succeeded

Deployment 'Microsoft.DataFactory-20220205122605' to resource group 'bajajresource1' was successful.

Pin to dashboard Go to resource group

Search (Ctrl+ /)

Deployment

Overview Inputs Outputs Template

We'd love your feedback! →

Your deployment is complete

Deployment name: Microsoft.DataFactory-20220205122605 Start time: 2/5/2022, 12:28:16 PM
Subscription: unextazurebajaj119 Correlation ID: 1b7a9215-3b52-4b6d-b5ad-06d8e9c5...

Deployment details (Download) Next steps

Go to resource

Microsoft Defender for Cloud Secure your apps and infrastructures Go to Microsoft Defender for Cloud

Free Microsoft tutorials Start learning today >

Work with an expert Azure experts are service professionals who can help manage your infrastructure and be your first line of support Find an Azure expert >

Step19- Click on Open in resource overview page

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

Home > Microsoft.DataFactory-20220205122605 >

bajajadf1 Data factory (V2) Delete

Search (Ctrl+ /) Delete

Overview JSON View

Resource group (move) **bajajresource1** Type Data factory (V2)
Status Succeeded Getting started [Quick start](#)
Location East US
Subscription (move) [unextazurebajaj119](#)
Subscription ID 4236c42a-d131-4bd6-b609-aec3a598f2d3

Getting started

Open Azure Data Factory Studio Start authoring and monitoring your data pipelines and data flows. [Open](#)

Read documentation Learn how to be productive quickly. Explore concepts, tutorials, and samples. [Learn more](#)

<https://adf.azure.com/en-us/home?factory=%2Fsubscriptions%2...>

Step20- Select Ingest tab for movement of data in data factory page

Microsoft Azure | Data Factory > bajajadf1

Azure Data Factory allows you to configure a Git repository with either Azure DevOps or GitHub. Git is a version control system that allows for easier change tracking and collaboration. Learn more

Data factory
bajajadf1

New

Ingest Copy data at scale once or on a schedule.

Orchestrate Code-free data pipelines.

Transform data Transform your data using data flows.

Configure SSIS Manage & run your SSIS packages in the cloud.

Discover more

Browse partners (preview) **Pipeline templates**

Recent resources

Step21- Select Run once now and click on next

Microsoft Azure | Data Factory > bajajadf1

Copy Data tool

Properties

Source

Target

Settings

Review and finish

Use Copy Data Tool to perform a one-time or scheduled data load from 90+ data sources. Follow the wizard experience to specify your data loading settings, and let the Copy Data Tool generate the artifacts for you, including pipelines, datasets, and linked services. [Learn more](#)

Properties

Select copy data task type and configure task schedule

Task type

Built-in copy task
You will get single pipeline to copy data from 90+ data source easily.

Metadata-driven copy task (Preview)
Metadata is required to be stored in external control tables to load data at large-scale.

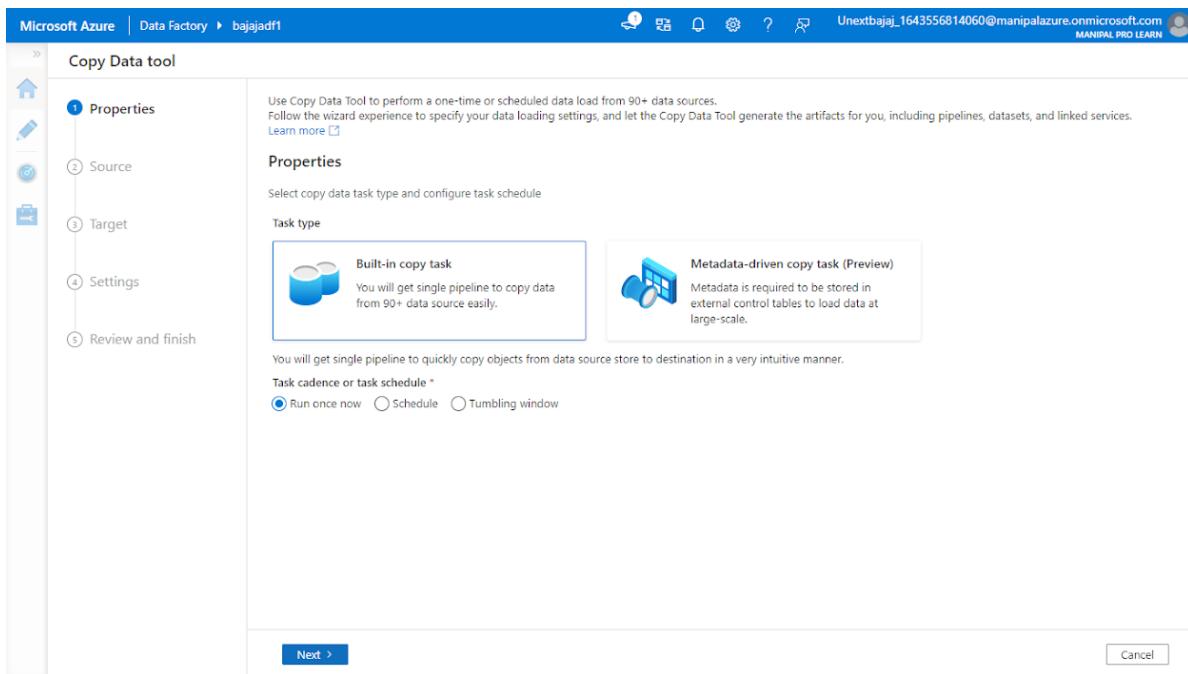
You will get single pipeline to quickly copy objects from data source store to destination in a very intuitive manner.

Task cadence or task schedule *

Run once now Schedule Tumbling window

Next >

Cancel



Step22- Click on create connection in source data store page

Microsoft Azure | Data Factory > bajajadf1

Copy Data tool

Properties

Source

Dataset

Configuration

Target

Settings

Review and finish

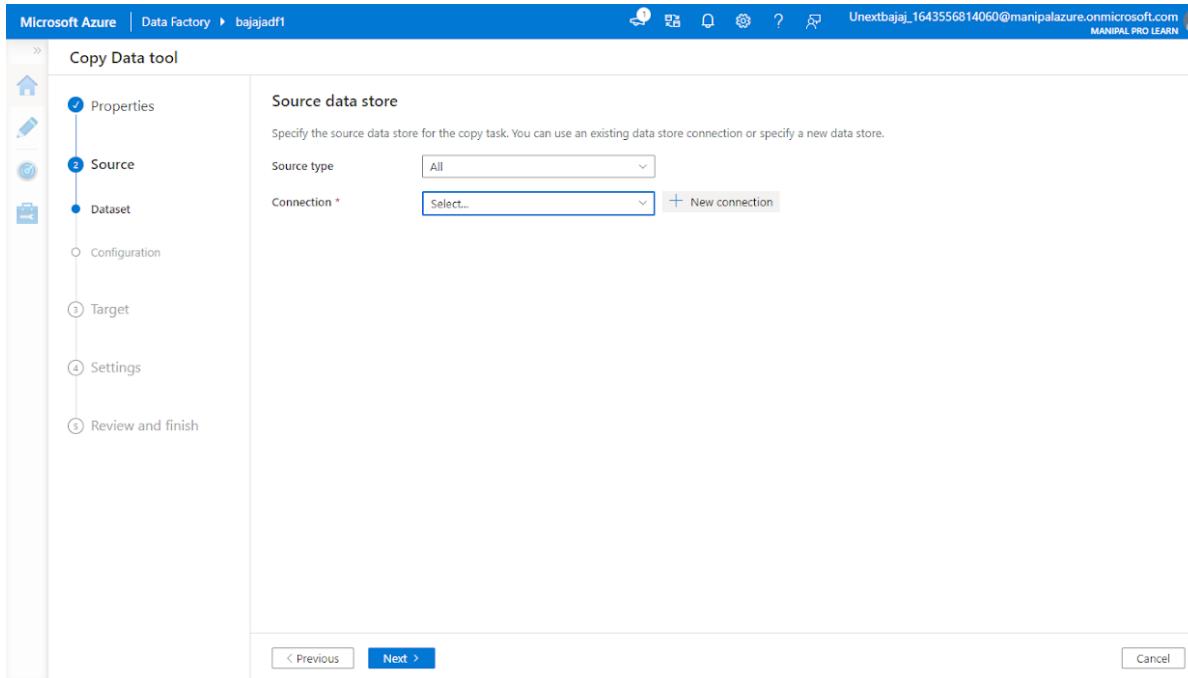
Source data store

Specify the source data store for the copy task. You can use an existing data store connection or specify a new data store.

Source type: All

Connection *: Select... [New connection](#)

< Previous Next > Cancel



Step23- Select azure blob data storage from the pop up menu

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory. The left sidebar lists steps: Properties, Source (selected), Dataset, Configuration, Target, Settings, and Review and finish. The main area is titled 'Source data store' and asks to specify the source data store for the copy task. It includes dropdowns for 'Source type' (set to 'All') and 'Connection' (set to 'Select...'). To the right is a 'New connection' pane with a search bar and tabs for All, Azure, Database, File, Generic protocol, NoSQL, and Services and apps. Under 'Services and apps', there is a grid of icons for various services: Amazon Redshift, Amazon S3, Amazon S3 Compatible, Apache Impala, Azure Blob Storage, Azure Cosmos DB (MongoDB API), Azure Cosmos DB (SQL API), Azure Data Explorer (Kusto), and Azure Data Lake Storage Gen1.

Step24- Enter name of connection, description and select azure subscription and storage name

This screenshot continues from Step 24. The 'Source data store' section remains the same. In the 'New connection' pane, a connection for 'Azure Blob Storage' is selected. The 'Name' field is set to 'source'. The 'Description' field contains 'this is source connection'. Under 'Connect via integration runtime', 'AutoResolveIntegrationRuntime' is chosen. The 'Authentication method' is 'Account key'. The 'Connection string' tab is selected. Under 'Account selection method', 'From Azure subscription' is selected, and 'Enter manually' is unselected. The 'Azure subscription' dropdown shows 'unextazurebajaj119 (4236c42a-d131-4bd6-b609-aec3a598f2d3)'. The 'Storage account name' dropdown shows 'bajajdb2'. At the bottom, there are 'Create' and 'Back' buttons, and a 'Test connection' button with a 'Cancel' button next to it.

Step25- Click on test connection for testing the created connection

Microsoft Azure | Data Factory > bajajadfl

New connection

Azure Blob Storage [Learn more](#)

Connect via integration runtime [Learn more](#)

AutoResolveIntegrationRuntime

Authentication method

Account key

Connection string [Azure Key Vault](#)

Account selection method

From Azure subscription Enter manually

Azure subscription

unextbajaj119 (4236c42a-d131-4bd6-b609-aec3a598f2d3)

Storage account name *

bajajdb2

Additional connection properties

+ New

Test connection

To linked service To file path

Annotations

+ New

Parameters

Connection successful

Create Back Test connection Cancel

Copy Data tool

Properties

Source

Dataset

Configuration

Target

Settings

Review and finish

< Previous Next >

Step26- Click on browse in dataset page

Microsoft Azure | Data Factory > bajajadfl

Copy Data tool

Properties

Source

Dataset

Configuration

Target

Settings

Review and finish

Source data store

Specify the source data store for the copy task. You can use an existing data store connection or specify a new data store.

Source type All

Connection * source [Edit](#) [New connection](#)

File or folder * If the identity you use to access the data store only has permission to subdirectory instead of the entire account, specify the path to browse.

Browse

Options

Binary copy

Recursively

Enable partition discovery

Max concurrent connections

Filter by last modified

Start time (UTC) End time (UTC)

< Previous Next > Cancel

Copy Data tool

Step27- Browse the required file which have to be copied

Microsoft Azure | Data Factory > bajajadf1

Unextbajaj_1643556814060@manipalazure.onmicrosoft.com
MANIPAL PRO LEARN

Copy Data tool

Properties

Source

Dataset

Configuration

Target

Settings

Review and finish

Source data store

Specify the source data store for the copy task. You can use an existing data store or create a new one.

Source type: All

Connection: source

File or folder: service desk.txt

Options

Binary copy

Recursively

Enable partition discovery

Max concurrent connections: 10

Filter by last modified

Start time (UTC):

End time (UTC):

Browse

Select a file or folder.

Root folder > input

service desk.txt

Showing 1 item

OK Cancel

The screenshot shows the 'Source' step configuration in the 'Copy Data tool'. The 'Source' tab is selected in the left sidebar. In the main pane, the 'Source data store' section is visible, showing 'source' as the connection and 'service desk.txt' as the file or folder. Below this, there are 'Options' like 'Binary copy', 'Recursively' (which is checked), and 'Enable partition discovery'. A 'Preview' button is present at the bottom of the main pane.

Step28- Click on preview to see the data and cross check

Microsoft Azure | Data Factory > bajajadf1

Unextbajaj_1643556814060@manipalazure.onmicrosoft.com
MANIPAL PRO LEARN

Copy Data tool

Properties

Source

Dataset

Configuration

Target

Settings

Review and finish

Preview data

Linked service: source

Object: input/service desk.txt

Preview Schema

| Prop_0 | Prop_1 | Prop_2 |
|-------------|--------------|--------|
| servicedesk | bajajfinserv | in |

Cancel

The screenshot shows the 'Preview data' step configuration in the 'Copy Data tool'. The 'Preview' tab is selected in the left sidebar. In the main pane, it shows the linked service 'source' and object 'input/service desk.txt'. Below this, there are tabs for 'Preview' and 'Schema'. The 'Preview' tab displays a table with three columns: Prop_0, Prop_1, and Prop_2. A single row of data is shown: Prop_0 is 'servicedesk', Prop_1 is 'bajajfinserv', and Prop_2 is 'in'. At the bottom right, there is a 'Cancel' button.

Step29- Select azure blob storage

Step30- Select azure subscription, connection name, description and account name

Step31- Click on test connection to test the connection

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory. The left sidebar lists steps: Properties, Source, Target (selected), Dataset, Configuration, Settings, and Review and finish. The main panel is titled 'Destination data store' and shows configuration for a new connection. It includes fields for 'Target type' (set to 'All'), 'Connection' (set to 'Select...'), and 'Account selection method' (radio button selected for 'From Azure subscription'). Below this, 'Azure subscription' is set to 'unextbajaj119 (4236c42a-d131-4bd6-b609-aec3a598f2d3)', 'Storage account name' is 'bajajdb2', and 'Test connection' is set to 'To linked service'. A green checkmark indicates 'Connection successful'. Buttons at the bottom include 'Create', 'Back', 'Test connection', and 'Cancel'.

Step32- Click on browse to select the destination folder

The screenshot shows the 'Copy Data tool' interface in Microsoft Azure Data Factory, specifically the 'Target' step. The left sidebar lists steps: Properties, Source, Target (selected), Dataset, Configuration, Settings, and Review and finish. The main panel is titled 'Destination data store' and shows configuration for the target. It includes fields for 'Target type' (set to 'All'), 'Connection' (set to 'Destination'), and 'Folder path' (set to 'output'). There is a 'Browse' button next to the folder path input field. Other settings shown include 'File name', 'Copy behavior' (set to 'None'), 'Max concurrent connections', 'Block size (MB)', and 'Metadata'. Buttons at the bottom include 'Previous', 'Next >', and 'Cancel'.

Step33- Check file format and select next

Microsoft Azure | Data Factory > bajajadf1

Copy Data tool

Properties

Source

Target

Dataset

Configuration

Settings

Review and finish

File format settings

File format: DelimitedText

Column delimiter: Comma (,)

Row delimiter: Default (\r\n, or \n\r)

Add header to file:

Advanced

Compression type: None

Max rows per file:

File name prefix:

< Previous Next > Cancel

Step34- Check details and select next

Microsoft Azure | Data Factory > bajajadf1

Copy Data tool

Properties

Source

Target

Settings

Review and finish

Review

Deployment

Summary

You are running pipeline to copy data from Azure Blob Storage to Azure Blob Storage.

Azure Blob Storage → Azure Blob Storage

Properties

Task name: CopyPipeline_3jg

Task description:

Source

Connection name: source

Dataset name: SourceDataset_3jg

Column delimiter: .

Escape character: \

Quote char: "

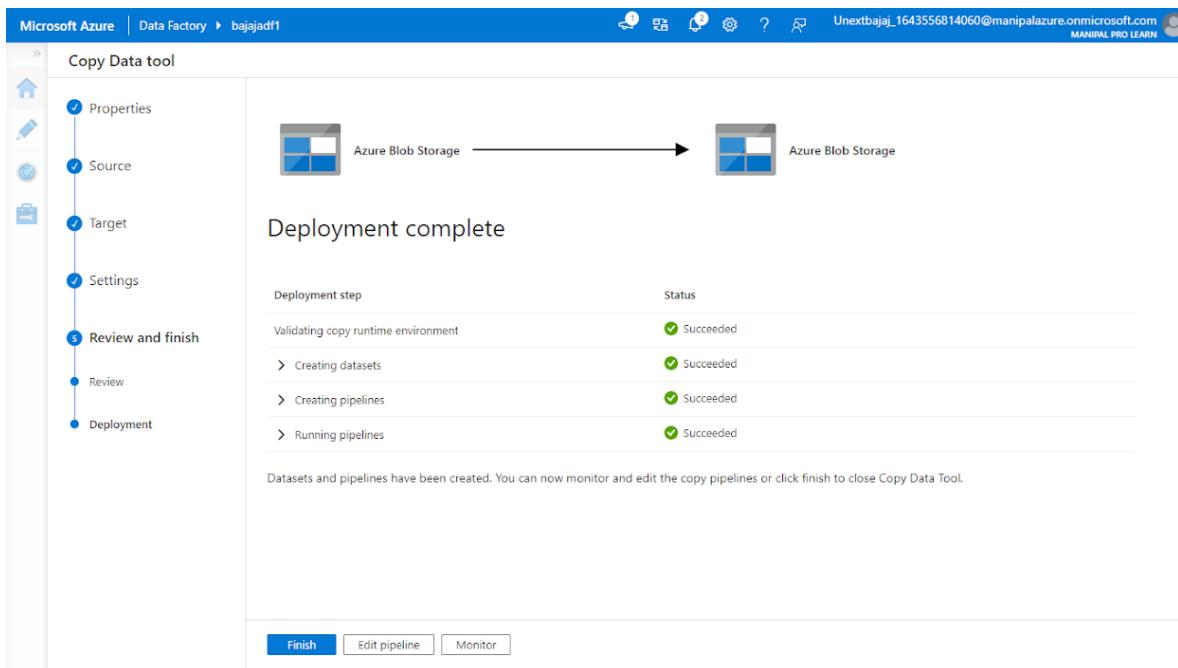
First row as header: false

File name: service desk.txt

Container: input

< Previous Next > Cancel

Step35- Once deployment is complete, select finish

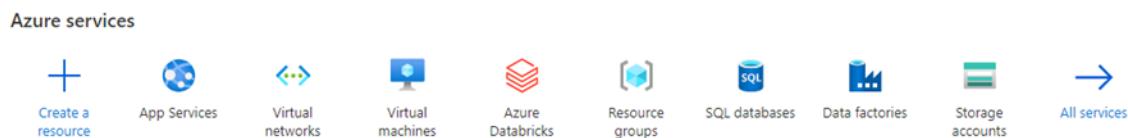


Step36- Check the copied file in destination folder of the storage account

The screenshot shows the Microsoft Azure Storage Explorer interface. The browser tab bar includes 'bajajadf1 - Microsoft Azure', 'bajajadf1 - Azure Data Factory', and 'output - Microsoft Azure'. The main content area shows a 'Container' named 'output'. On the left, a sidebar menu includes 'Overview' (selected), 'Diagnose and solve problems', 'Access Control (IAM)', 'Settings' (expanded), 'Shared access tokens', 'Access policy', 'Properties', and 'Metadata'. The main pane displays blob details for 'service desk.txt': Name (service desk.txt), Modified (2/5/2022, 12:44:07 PM), Access tier (Hot (Inferred)), Archive status (None), and Blob type (Block blob). The URL in the browser is: portal.azure.com/#blade/Microsoft_Azure_Storage/ContainerMenuBlade/overview/storageAccountId/%2FsubscriptionId%2FresourceId%2F&resourceType=container&resourceName=output

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

Step 1 - search for app service in search bar and open app service



Step 2 – click on create then create a new resource group then give the name to the app and select the language in Run time stack

The screenshot shows the 'Create Web App' wizard in the Azure portal. On the left, there's a sidebar with 'Home', 'App Services', and a 'Manipal Pro Learn' section. The main area has tabs for 'Basics', 'Deployment', 'Monitoring', 'Tags', and 'Review + create'. The 'Basics' tab is active. It contains a brief description of App Service Web Apps. Below that is the 'Project Details' section, which includes fields for 'Subscription' (set to 'unextazurebajaj129'), 'Resource Group' (set to 'testRes' with a 'Create new' option), and 'Name' (set to 'testBajaj1'). The 'Name' field has a '.azurewebsites.net' suffix. Under 'Instance Details', there are sections for 'Publish' (set to 'Code'), 'Runtime stack' (set to 'Python 3.8'), 'Operating System' (set to 'Linux'), and 'Region' (set to 'Central US'). A note at the bottom of this section says 'Not finding your App Service Plan? Try a different region or select your App Service Environment.'

Step 3 – Click on review + create and then click on create after deployment is successful click on go to resource.

Home >

Microsoft.Web-WebApp-Portal-bfad0de7-9d43 | Overview

Deployment

Search (Ctrl+ /) Delete Cancel Redeploy Refresh

Overview Inputs Outputs Template

We'd love your feedback! →

Your deployment is complete

Deployment name: Microsoft.Web-WebApp-Portal-bfad0de7-9d43 Start time: 2/5/2022, 10:05:38 AM
Subscription: unextazurebajaj129 Correlation ID: c835fa2c-8514-4c52-a0d3-8ed12a54f400
Resource group: testRes

Deployment details (Download) Next steps

Manage deployments for your app. Recommended
Protect your app with authentication. Recommended
Add a deployment slot. Recommended

Go to resource

This screenshot shows the Microsoft Azure Deployment Center interface. At the top, it displays the deployment name 'Microsoft.Web-WebApp-Portal-bfad0de7-9d43' and its status as 'Your deployment is complete'. Below this, it provides deployment details including the name, subscription, resource group, start time, and correlation ID. On the left, there's a navigation menu with links like 'Overview', 'Inputs', 'Outputs', and 'Template'. On the right, there are sections for 'Deployment details' (with a 'Download' link), 'Next steps' (including links for managing deployments, protecting the app with authentication, and adding a deployment slot), and a 'Go to resource' button.

Step 4 click on deployment center

Home > Microsoft.Web-WebApp-Portal-bfad0de7-9d43 >

testBajaj

App Service

Search (Ctrl+ /) Browse Stop

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Security Events (preview)

Deployment

Quickstart Deployment slots Deployment Center

Settings Configuration

Essentials

Resource group (move) : test Status : Run Location : Cen Subscription (move) : une Subscription ID : 4cf8

Tags (edit) : Click

Diagnose and solve Our self-service diagnostic helps you identify and resol

Http 5xx

This screenshot shows the Microsoft Azure App Service blade for an application named 'testBajaj'. It includes a navigation bar with links for 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Security', and 'Events (preview)'. Below this is a 'Deployment' section with 'Quickstart', 'Deployment slots', and 'Deployment Center' options. A 'Settings' section contains a 'Configuration' link. The main area is titled 'Essentials' and lists the resource group, status, location, and subscription information. It also features a 'Tags' section with a 'Click' button and a 'Diagnose and solve' section with a brief description. At the bottom, there's an 'Http 5xx' message.

Step 5- click on source select GitHub or wherever the code is saved then sign in with GitHub, click on organization and select your acc name in repository select the repo you want to use and then branch and click on save

Save Discard Browse Manage publish profile Sync Leave Feedback

Settings * Logs FTPS credentials

You're now in the production slot, which is not recommended for setting up CI/CD. [Learn more](#)

Deploy and build code from your preferred source and build provider. [Learn more](#)

Source * GitHub

Building with GitHub Actions. [Change provider.](#)

GitHub

If you can't find an organization or repository, you may need to enable additional permissions on GitHub. [Learn more](#)

| | |
|----------------|--|
| Signed in as | Anand-rahul Change Account |
| Organization * | Anand-rahul |
| Repository * | python-docs-hello-django |
| Branch * | main |

Workflow Option * Add a workflow: Add a new workflow file 'main_testBajaj.yml' in the selected repository and branch. Use available workflow: Use one of the workflow files available in the selected repository and branch.

Build

| | |
|---------------|------------|
| Runtime stack | Python |
| Version | Python 3.8 |

Step 6 click on logs and click on refresh

| Time | Commit ID | Logs | Commit Author | Status | Message |
|-------------------------------|-----------|--------------------------|---------------|-----------------------|---|
| Refresh | | | | | |
| 02/5/2022, 10:13:33 AM +05:30 | da72505 | App Logs | N/A | Running oryx build... | {"type": "deployment", "sha": "210ba3ab0b29fa06004af02c72a272e0b1eb4ca", "repoName": "Anand-rahul/python-docs-he..."} |
| 02/5/2022, 10:13:29 AM +05:30 | temp-a0 | App Logs | N/A | Pending | Deploying from pushed zip file |

Step 7 once the status is active head back to overview page and open the URL in new tab

The screenshot shows the Azure portal interface for the 'testBajaj' App Service. The 'Overview' section is selected, displaying the following details:

- Resource group: testRes
- Status: Running
- Location: Central US
- Subscription: unextazurebajaj129
- Subscription ID: 4cf882d7-65b5-4e3f-a426-8be24e890e28
- Tags: Click here to add tags
- URL: https://testbajaj.azurewebsites.net
- Health Check: Not Configured
- App Service Plan: ASP-testRes-88cc (P1v2-1)
- Github Project: https://github.com/Anand-rahul/python-docs-hello-django

Below the portal, a browser window shows the deployed application at https://testbajaj.azurewebsites.net. The page content is "Hello, Bajaj!".

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

1. In the Azure portal, select Create a resource > Analytics > Azure Databricks.
2. Under Azure Databricks Service, provide the values to create a Databricks workspace.
Provide the following values:

| Property | Description |
|----------------|---|
| Workspace name | Provide a name for your Databricks workspace |
| Subscription | From the drop-down, select your Azure subscription. |
| Resource group | Specify whether you want to create a new resource group or use an existing one. A resource group is a container that holds related resources for an Azure solution. |
| Location | Select West US 2. |
| Pricing Tier | Choose between Standard, Premium, or Trial. |

3. Select Review + Create, and then Create. The workspace creation takes a few minutes. During workspace creation, you can view the deployment status in Notifications. Once this process is finished, your user account is automatically added as an admin user in the workspace.
When a workspace deployment fails, the workspace is still created in a failed state. Delete the failed workspace and create a new workspace that resolves the deployment

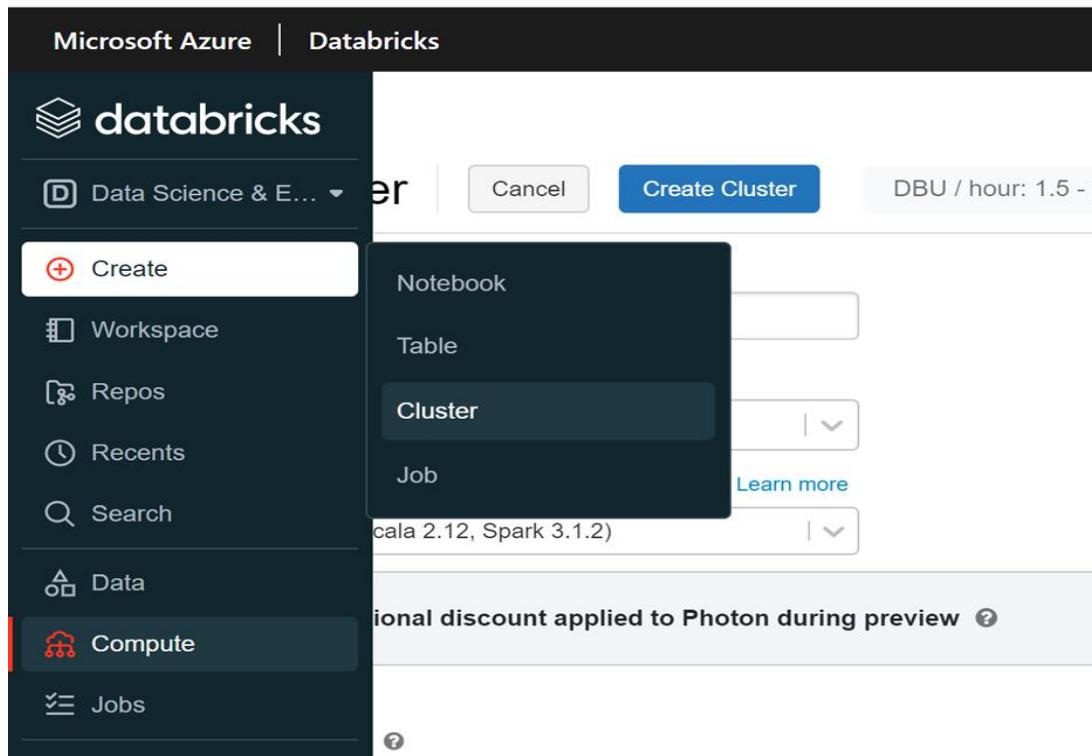
errors. When you delete the failed workspace, the managed resource group and any successfully deployed resources are also deleted.

Case 12. In Azure data bricks - please add data & create table

(1) Using UI option

(2) create a table using the notebook option & explain all the steps.

STEP 1: Once you sign in, to created data bricks account, you must first create a cluster by selecting CREATE> CLUSTER option



STEP 2: Enter details like cluster name and set no. of workers minimum to 1 and maximum to 2

Microsoft Azure | Databricks

Portal unextbajaj

Create Cluster

New Cluster

Cancel Create Cluster DBU / hour: 1.5 - 2.25 1-2 Workers:14-28 GB Memory, 4-8 Cores 1 Driver:14 GB Memory, 4 Cores

Cluster name: bajajtable

Cluster mode: Standard

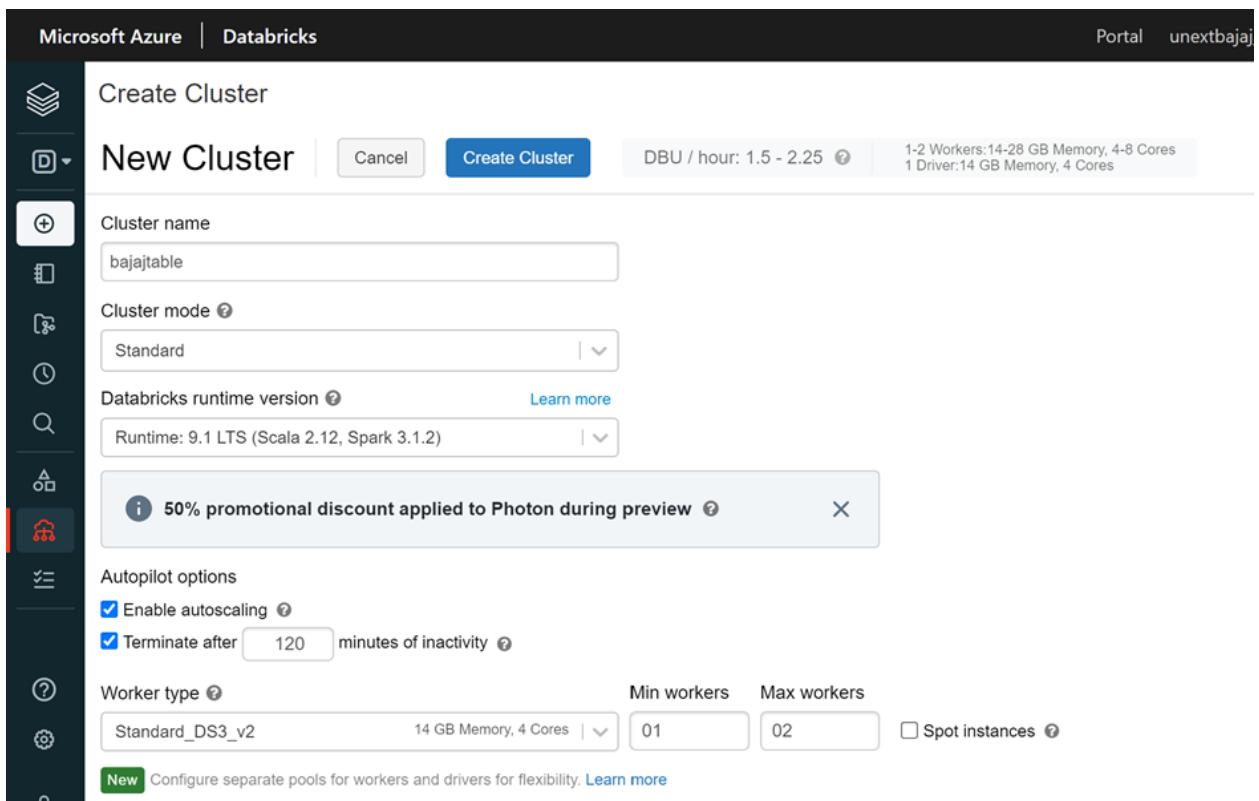
Databricks runtime version: Runtime: 9.1 LTS (Scala 2.12, Spark 3.1.2)

Autopilot options:

- Enable autoscaling
- Terminate after 120 minutes of inactivity

Worker type: Standard_DS3_v2 (14 GB Memory, 4 Cores) Min workers: 01 Max workers: 02 Spot instances

New Configure separate pools for workers and drivers for flexibility. [Learn more](#)



STEP 3: Now select create cluster

Clusters / bajajtable

bajajtable  Edit Clone Restart Terminate Delete

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

Cluster mode: Standard

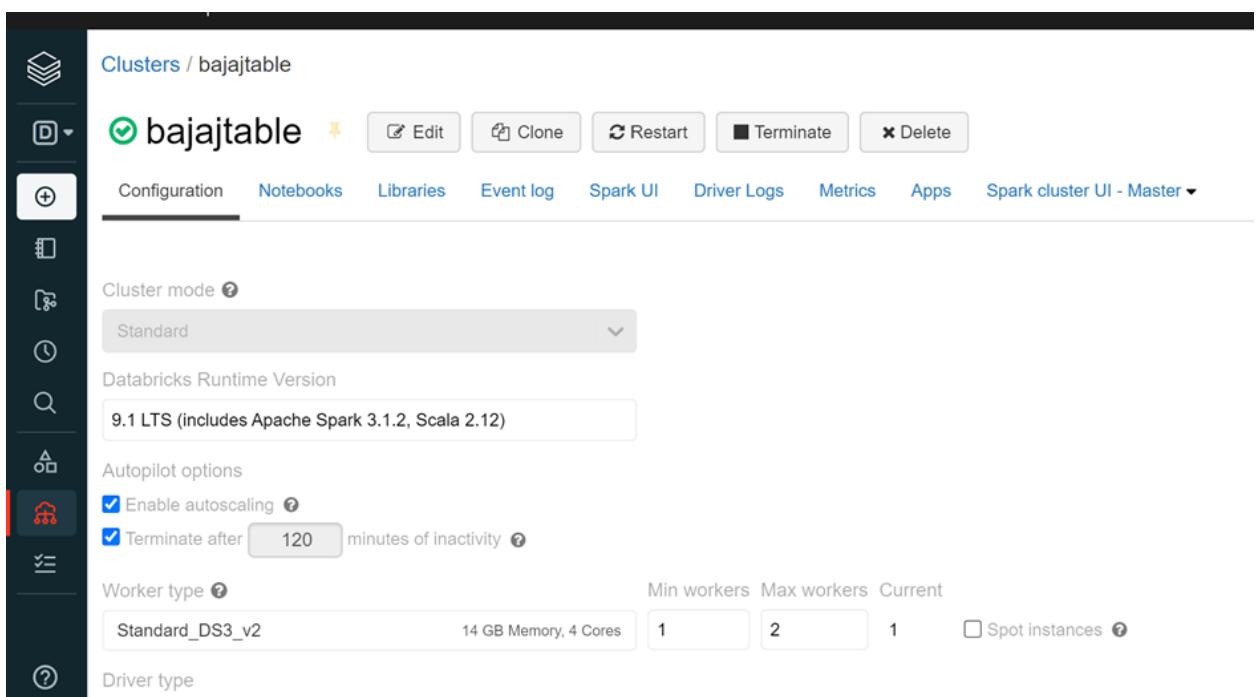
Databricks Runtime Version: 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12)

Autopilot options:

- Enable autoscaling
- Terminate after 120 minutes of inactivity

Worker type: Standard_DS3_v2 (14 GB Memory, 4 Cores) Min workers: 1 Max workers: 2 Current: 1 Spot instances

Driver type



STEP 4: Once the cluster is created, we can create a table, by selecting CREATE>TABLE

The screenshot shows the Microsoft Azure Databricks interface. On the left, there's a sidebar with various options like 'Data Science & E...', 'Create', 'Workspace', 'Repos', 'Recents', 'Search', 'Data', 'Compute', and 'Jobs'. The 'Create' option is currently selected. In the main area, there's a 'Data import' section with a 'Table' icon and a 'Browse files' button. Below it, a message says 'There are no recents yet'. At the bottom of the sidebar, there are 'Release notes' links for 'Runtime release notes', 'Azure Databricks preview releases', 'Platform release notes', and 'More release notes'.

STEP 5: Upload a csv file from your system

The screenshot shows the 'Create New Table' dialog in Databricks. On the left, there's a sidebar with icons for 'Upload File', 'DBFS', 'Other Data Sources', and 'Partner Integrations'. The 'Upload File' tab is selected. In the main area, there's a 'DBFS Target Directory' input field with the value '/FileStore/tables/'. Below it, a message says 'Files uploaded to DBFS are accessible by everyone who has access to this workspace. Learn more'. A 'Select' button is next to the input field. Under the 'Files' section, there's a list containing a single file named 'creditdetails.csv' with a green checkmark, a size of '11.2 KB', and a 'Remove file' button. At the bottom, a message says '✓File uploaded to /FileStore/tables/creditdetails.csv'.

Step 6: For Creating table with UI, select the cluster and choose Create Table with UI option

✓ File uploaded to /FileStore/tables/creditdetails.csv

Create Table with UI

Create Table in Notebook



Select a Cluster to Preview the Table

Choose a cluster with which you will read and preview the data.

Cluster

bajajtable



Preview Table

Step 7: Choose Preview table to look at the table uploaded

Preview Table

Specify Table Attributes

Specify the Table Name, Database and Schema to add this to the data UI for other users to access

Table Name

creditdetails_csv

Create in Database

default

File Type

CSV

Column Delimiter

,

First row is header

Infer schema

Multi-line

Create Table

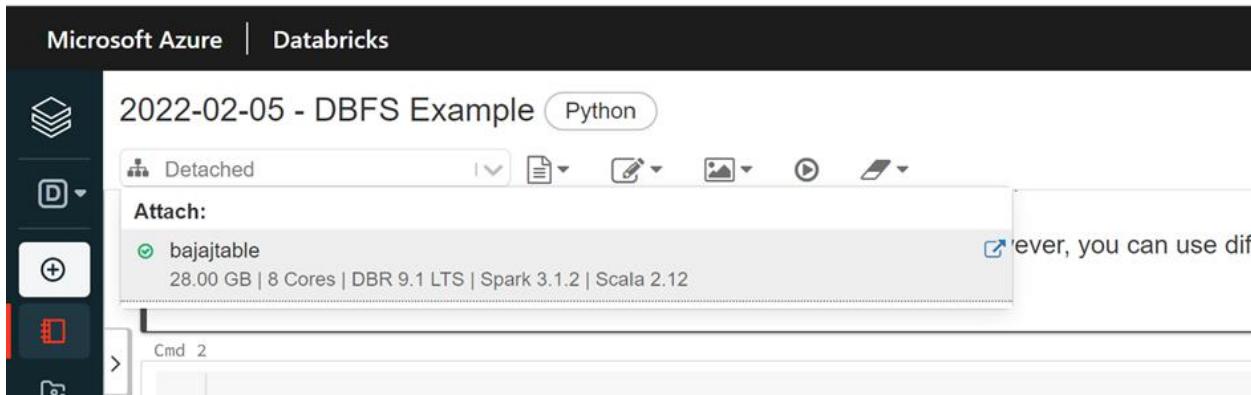
Table Preview

| _c0 | _c1 | _c2 | _c3 | _c4 |
|----------|-------------|-------------|-------------|---------|
| String | String | String | String | String |
| clientid | income | age | loan | default |
| 1 | 66155.9251 | 59.01701507 | 8106.532131 | 0 |
| 2 | 34415.15397 | 48.1171531 | 6564.745018 | 0 |
| 3 | 57317.17006 | 63.10804949 | 8020.953296 | 0 |
| 4 | 42709.5342 | 45.75197235 | 6103.64226 | 0 |
| 5 | 66952.68885 | 18.58433593 | 8770.099235 | 1 |

Create Table in
Notebook

Now, to create table using notebook option

Select create table with notebook option> attach the cluster created



Run the first command to preview the table

```
# File location and type
file_location = "/FileStore/tables/creditdetails.csv"
file_type = "csv"

# CSV options
infer_schema = "false"
first_row_is_header = "false"
delimiter = ","

# The applied options are for CSV files. For other file types, these will be ignored.
df = spark.read.format(file_type) \
    .option("inferSchema", infer_schema) \
    .option("header", first_row_is_header) \
    .option("sep", delimiter) \
    .load(file_location)

display(df)
```

(2) Spark Jobs

df: pyspark.sql.dataframe.DataFrame = [_c0: string, _c1: string ... 3 more fields]

Table Data Profile

- ▶ (2) Spark Jobs
- ▶ df: pyspark.sql.dataframe.DataFrame = [_c0: string, _c1: string ... 3 more fields]

Table Data Profile

| | _c0 | _c1 | _c2 | _c3 | _c4 |
|---|----------|-------------|-------------|-------------|---------|
| 1 | clientid | income | age | loan | default |
| 2 | 1 | 66155.9251 | 59.01701507 | 8106.532131 | 0 |
| 3 | 2 | 34415.15397 | 48.1171531 | 6564.745018 | 0 |
| 4 | 3 | 57317.17006 | 63.10804949 | 8020.953296 | 0 |
| 5 | 4 | 42709.5342 | 45.75197235 | 6103.64226 | 0 |
| 6 | 5 | 66952.68885 | 18.58433593 | 8770.099235 | 1 |
| 7 | 6 | 24904.06414 | 57.4716071 | 15.49859844 | 0 |

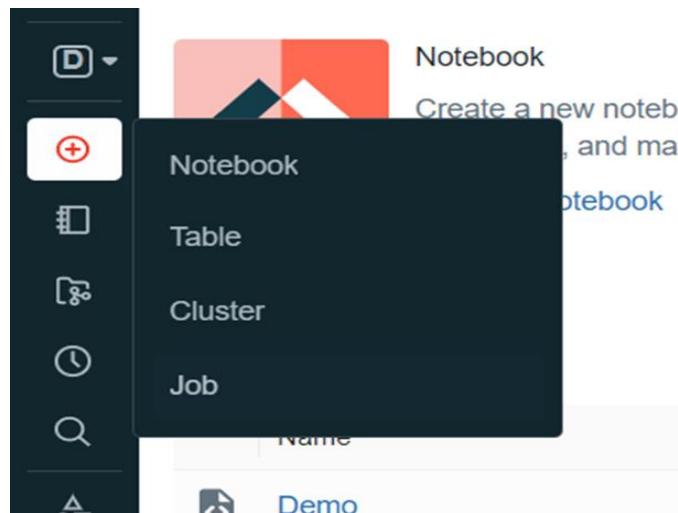
Showing all 365 rows.



Case 13. In Azure data bricks - please create Cluster & explain with all steps with screenshots?

Solution:

Step 1 – After opening azure data bricks workspace click on create then on cluster



Step 2 – a new window opens give the cluster name , cluster mode can be standard or single mode according to usage , change the min workers to 1 and max workers to 2 , hit create cluster

The screenshot shows the 'Create Cluster' interface in Databricks. The left sidebar has a dark theme with icons for clusters, notebooks, and other services. The main form is titled 'Create Cluster' and 'New Cluster'. It includes fields for 'Cluster name' (set to 'testCluster'), 'Cluster mode' (set to 'Standard'), 'Databricks runtime version' (set to 'Runtime: 9.1 LTS (Scala 2.12, Spark 3.1.2)'), and 'Autopilot options' with checkboxes for 'Enable autoscaling' (checked) and 'Terminate after 120 minutes of inactivity' (checked). Below these are sections for 'Worker type' (set to 'Standard_DS3_v2') and 'Driver type' (set to 'Same as worker'). A note indicates a '50% promotional discount applied to Photon during preview'. At the bottom, there's a 'DBU / hour: 1.5 - 2.25' dropdown and a 'Standard_DS3_v2' button. A 'Create Cluster' button is at the top right, and a note about spot instances is present.

Step 3 cluster is being created

Clusters / testCluster

testCluster Running Edit Start Clone Restart Terminate Delete

Configuration Notebooks Libraries Event log Spark UI Driver Logs Metrics Apps [Spark cluster UI - Master](#) ▾

Cluster mode ?
Standard

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

Autopilot options
 Enable autoscaling ?
 Terminate after 120 minutes of inactivity ?

Worker type ?
Standard_DS3_v2 14 GB Memory, 4 Cores 1 2 0 Spot instances ?

Driver type
Standard_DS3_v2 14 GB Memory, 4 Cores

DBU / hour: 1.5 - 2.25 ? Standard_DS3_v2

▶ Advanced options

Step 4 click on compute from left menu bar

Compute

All-purpose clusters Job clusters Pools

| Name | State | Nodes | Runtime | Driver | Worker | Creator | Actions |
|----------------|---------|-------|---|-----------------|-----------------|-----------------------------|--|
| newtestCluster | Running | 1 | 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12) | Standard_DS3_v2 | Standard_DS3_v2 | unexhbajai_1643556854018... | - |
| testCluster | Running | 2 | 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12) | Standard_DS3_v2 | Standard_DS3_v2 | unexhbajai_1643556854018... | - |

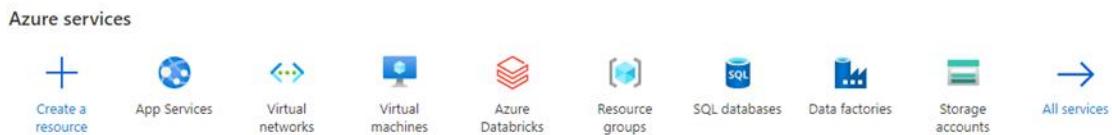
1 - 2 of 2 < > 20 / Page Go to 1

These are the created Clusters

Case 14. In Azure data bricks - please create sample Notebook & jobs , further assign sample notebook to jobs & run it, explain with all steps with screenshots ?

Solution-

Step 1: click on azure data bricks



Step 2 click on create , select the resource group and provide the name for workspace

The screenshot shows the 'Create an Azure Databricks workspace' wizard. On the left, there's a sidebar with a 'Create a resource' button, 'Azure Databricks' section, and a message 'No azure databricks services to display'. The main area has tabs for 'Basics', 'Networking', 'Advanced', 'Tags', and 'Review + create'. The 'Basics' tab is active. It shows 'Project Details' with a note about selecting a subscription and resource group. The 'Subscription' dropdown is set to 'unextazurebajaj129'. The 'Resource group' dropdown is set to 'testRes' with a 'Create new' option. Below that, 'Instance Details' are specified: 'Workspace name' is 'testSpace', 'Region' is 'East US', and 'Pricing Tier' is 'Standard (Apache Spark, Secure with Azure AD)'. A 'Create azure databricks service' button is at the bottom left, and a 'Learn more' link is at the bottom right.

Step 3 click on review +create and then click on create after validation succeeded.

Home >

testRes_testSpace | Overview

Deployment

Search (Ctrl+ /) Delete Cancel Redeploy Refresh

We'd love your feedback!

Deployment is in progress

Deployment name: testRes_testSpace
Subscription: unextazurebaja129
Resource group: testRes

Start time: 2/5/2022, 10:30:06 AM
Correlation ID: 3ba33f4a-862b-4a92-8dc1-ff7de8eb2f78

Deployment details (Download)

| Resource | Type | Status |
|-------------|------|--------|
| No results. | | |

Step 4 – once the deployment is complete click on go to resource then click on launch . Explain various features of python & advantages of it over other programming languages ?

workspace

Home > testRes_testSpace >

testSpace

Azure Databricks Service

Search (Ctrl+ /) Delete

Overview Activity log Access control (IAM) Tags

Essentials

Status : Active Resource group : testRes Location : East US Subscription : unextazurebaja129 Subscription ID : 4cf882d7-65b5-4e3f-a426-8be24e890e28 Tags (edit) : Click here to add tags

Managed Resource Group : databricks-rg-testSpace-7pln37euunvg URL : https://adb-54739328359773466.azure.databricks.net Pricing Tier : standard

 Launch Workspace

Documentation Getting Started Import Data from File Import Data from Azure Storage

Notebook Admin Guide Link Azure ML workspace

Step 5 – click on workspace, in the dropdown click on create and again in the dropdown click on folder to create a new folder

The screenshot shows the Databricks workspace interface. On the left, there's a sidebar with options like 'Create', 'Workspace', 'Repos', 'Recents', and 'Search'. The 'Workspace' option is currently selected. In the main area, a context menu is open over a folder named 'testFolder'. The menu includes options like 'Create', 'Import', 'Export', 'Permissions', 'Copy Link Address', and 'Sort'. Below this, a modal dialog box is displayed, asking for a 'New Folder Name'. The input field contains 'testFolder'. At the bottom of the dialog are 'Cancel' and 'Create Folder' buttons.

Step 6- once the folder is created click on its dropdown and click on import to import a notebook from local system and import the file from the local system

This screenshot shows the Databricks workspace after the folder has been created. The sidebar now includes a 'Data' section. The 'testFolder' is visible in the main workspace area. A context menu is open over the 'testFolder', showing options like 'Create', 'Clone', 'Rename', 'Move', 'Move to Trash', 'Import', 'Export', 'Permissions', and 'Copy Link Address'. The 'Import' option is highlighted.

Demo Python

ace/testFolder/Demo

File Edit View: Standard Run All Clear

Cmd 1

```
1 a = 8
2 b=39
3 print(a+b)
```

Cmd 2

```
1 import matplotlib.pyplot as plt
2 import numpy as np
3 # if using a jupyter notebook
4 %matplotlib inline
5 x = np.arange(0,4*np.pi,0.1)    # start,stop,step
6 y = np.sin(x)
7 plt.plot(x,y)
8 plt.show()
```

Shift+Enter to run

Step 7 click on create and then click on job , give the name of the job and select the notebook imported earlier click on create

Task name *

Type * /testFolder/Demo

Cluster *

Parameters
[Add](#)

[Advanced options >](#)

Step 8 -once the job is created click on edit schedule in right hand side menu , the in the new popup click on schedule and then in schedule below click on minute

The screenshot shows the Azure Databricks interface for creating a new job named 'testJob'. The 'Task' tab is selected. On the right, there are sections for 'Job details', 'Schedule', 'Cluster', and 'Alerts'. The 'Schedule' section is expanded, showing 'None' and a 'Edit schedule' button. A modal dialog titled 'Schedule' is open, allowing configuration of the schedule type and frequency. The 'Schedule Type' section has two radio buttons: 'Manual (Paused)' (unselected) and 'Scheduled' (selected). Below it, the 'Schedule' section shows 'Every' selected for the frequency, 'Minute' for the interval, and '(UTC+00:00)' for the time zone. There is also a checkbox for 'Show cron syntax'. At the bottom of the dialog are 'Cancel' and 'Save' buttons.

Step9 – click on runs then click on refresh and wait for the job to be launched by scheduler

| Active runs | | | | | | Refresh |
|---|--------|--------------|----------|---------------------------|-----------|---------|
| Start time | Run ID | Launched | Duration | Spark | Status | |
| Run now / Run now with different parameters | | | | | | |
| Completed runs (past 60 days) | | | | | | Refresh |
| Latest successful run (refreshes automatically) | | | | | | |
| Start time | Run ID | Launched | Duration | Spark | Status | |
| Feb 5 2022, 11:00 AM IST | 372 | By scheduler | 3s | Spark UI / Logs / Metrics | Skipped | |
| Feb 5 2022, 10:59 AM IST | 281 | By scheduler | 3s | Spark UI / Logs / Metrics | Skipped | |
| Feb 5 2022, 10:58 AM IST | 181 | Manually | 4s | Spark UI / Logs / Metrics | Skipped | |
| Feb 5 2022, 10:58 AM IST | 119 | By scheduler | 2s | Spark UI / Logs / Metrics | Skipped | |
| Feb 5 2022, 10:57 AM IST | 36 | By scheduler | 3m 47s | Spark UI / Logs / Metrics | Succeeded | |

Case 15- Explain various features of python & advantages of it over other programming languages?

Python is a powerful, high-quality, free open source and editing programming language. Supports object-focused programs and process-focused programs.

In Python, there is no need to declare a variation because it is a dynamic typed language.

For example, x = 10

Here, x can be anything like String, int, etc.

Features in Python

There are many features in Python, some of which are discussed below -

1. Easy to enter code:

Python is an advanced programming language. Python is much easier to learn a language compared to other languages such as C, C #, Javascript, Java, etc. It is very easy to write code in python language and anyone can learn the basics of python in hours or days. And it is the right language for the engineer.

2. Free and open source:

Python Language is available for free on the official website and you can download from the provided download link below click the Python Download Keyword.

[Download Python](#)

Being an open source, this means that the source code is also publicly available. So you can download it as, use it and share it.

3. Focused Language:

One of the most important features of python is the Object-Oriented system. Python supports object-oriented language and class concepts, object encapsulation, etc.

4. GUI Programming Support:

Graphical User interfaces can be created using modules such as PyQt5, PyQt4, wxPython, or Tk in python.

PyQt5 is a very popular way to create animated applications with Python.

5. Advanced Language:

Python is an advanced language. When writing programs in python, we do not need to remember system configurations, nor do we need to manage memory.

6. Expandable feature:

Python is an Extensible Language. We can write the Python code in C or C ++ and compose that code in the C / C ++ language.

7. Python portable language:

Python language is also a tangible language. For example, if we have a python code for windows and if we want to use this code on other platforms like Linux, Unix, and Mac we do not need to change it, we can use this code on any platform.

8. Python Integrated Language:

Python is also an Integrated language because we can easily integrate frames with other languages such as c, c ++, etc.

9. Translated Language:

Python is a Translated Language because Python code is used line by line at a time. like other languages C, C ++, Java, etc. no need to compile python code this makes it easy to fix our error. Python source code is converted into a fast form called bytecode.

10. Large General Library

Python has a large standard library that provides a rich set of modules and functions so you do not have to write your code for everything. There are many libraries available in python such as standard expressions, unit tests, web browsers, etc.

Advantages

1. Translated Language

Python is a translated language which means that Python directly uses linear code. In the event of an error, it stops proceeding and reports the error that occurred.

Python only shows one error even though the system has many errors. This makes debugging easier.

2. Type Tightly

Python does not know the type of variation until we run the code. It automatically provides the type of data during the execution. The editor does not have to worry about dynamic ads and their data types.

3. Free and open source

Python comes under OSI licensed open source license. This makes it free to use and distribute. You can download the source code, modify it and distribute your Python version. This is useful for organizations that want to change certain behaviors and use their own version to improve it.

4. Main Library Support

The standard Python Library is large, you can find almost every job needed for your job. Therefore, you do not have to rely on external libraries.

But even if you do, the Python (Pip) package manager makes it easy to import other great packages from the Python package (PyPi) directory. Contains more than 200,000 packages.

5. Portability

In most languages like C / C ++, you need to change your code to launch the program in different forums. That's not the same as Python. You write only once and use it anywhere.

However, you should be careful not to include system-dependent features.