

Platform Engineering Assignment-3

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1433832

1) Create and Configure an Azure SQL Database:

Step -1: Create a new Azure SQL Database.


Microsoft Azure

Search resources, services, and docs (G+)

[Home](#) > [Select SQL deployment option](#) >

Create SQL Database Server

Microsoft

 Changing Basic options may reset selections you have made. Review all options prior to creating the resource.

Project details

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

Subscription *

Azure Pass - Sponsorship

Resource group *

ResourceMoverRG-eastus-centralindia-inc

[Create new](#)

Server details

Enter required settings for this server, including providing a name and location.

Server name *

nithinser

.database.windows.net

Location *


(Asia Pacific) Central India


Authentication

[Home](#) > [Select SQL deployment option](#) >

Create SQL Database Server

Microsoft

 Changing Basic options may reset selections you have made. Review all options prior to creating the resource.

 Azure Active Directory (Azure AD) is now Microsoft Entra ID. [Learn more](#)

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 Microsoft Entra authentication [Learn more](#) or using an existing Microsoft Entra user, group, or application as Microsoft Entra admin [Learn more](#) , or select both SQL and Microsoft Entra authentication.

Authentication method

☐ Use Microsoft Entra-only authentication

☐ Use both SQL and Microsoft Entra authentication

☒ Use SQL authentication

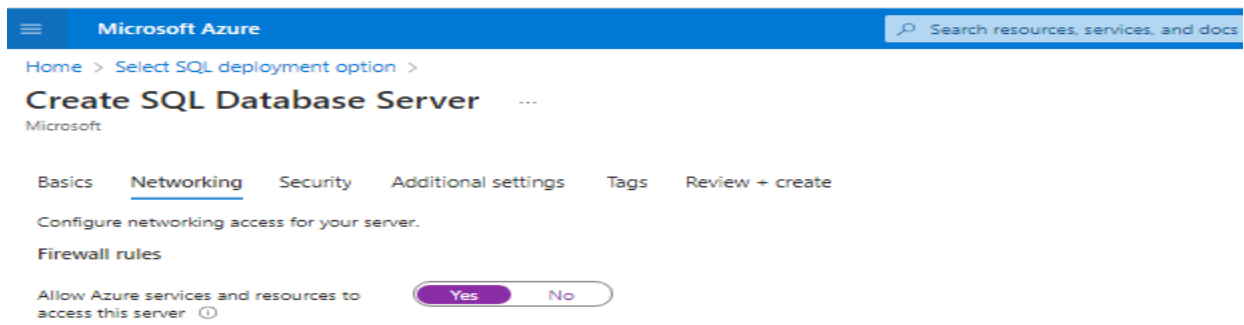
Server admin login *

nithinser

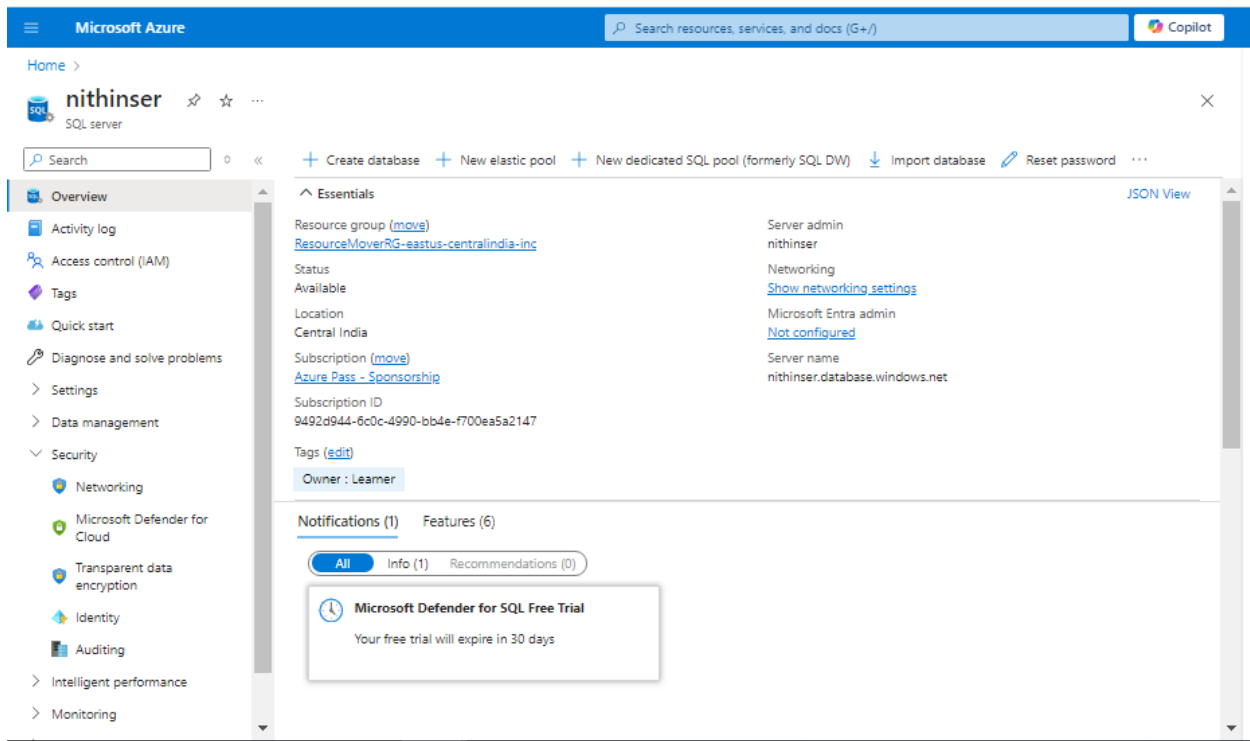
Password *

Confirm password *

- Change the firewall rules to yes for allowing the IP address



- Now click Review and create.



Step-2: Click on the create database and create one database with sample data.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and a 'Copilot' button. The breadcrumb trail indicates the path: Home > Microsoft SQL Database > newDatabaseExistingServer_c7659aa9682b4ee9 | Overview. The main heading is 'nithindb (nithinser/nithindb)' with a sub-label 'SQL database'. Below this, there's a search bar and a row of action buttons: Copy, Restore, Export, Set server firewall, Delete, Connect with..., and Feedback. A left-hand navigation pane lists various options: Overview (selected), Activity log, Tags, Diagnose and solve problems, Query editor (preview), Mirror database in Fabric (preview), Favorites, Logs, Settings, Data management, Integrations, Power Platform, Security, Intelligent performance, Monitoring, and Automation. The main content area displays a 'Mirror databases in Microsoft Fabric' notification, followed by an 'Essentials' section. This section lists key properties: Resource group (ResourceMoverRG-eastus-centralindia-inc), Status (Online), Location (Central India), Subscription (Azure Pass - Sponsorship), and Subscription ID (9492d944-6c0c-4990-bb4e-f700ea5a2147). On the right, it shows Server name (nithinser.database.windows.net), Elastic pool (No elastic pool), Connection strings (with a link to show database connection strings), Pricing tier (General Purpose: Gen5, 2 vCores), and Earliest restore point (No restore point available). At the bottom, there's a 'Tags' section showing 'Owner: Learner' and a horizontal menu with links: Getting started, Monitoring, Properties, Features, Notifications (1), Integrations, and Tutorials.

Step-3: After creation of DB login to it.

The screenshot shows the 'Welcome to SQL Database Query Editor' page. At the top, there's a navigation bar with links: Login, New Query, Open query, Feedback, and Getting started. Below this, a descriptive text states: 'Query editor (preview) is a tool to run SQL queries against Azure SQL Database in the Azure portal. It is designed for lightweight querying and object exploration in your database. For more information and troubleshooting, [Learn more](#)'. The main area features a large 'SQL' logo and the heading 'Welcome to SQL Database Query Editor'. There are two authentication paths: 'SQL server authentication' and 'Microsoft Entra authentication'. The SQL server authentication path includes fields for 'Login' (containing 'nithinser') and 'Password' (masked with dots and a green checkmark), followed by an 'OK' button. The Microsoft Entra authentication path features a blue button that says 'Continue as nithin.namburi10703@outl...'. An 'OR' separator is placed between the two authentication options.

Step-4: Create tables, insert sample data, and run basic SQL queries.

Feedback Getting started

Query 1 × Query 2 × Query 3 ×

Run Cancel query Save query Export data as Show only Editor

```
1 CREATE TABLE departments (name VARCHAR(100), location VARCHAR(100));
```

Results Messages

Query succeeded: Affected rows: 0

Feedback Getting started

Query 1 × Query 2 × Query 3 ×

Run Cancel query Save query Export data as Show only Editor

```
1 INSERT INTO departments (name, location) VALUES ('Human Resources', 'New York');
2 INSERT INTO departments (name, location) VALUES ('Finance', 'San Francisco');
3 INSERT INTO departments (name, location) VALUES ('IT', 'Chicago');
4 INSERT INTO departments (name, location) VALUES ('Marketing', 'Los Angeles');
5
```

Results Messages

Query succeeded: Affected rows: 4

Query 1 × Query 2 × Query 3 × Query 4 ×

Run Cancel query Save query Export data as Show only Editor

```
1 SELECT * FROM departments;
2
```

Results Messages

Search to filter items...

name	location
Human Resources	New York
Finance	San Francisco
IT	Chicago
Marketing	Los Angeles

Step-5: Create Employees and Departments tables and demostorate INNER JOIN, LEFT OUTER JOIN and RIGHT OUTER JOIN.

Query 1 × Query 2 × Query 3 × Query 4 × Query 5 ×

Run ☐ Cancel query Save query Export data as

```
1 CREATE TABLE Departments4 (  
2     DepartmentID INT PRIMARY KEY,  
3     DepartmentName VARCHAR(50)  
4 );  
5  
6
```

Query 1 × Query 2 × Query 3 × Query 4 × Query 5 × Query 6 × Query 7 ×

Run ☐ Cancel query Save query Export data as Show only Editor Launch

```
1  
2 CREATE TABLE Employees (  
3     EmployeeID INT PRIMARY KEY,  
4     EmployeeName VARCHAR(50),  
5     DepartmentID INT,  
6     FOREIGN KEY (DepartmentID) REFERENCES Departments4(DepartmentID)  
7 );
```

Results Messages

- Inner Join

Query 1 × Query 2 × Query 3 × Query 4 × Query 5 × Query 6 × Query 7 × Query 8 × Query 9 × Query 10 ×

Run ☐ Cancel query Save query Export data as Show only Editor Launch inline copilot

```
1 SELECT Employees.EmployeeID, Employees.EmployeeName, Departments4.DepartmentName  
2 FROM Employees  
3 INNER JOIN Departments4  
4 ON Employees.DepartmentID = Departments4.DepartmentID;  
5
```

Results Messages

Search to filter items...

EmployeeID	EmployeeName	DepartmentName
1	Alice	HR
2	Bob	Finance
3	Charlie	HR

- Left Outer join

Query 1 × Query 2 × Query 3 × Query 4 × Query 5 × Query 6 × Query 7 × Query 8 × Query 9 × Query 10 ×

Run Cancel query Save query Export data as Show only Editor Launch inline copilot

```
1 SELECT Employees.EmployeeID, Employees.EmployeeName, Departments4.DepartmentName
2 FROM Employees
3 LEFT OUTER JOIN Departments4
4 ON Employees.DepartmentID = Departments4.DepartmentID;
5
```

Results Messages

Search to filter items...

EmployeeID	EmployeeName	DepartmentName
1	Alice	HR
2	Bob	Finance
3	Charlie	HR
4	Diana	

- Right outer join.

Query 1 × Query 2 × Query 3 × Query 4 × Query 5 × Query 6 × Query 7 × Query 8 × Query 9 × Query 10 ×

Run Cancel query Save query Export data as Show only Editor Launch inline copilot

```
1 SELECT Employees.EmployeeID, Employees.EmployeeName, Departments4.DepartmentName
2 FROM Employees
3 RIGHT OUTER JOIN Departments4
4 ON Employees.DepartmentID = Departments4.DepartmentID;
5
```

Results Messages

Search to filter items...

EmployeeID	EmployeeName	DepartmentName
1	Alice	HR
3	Charlie	HR
2	Bob	Finance
		IT

Step-6 :Create a backup for the database.

The screenshot shows the 'Backups' page for a SQL server named 'nithinser'. The page has a left sidebar with navigation options: Overview, Activity log, Access control (IAM), Tags, Quick start, Diagnose and solve problems, Favorites, Logs, Settings, and Data management. The main content area is titled 'Available backups' and 'Retention policies'. It includes a search bar for databases and a filter for 'Show Databases' with options for 'Active' and 'Deleted'. Below this is a table listing available backups.

Database	Earliest PITR rest...	Available LTR bac...	Last LTR backup t...	Action
nithindb	2024-08-21 15:02 UTC	None	None	Restore
nithindb_2024-08-21T15-11Z	No restore point avail...	None	None	Restore

Step-7: Crate replica for it.

The screenshot shows the 'Mirror databases in Microsoft Fabric' page for a SQL database named 'nithindb'. The page has a left sidebar with navigation options: Overview, Activity log, Tags, Diagnose and solve problems, Query editor (preview), Mirror database in Fabric (preview), Favorites, Settings, Compute + storage, Connection strings, and Properties. The main content area is titled 'Mirror databases in Microsoft Fabric' and includes a section for 'Essentials' with details about the resource group, status, location, subscription, and subscription ID. Below this are tabs for 'Getting started', 'Monitoring', 'Properties', 'Features', 'Notifications (0)', 'Integrations', and 'Tutorials'.

Here when you try to crete or update any of the query its not going to happen because it is just a read replica.

The screenshot shows the 'Query editor (preview)' page for a SQL database named 'nithindb'. The page has a left sidebar with navigation options: Overview, Activity log, Tags, Diagnose and solve problems, Query editor (preview), Mirror database in Fabric (preview), Favorites, Settings, Compute + storage, Connection strings, Properties, Locks, Data management, Integrations, Power Platform, Security, Intelligent performance, Performance overview, and Performance recommendations. The main content area is titled 'Query editor (preview)' and includes a section for 'Showing limited object explorer here'. Below this is a query editor with a single query: 'create database mydb;'. The results section shows an error message: 'Failed to execute query. Error: Database 'mydb' already exists. Choose a different database name'.

2) Create and Configure an Azure MYSQL Database.

Step-1: Create a new Azure SQL Database.

Flexible server

Microsoft

⚠ Server names, networking connectivity method, zone redundant HA and backup redundancy cannot be changed after server is created. Review all options prior to creating the resource.

⚠ Changing Basic options may reset selections you have made. Review all options prior to creating the resource.

Create new

Server details

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

Server name * ⓘ

Region * ⓘ

MySQL version * ⓘ

Workload type ⓘ
☒ For small or medium size databases
☐ Tier 1 Business Critical Workloads
☐ For development or hobby projects

Compute + storage ⓘ
General Purpose, D2ads_v5
2 vCores, 8 GiB RAM, 20 GiB storage, Auto scale IOPS
Geo-redundancy : Disabled
[Configure server](#)

Availability zone ⓘ

High availability

[Review + create](#) [Next : Networking >](#)

[Book1 - Excel](#)

Step-2: In Networking setting change the firewall rules to allow the specific IP addresses. Configuring firewall rules to allow access to your database from specific IP addresses.

[Home](#) > [Azure Database for MySQL servers](#) > [Select Azure Database for MySQL deployment option](#) >

Flexible server

Microsoft

⚠ Server names, networking connectivity method, zone redundant HA and backup redundancy cannot be changed after server is created. Review all options prior to creating the resource.

Virtual network

Connectivity method ⓘ
☒ Public access (allowed IP addresses) and Private endpoint
☐ Private access (VNet Integration)

ⓘ Connections from the IP addresses configured in the Firewall rules section below will have access to this server. By default, no public IP addresses are allowed. [Learn more](#)

Public access
☒ Allow public access to this resource through the internet using a public IP address ⓘ

Firewall rules
Inbound connections from the IP addresses specified below will be allowed to port 3306 on this server. [Learn more](#)

☒ Allow public access from any Azure service within Azure to this server ⓘ

+ Add current client IP address (103.172.93.212) + Add 0.0.0.0 - 255.255.255.255

Firewall rule name	Start IP address	End IP address
ClientIPAddress_2024-8-19_9-7-48	103.172.93.212	103.172.93.212
<input type="text" value="Firewall rule name"/>	<input type="text" value="Start IP address"/>	<input type="text" value="End IP address"/>

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

[Book1 - Excel](#)

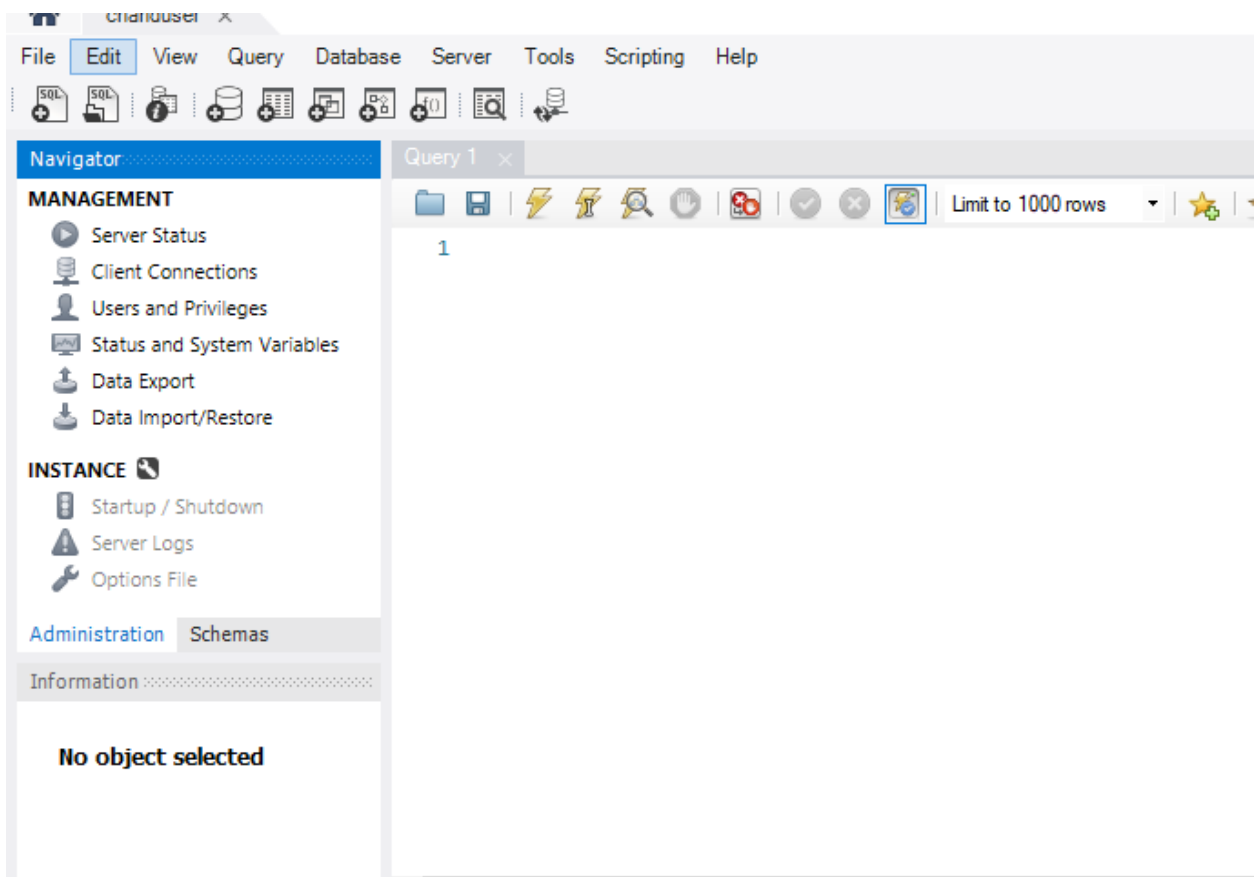
Step-3: Click on Review and create and go to the resource.

The screenshot shows the Azure portal interface for an Azure Database for MySQL flexible server. The breadcrumb navigation at the top reads: Home > MySqlFlexibleServer_42b9aba4636646bdafae29771e696bca | Overview > chanduser. The page title is 'chanduser | Azure Database for MySQL flexible server'. A search bar is present. The left sidebar contains a navigation menu with options: Overview (selected), Activity log, Access control (IAM), Tags, Diagnose and solve problems, Learning center, Settings, Power Platform, Security, Monitoring, Automation, and Help. The main content area features a banner for 'Azure Database for MySQL - Live Webinar series'. Below this, there are 'Essentials' details: Subscription (move), Subscription ID (9492d944-60c0-4990-bb4e-f700ea5a2147), Resource group (move) (chandu), Status (Available), and Location (Central India). A 'Tags' section shows 'Owner: Learner'. A 'Getting started' section includes links for Properties, Recommendations, Monitoring, and Tutorials. A 'Start your project' section provides instructions to connect to the database. At the bottom, there are four action buttons: Learn, Allow access, Connect, and Samples.

Step-4 : Now open the Mysql workbench and create a new sql connection with the below details.

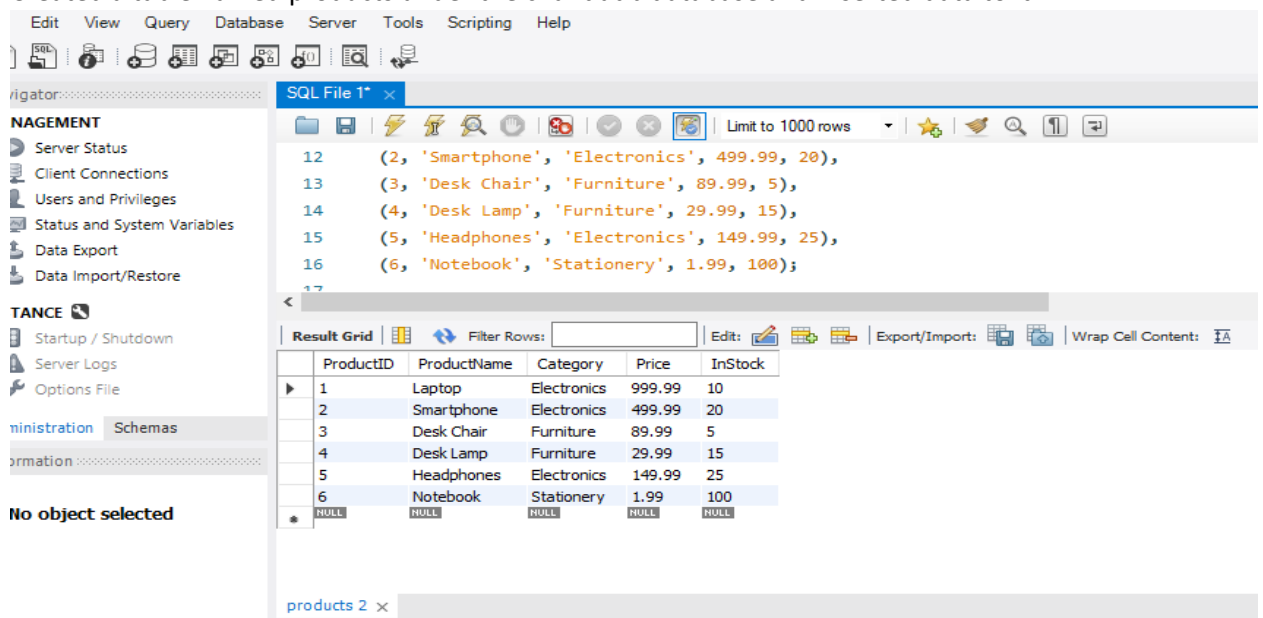
The screenshot shows the 'Connect' page for the 'chanduser' Azure Database for MySQL flexible server. The breadcrumb navigation at the top reads: Home > MySqlFlexibleServer_42b9aba4636646bdafae29771e696bca | Overview > chanduser. The page title is 'chanduser | Connect'. The left sidebar contains a navigation menu with options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Learning center, Settings, Compute + storage, Networking, Databases, Connect (selected), Server parameters, Replication, Maintenance, High availability, Backup and restore, Advisor recommendations, Locks, Power Platform, and Security. The main content area features a 'Pre-requisites check' section with four status items: Firewall rules are enabled on this server (green checkmark), Any resources that are part of the same virtual network as the private endpoint can access the server (yellow warning triangle), SSL is enforced and TLS version is 1.2 (green checkmark), and Server is in Ready state (green checkmark). Below this is a 'Connection details' section with a text box containing the following information: hostname=chanduser.mysql.database.azure.com, port=3306, username=chanduser, password=[your-password], and ssl-mode=require. A 'View All Databases' link is provided. At the bottom, there are four expandable sections: Connect from browser or locally, MySQL Workbench, Import and export data, and Connect from your app.

Step-5: Now click on the new SQL editor created.



Step-6: Now you can perform the queries of your interest.

- Create tables, insert sample data, and run basic SQL queries.
- Created a table named products under the chandudb database and inserted data to it.



Step-7: Perform some queries on it.

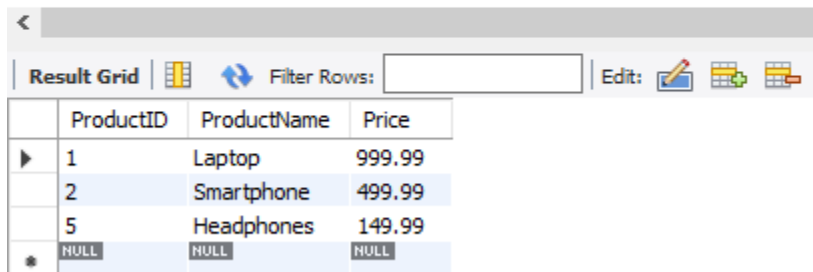
19

20 • `SELECT ProductID, ProductName, Price`

21 `FROM Products`

22 `WHERE Price > 100;`

23



The screenshot shows a database query interface. At the top, there is a toolbar with icons for 'Result Grid', 'Filter Rows', and 'Edit'. Below the toolbar is a table with the following data:

	ProductID	ProductName	Price
▶	1	Laptop	999.99
	2	Smartphone	499.99
	5	Headphones	149.99
*	NULL	NULL	NULL

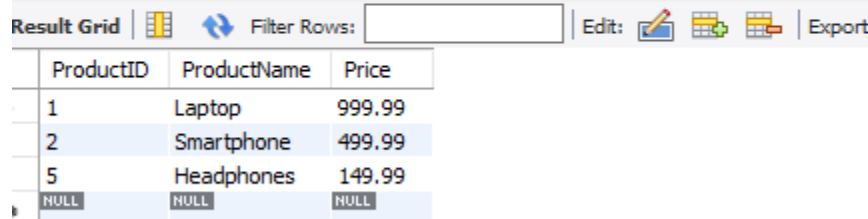
20

21 • `SELECT ProductID, ProductName, Price`

22 `FROM Products`

23 `WHERE Category = 'Electronics';`

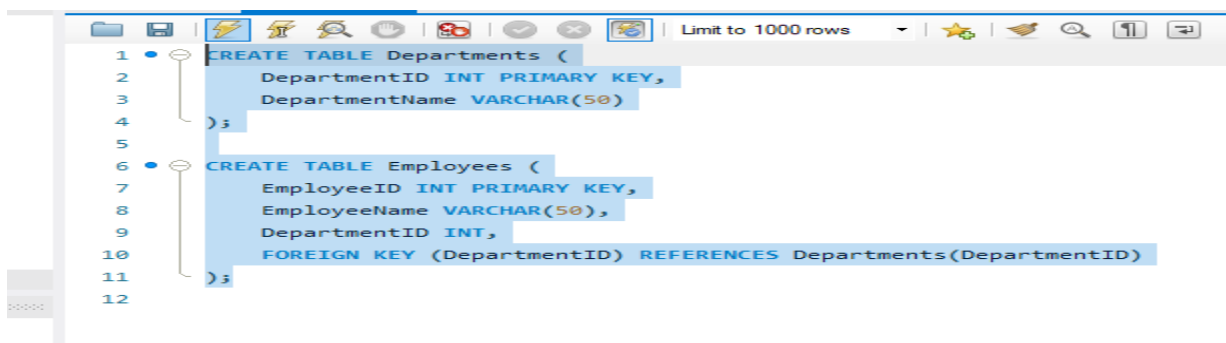
24



The screenshot shows a database query interface. At the top, there is a toolbar with icons for 'Result Grid', 'Filter Rows', 'Edit', and 'Export'. Below the toolbar is a table with the following data:

	ProductID	ProductName	Price
	1	Laptop	999.99
	2	Smartphone	499.99
	5	Headphones	149.99
	NULL	NULL	NULL

- Create Employees and Departments tables and demonstrate INNER JOIN, LEFT OUTER JOIN and RIGHT OUTER JOIN.



The screenshot shows a database query interface with a toolbar at the top. The SQL code being entered is as follows:

```
1 • CREATE TABLE Departments (  
2     DepartmentID INT PRIMARY KEY,  
3     DepartmentName VARCHAR(50)  
4 );  
5  
6 • CREATE TABLE Employees (  
7     EmployeeID INT PRIMARY KEY,  
8     EmployeeName VARCHAR(50),  
9     DepartmentID INT,  
10    FOREIGN KEY (DepartmentID) REFERENCES Departments(DepartmentID)  
11 );  
12
```

- Inner Join

The screenshot shows a SQL IDE window with a query editor and a result grid. The query is an inner join between the Employees and Departments tables. The result grid displays three rows of data.

```

24
25 • SELECT Employees.EmployeeID, Employees.EmployeeName, Departments.DepartmentName
26 FROM Employees
27 INNER JOIN Departments
28 ON Employees.DepartmentID = Departments.DepartmentID;

```

Result Grid:

	EmployeeID	EmployeeName	DepartmentName
▶	1	Alice	HR
	3	Charlie	HR
	2	Bob	Finance

- Left Outer Join

The screenshot shows a SQL IDE window with a query editor and a result grid. The query is a left outer join between the Employees and Departments tables. The result grid displays four rows of data, including a row with a null department name.

```

27 • SELECT Employees.EmployeeID, Employees.EmployeeName, Departments.DepartmentName
28 FROM Employees
29 LEFT OUTER JOIN Departments
30 ON Employees.DepartmentID = Departments.DepartmentID;
31
32

```

Result Grid:

	EmployeeID	EmployeeName	DepartmentName
▶	1	Alice	HR
	2	Bob	Finance
	3	Charlie	HR
	4	Diana	NULL

- Right Outer Join

The screenshot shows a SQL IDE window with a query editor and a result grid. The query is a right outer join between the Employees and Departments tables. The result grid displays four rows of data, including a row with null employee ID and name.

```

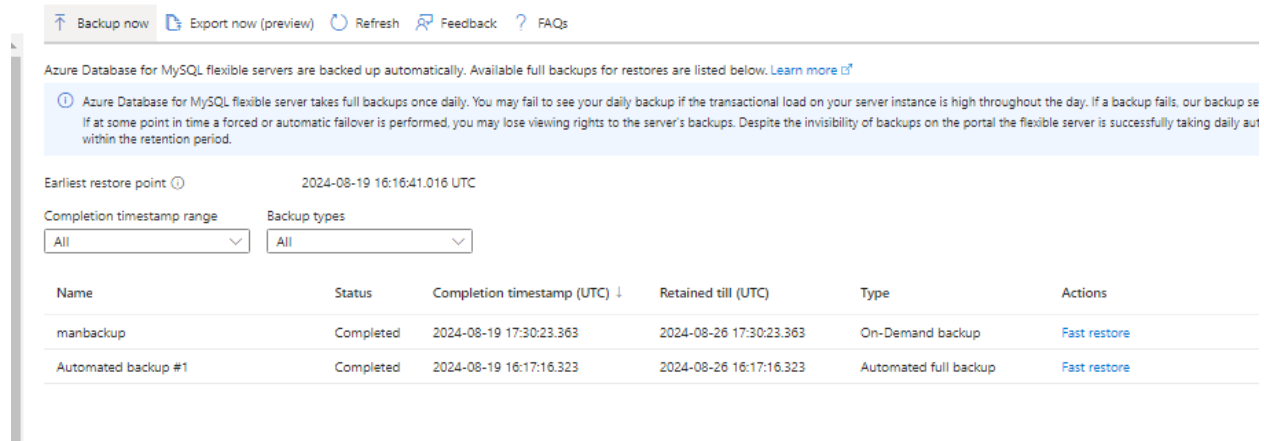
28 • SELECT Employees.EmployeeID, Employees.EmployeeName, Departments.DepartmentName
29 FROM Employees
30 RIGHT OUTER JOIN Departments
31 ON Employees.DepartmentID = Departments.DepartmentID;
32
33

```

Result Grid:

	EmployeeID	EmployeeName	DepartmentName
▶	1	Alice	HR
	3	Charlie	HR
	2	Bob	Finance
	NULL	NULL	IT

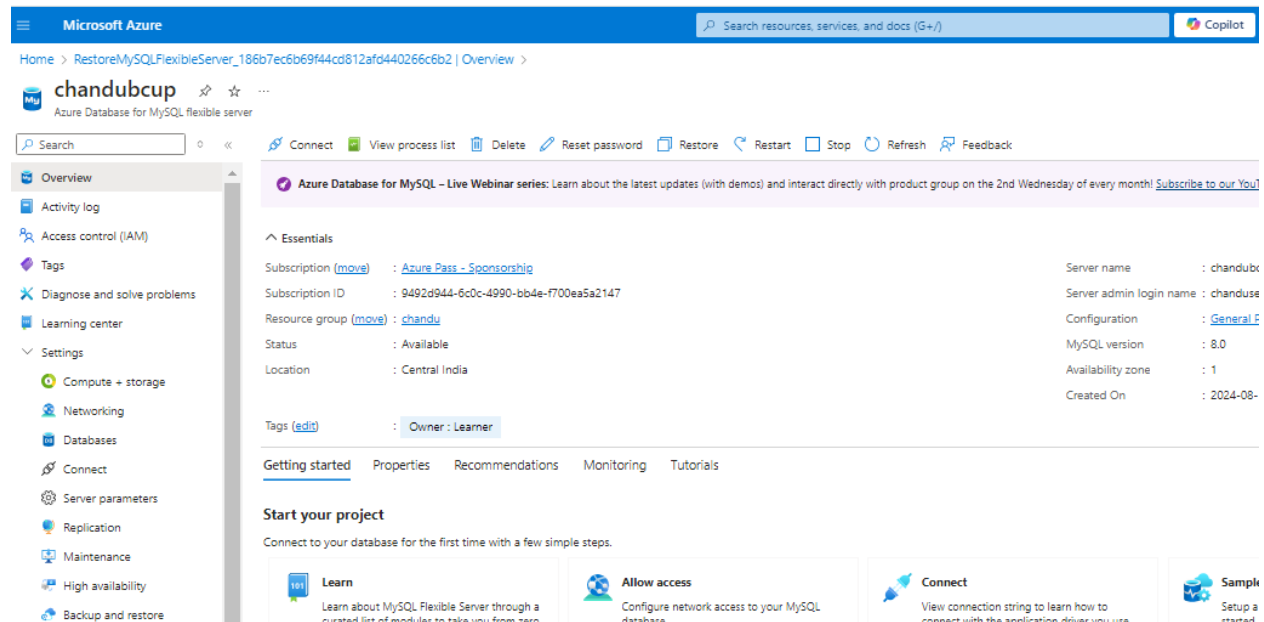
Step-8 : Configure automated backups and test restoring a database from a backup



The screenshot shows the 'Backup now' section in the Azure portal. It includes a 'Backup now' button, an 'Export now (preview)' button, and links for 'Refresh', 'Feedback', and 'FAQs'. A note states: 'Azure Database for MySQL flexible servers are backed up automatically. Available full backups for restores are listed below. [Learn more](#)'. A warning icon and text explain that backups are taken daily and may fail under high transactional load. Below this, the 'Earliest restore point' is 2024-08-19 16:16:41.016 UTC. There are dropdowns for 'Completion timestamp range' (set to 'All') and 'Backup types' (set to 'All'). A table lists the backups:

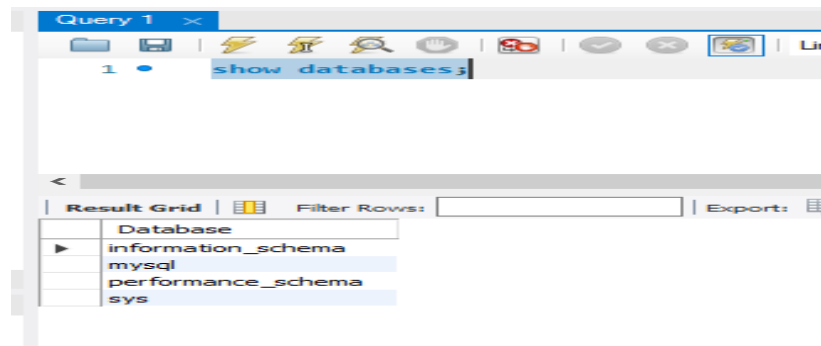
Name	Status	Completion timestamp (UTC)	Retained till (UTC)	Type	Actions
manbackup	Completed	2024-08-19 17:30:23.363	2024-08-26 17:30:23.363	On-Demand backup	Fast restore
Automated backup #1	Completed	2024-08-19 16:17:16.323	2024-08-26 16:17:16.323	Automated full backup	Fast restore

Step-9: Now we try to restore the initial backup. Go to settings and click on the backup and restore option and click fast restore on the oldest backup available.



The screenshot shows the 'Overview' page of an Azure Database for MySQL flexible server named 'chandubcup'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Learning center, Settings, Compute + storage, Networking, Databases, Connect, Server parameters, Replication, Maintenance, High availability, and Backup and restore. The main content area shows the 'Essentials' section with details like Subscription, Subscription ID, Resource group, Status, Location, and Tags. Below this are tabs for 'Getting started', 'Properties', 'Recommendations', 'Monitoring', and 'Tutorials'. The 'Start your project' section provides links to 'Learn', 'Allow access', 'Connect', and 'Sample'.

Now connect to the workbench for the backup database and check point of time backup.



The screenshot shows the Azure Data Studio interface. The 'Query 1' tab is active, displaying the query 'show databases;'. The 'Result Grid' shows the output of the query, listing the databases: 'information_schema', 'mysql', 'performance_schema', and 'sys'.

Step-10: Set up and configure geo-replication to create readable secondary replicas in different regions.

- For creating a replica go to the replication settings and click on the create replica.

Home > MySQLFlexibleServer_bf2430d698dd48f2ba59ac6852e4540d | Overview >

chandurep ☆ ☆ ...
Azure Database for MySQL flexible server

Search [] << >> Connect View process list Delete Reset password Restore Restart Stop Refresh Feedback

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Learning center
- Settings
 - Compute + storage
 - Networking
 - Databases
 - Connect
 - Server parameters
 - Replication
 - Maintenance
 - High availability
 - Backup and restore

Essentials

Subscription (move) : [Azure Pass - Sponsorship](#)
Subscription ID : 9492d944-6c0c-4990-bb4e-f700ea5a2147
Resource group (move) : [chandur](#)
Status : Available
Location : Central India

Server name : chandurep
Server admin login name : chanduser
Configuration : [General P](#)
MySQL version : 8.0
Availability zone : 1
Created On : 2024-08-1

Tags (edit) : Owner : Learner

Getting started Properties Recommendations Monitoring Tutorials

Start your project
Connect to your database for the first time with a few simple steps.

- Learn**
Learn about MySQL Flexible Server through a curated list of resources on this page.
- Allow access**
Configure network access to your MySQL database.
- Connect**
View connection string to learn how to connect with the application of your choice.
- Sample**
Setup a sample application.

Open the replica SQL connection and then try to create or update anything.

Output			
Action Output			
#	Time	Action	Message
✓ 1	11:00:33	show databases	4 row(s) returned
✗ 2	11:01:15	create database mydb	Error Code: 1290. The MySQL server is running with the --read-only option so it cannot execute this statement

- We use replicas to only read the databases but not to manipulate the databases.

3) Host a Jenkins image on azure container instance.

Ans)

Step-1: Create a Container instance.

Home > Container instances >

Create container instance

Basics Networking Advanced Tags Review + create

Azure Container Instances (ACI) allows you to quickly and easily run containers on Azure without managing servers or having to learn new tools. ACI offers per-second billing to minimize the cost of running containers on the cloud.
[Learn more about Azure Container Instances](#)

Project details

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

Subscription * ⓘ Azure Pass - Sponsorship

Resource group * ⓘ nithin
[Create new](#)

Container details

Container name * ⓘ nithinco ✓

Region * ⓘ (Asia Pacific) Central India

Availability zones (Preview) ⓘ None

SKU Standard

Standard SKU is available for all regions. Confidential SKU is only available for

Step-2: On the basics page change the image resource to the other registry and configure the size to 2 cpu's , 2GB memory.

Microsoft Azure

Home > Container instances >

Create container instance

Image source * ⓘ

☐ Quickstart images

☐ Azure Container Registry

☒ Other registry

⚠ Please be aware that Docker Hub has recently introduced a pull rate limit on Docker Images. When specifying an image from the Docker Hub registry, this may impact the creation of your container instance. [Learn more](#)

Run with Azure Spot discount ⓘ

☐ Spot containers are not available in the selected region. [Learn more](#)

Image type * ⓘ

☒ Public ☐ Private

Image * ⓘ

Example: mydockerregistry/hello-world

ⓘ If not specified, Docker Hub will be used for the container registry and the latest version of the image will be pulled.

OS type *

☒ Linux ☐ Windows

ⓘ This selection must match the OS of the image chosen above.

Size * ⓘ

1 vcpu, 1.5 GB memory, 0 gpus

[Change size](#)

Change container ...

Configure the resource requirements for your container. The available values are based on region, OS type, and networking options.
[Learn more about resource requirements in ACI](#)

Number of CPU cores * ⓘ

2 ✓

1-32

Memory (GB) * ⓘ

2 ✓

1-256

GPU type (preview) * ⓘ

None

Step-3: Give the image path as jenkins/Jenkins it will automatically retrieve from the docker hub.

Image name specifying the image name and a container registry, that may impact the creation of your container instance. [Learn more](#)

Run with Azure Spot discount ☐

i Spot containers are not available in the selected region. [Learn more](#)

Image type * ☒ Public ☐ Private

Image *

i If not specified, Docker Hub will be used for the container registry and the latest version of the image will be pulled.

OS type * ☒ Linux ☐ Windows


The image name is protocol (for exam "myacr.azurecr.io/r

hub.docker.com/r/jenkins/jenkins

Overview Tags

Jenkins Continuous Integration and Delivery server.

This is a fully functional Jenkins server, based on the weekly and LTS releases .

 **Jenkins**

Docker Pull Command

docker pull jenkins/jenkins [Copy](#)

Step-4: Go to the network page and add the port number 8080 as TCP.

Basics Networking Advanced Tags Review + create

Choose between three networking options for your container instance:

- **'Public'** will create a public IP address for your container instance.
- **'Private'** will allow you to choose a new or existing virtual network for your container instance.
- **'None'** will not create either a public IP or virtual network. You will still be able to access your container logs using the command line.

Networking type ☒ Public ☐ Private ☐ None

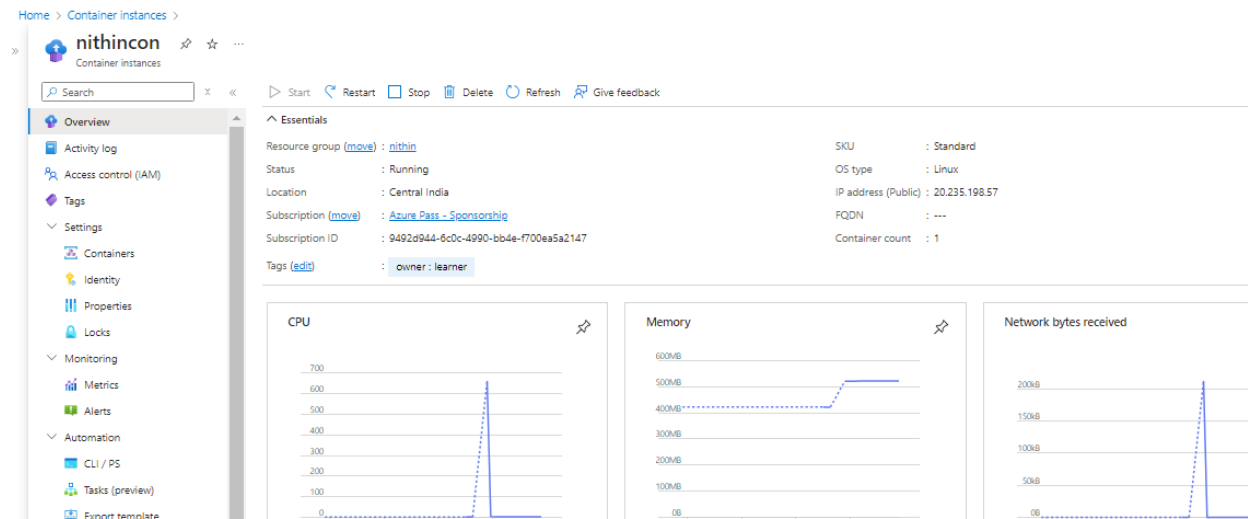
DNS name label

DNS name label scope reuse

Ports

Ports	Ports protocol
80	TCP
<input type="text" value="8080"/>	<input type="text" value="TCP"/>
<input type="text"/>	<input type="text"/>

Step-5: Now click review and create.



Step-6: Copy the IP address and check for the Instance.

The screenshot shows a web browser window with the URL 20.235.198.57:8080/login?from=%2F. The page is titled 'Getting Started' and features the heading 'Unlock Jenkins'.

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

```
/var/jenkins_home/secrets/initialAdminPassword
```

Please copy the password from either location and paste it below.

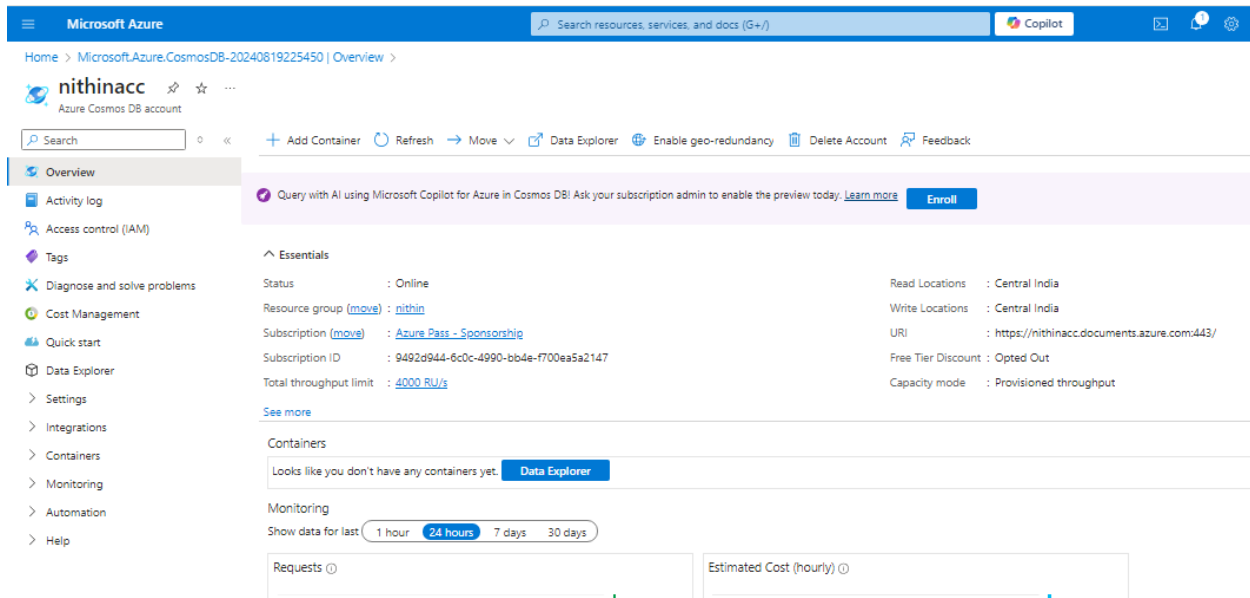
Administrator password

[Continue](#)

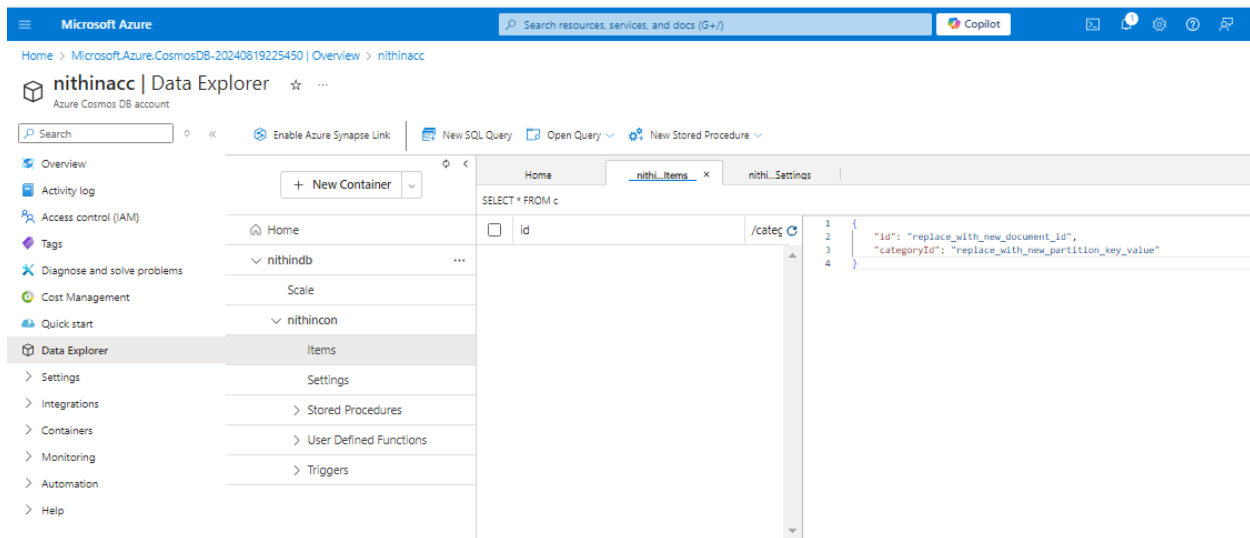
4) Create and Configure a Cosmos DB Account and demonstrate CRUD (Create, Read, Update, Delete) operations.

Ans)

Step-1: Create a cosmos Db account in azure with the location Central India.



Step-2 : Goto Data explorer and click on create new container.



Step-3 : click on the new item in items setting and some data to it.

Create Operation:

Query with AI using Microsoft Copilot for Azure in Cosmos DB! Ask your subscription admin to enable the preview today. [Learn more](#) [Enroll](#)

Home nithi...Items

SELECT * FROM c

	id	/category
<input type="checkbox"/>	022d6284-08eb-4c7e-a1d1-3bc84e86ac...	
<input type="checkbox"/>	3da057b2-d87c-4076-ba71-8f7978e1f017	
<input type="checkbox"/>	ea74f130-08a9-432d-a3bf-709eea9baaec	
<input checked="" type="checkbox"/>	7b7d8a7b-feeb-4fb5-84d6-091e6e9e57ce	

```
1 {
2   "heroId": "4",
3   "name": "Thor",
4   "realName": "Thor Odinson",
5   "powers": [
6     "superhuman strength",
7     "control over lightning",
8     "immortality"
9   ],
10  "team": "Avengers",
11  "id": "7b7d8a7b-feeb-4fb5-84d6-091e6e9e57ce",
12  "_rid": "6AtZANEIcFQEAAAAAAAAA==",
13  "_self": "dbs/6AtZAA==/colls/6AtZANEIcFQ=/docs/6AtZANEIcFQEAAAAAAAAA==/",
14  "_etag": "\"0b00190c-0000-2000-0000-66c458d40000\"",
15  "_attachments": "attachments/",
16  "_ts": 1724143828
17 }
```

Read-Operation:

Home nithi...Items

SELECT * FROM c where c.name="Spider-Man"

	id	/categoryId
<input checked="" type="checkbox"/>	022d6284-08eb-4c7e-a1d1-3bc84e86acb5	

```
1 {
2   "heroId": "1",
3   "name": "Spider-Man",
4   "realName": "Peter Parker",
5   "powers": [
6     "wall-crawling",
7     "enhanced strength",
8     "spider-sense"
9   ],
10  "team": "Avengers",
11  "id": "022d6284-08eb-4c7e-a1d1-3bc84e86acb5",
12  "_rid": "6AtZANEIcFQBAAAAAAAAA==",
13  "_self": "dbs/6AtZAA==/colls/6AtZANEIcFQ=/docs/6AtZANEIcFQBAAAAAAAAA==/",
14  "_etag": "\"0b00170b-0000-2000-0000-66c457cb0000\"",
15  "_attachments": "attachments/",
16  "_ts": 1724143563
17 }
```

Update Operation: we updated the name from captain america to hulk.

Item Update Discard Delete Upload Item

To prevent queries from using excessive RUs, Data Explorer has a 5,000 RU default limit. To modify or remove the limit, go to the Settings cog on the right and find "RU Threshold" [Learn More](#)

Home nithi...Items x

SELECT * FROM c

<input checked="" type="checkbox"/>	id	/categ
<input type="checkbox"/>	3da057b2-d87c-4076-ba71-8f7978e1f017	
<input checked="" type="checkbox"/>	ea74f130-08a9-432d-a3bf-709eea9baaec	
<input type="checkbox"/>	7b7d8a7b-feeb-4fb5-84d6-091e6e9e57ce	

```
1 {
2   "heroId": "3",
3   "name": "Hulk",
4   "realName": "Steve Rogers",
5   "powers": [
6     "super soldier strength",
7     "enhanced agility",
8     "strategic genius"
9   ],
10  "team": "Avengers",
11  "id": "ea74f130-08a9-432d-a3bf-709eea9baaec",
12  "_rid": "6AtZANEIcFQAAAAAAAAA==",
13  "_self": "dbs/6AtZAA==/colls/6AtZANEIcFQ=/docs/6AtZANEIcFQAAAAAAAAA==/",
14  "_etag": "\"0b080e11-0000-2000-0000-66c45e9a0000\"",
15  "_attachments": "attachments/",
16  "_ts": 1724145306
17 }
```

Delete Operation:
before deletion: we have four rows.

New Item Update Discard Delete Upload Item

+ New Container

Home nithi...Items x

SELECT * FROM c

<input checked="" type="checkbox"/>	id	/categ
<input type="checkbox"/>	3da057b2-d87c-4076-ba71-8f7978e1f017	
<input type="checkbox"/>	ea74f130-08a9-432d-a3bf-709eea9baaec	
<input type="checkbox"/>	7b7d8a7b-feeb-4fb5-84d6-091e6e9e57ce	
<input checked="" type="checkbox"/>	912ce11d-b3cb-40a1-886b-ee37a79c62a	

```
1 {
2   "heroId": "1",
3   "name": "Spider-Man",
4   "realName": "Peter Parker",
5   "powers": [
6     "wall-crawling",
7     "enhanced strength",
8     "spider-sense"
9   ],
10  "team": "Avengers",
11  "id": "912ce11d-b3cb-40a1-886b-ee37a79c62a",
12  "_rid": "6AtZANEIcFQAAAAAAAAA==",
13  "_self": "dbs/6AtZAA==/colls/6AtZANEIcFQ=/docs/6AtZANEIcFQAAAAAAAAA==/",
14  "_etag": "\"0b080e11-0000-2000-0000-66c45e9a0000\"",
15  "_attachments": "attachments/",
16  "_ts": 1724144965
17 }
```

After deletion: we will have only three rows.

New Item Upload Item

+ New Container

Home nithi...Items x

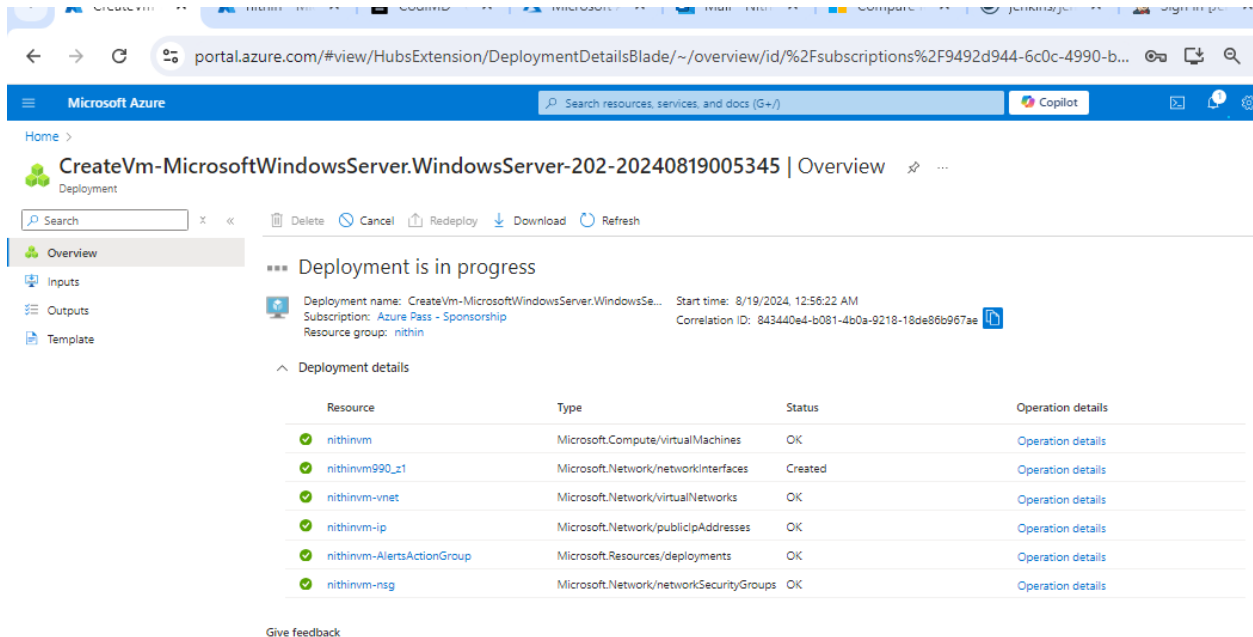
SELECT * FROM c

<input type="checkbox"/>	id	/categ
<input type="checkbox"/>	3da057b2-d87c-4076-ba71-8f7978e1f017	
<input type="checkbox"/>	ea74f130-08a9-432d-a3bf-709eea9baaec	
<input type="checkbox"/>	7b7d8a7b-feeb-4fb5-84d6-091e6e9e57ce	

5) create alert for the high cpu usage with email notification on windows server.

Ans)

Step-1: Create a VM with windows as the image and change the size to the D2Sv3 and with enabling the alerts in the monitoring section.



The screenshot shows the Azure portal interface for a deployment named "CreateVm-MicrosoftWindowsServer.WindowsServer-202-20240819005345". The deployment is in progress. The left sidebar shows the navigation menu with "Overview" selected. The main content area displays the deployment status and details.

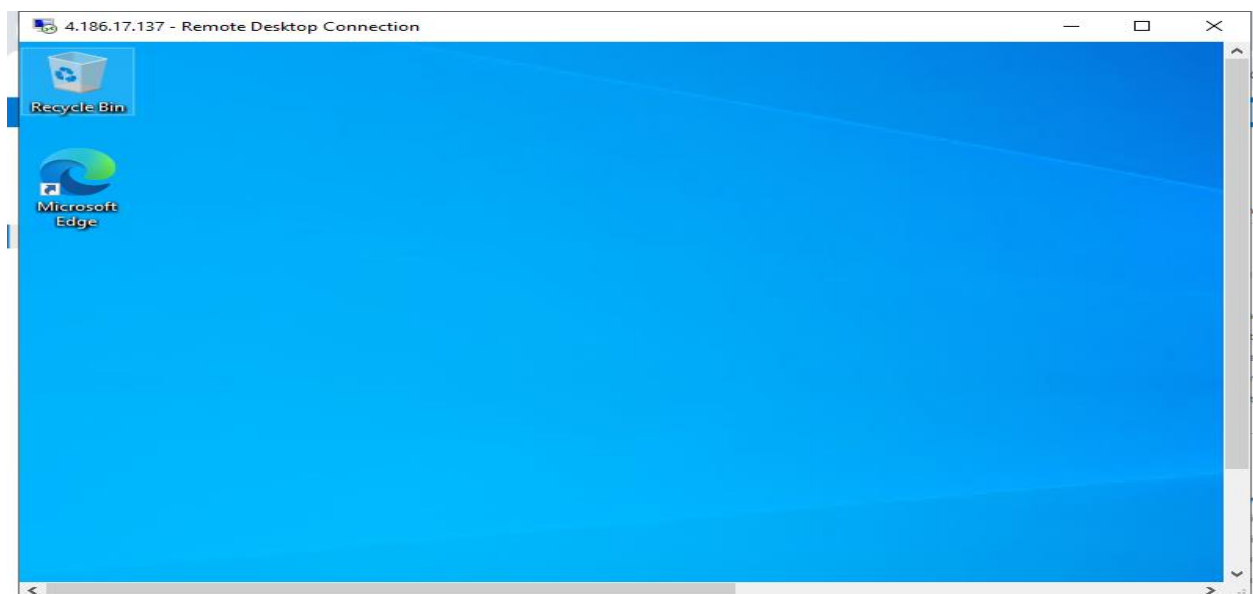
Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 8/19/2024, 12:56:22 AM
Subscription: Azure Pass - Sponsorship Correlation ID: 843440e4-b081-4b0a-9218-18de86b967ae
Resource group: nithin

Deployment details

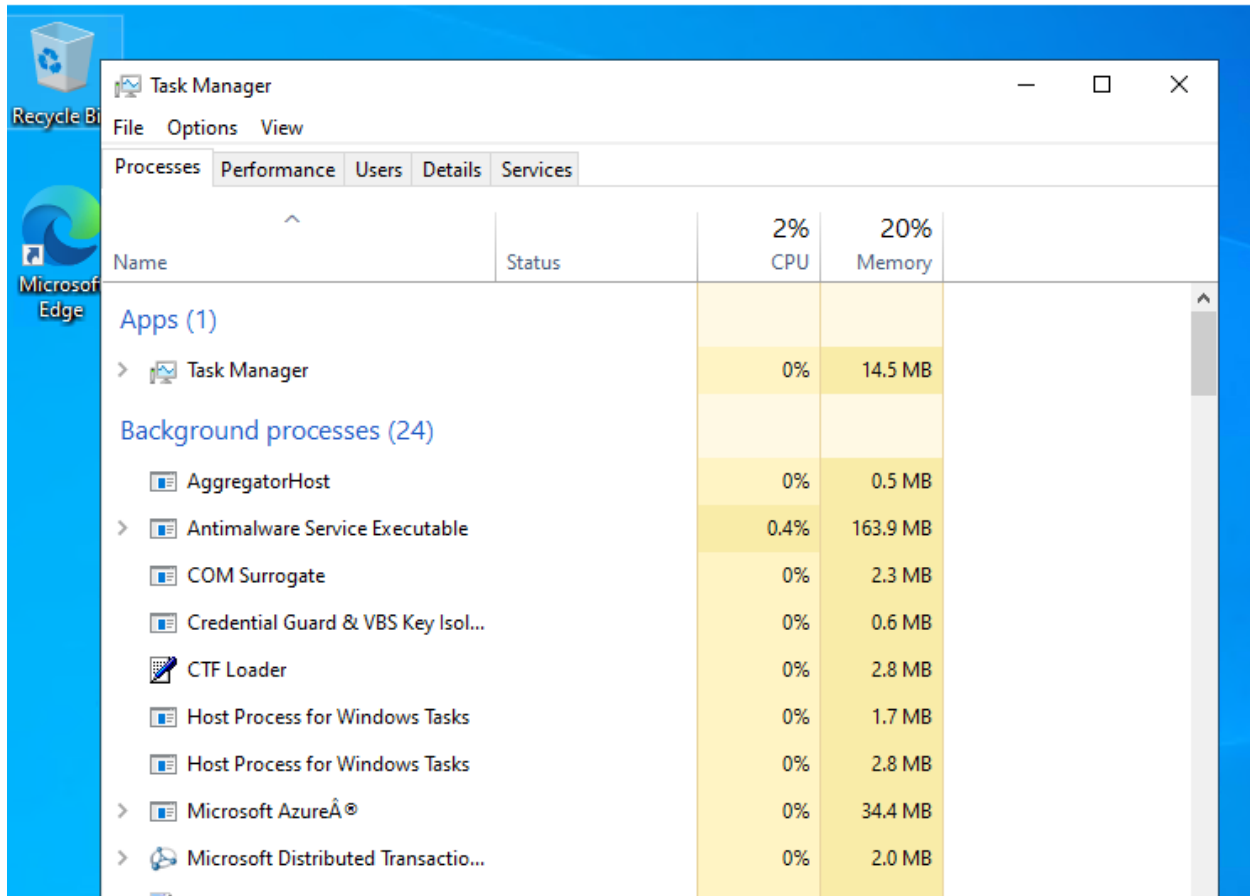
Resource	Type	Status	Operation details
nithinvm	Microsoft.Compute/virtualMachines	OK	Operation details
nithinvm990_z1	Microsoft.Network/networkInterfaces	Created	Operation details
nithinvm-vnet	Microsoft.Network/virtualNetworks	OK	Operation details
nithinvm-ip	Microsoft.Network/publicIPAddresses	OK	Operation details
nithinvm-AlertsActionGroup	Microsoft.Resources/deployments	OK	Operation details
nithinvm-nsg	Microsoft.Network/networkSecurityGroups	OK	Operation details

Give feedback

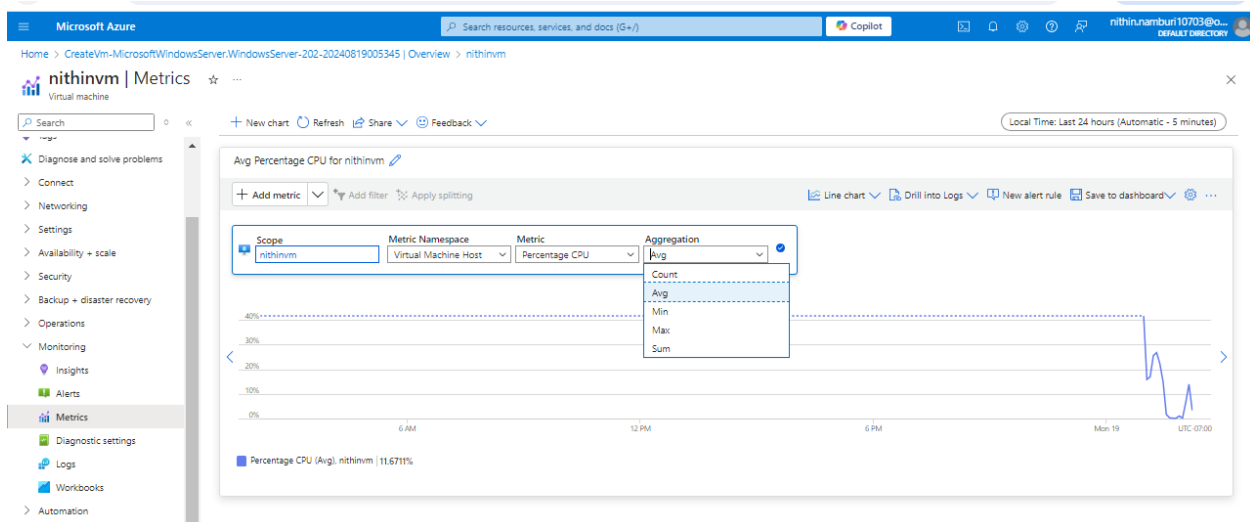
Step-2: Now connect the VM (IP address) to the RDP.



Step-3: Open the task manager and check for the CPU utilization.



Step-4: go to the monitoring in the VM and set a metric for CPU percentage

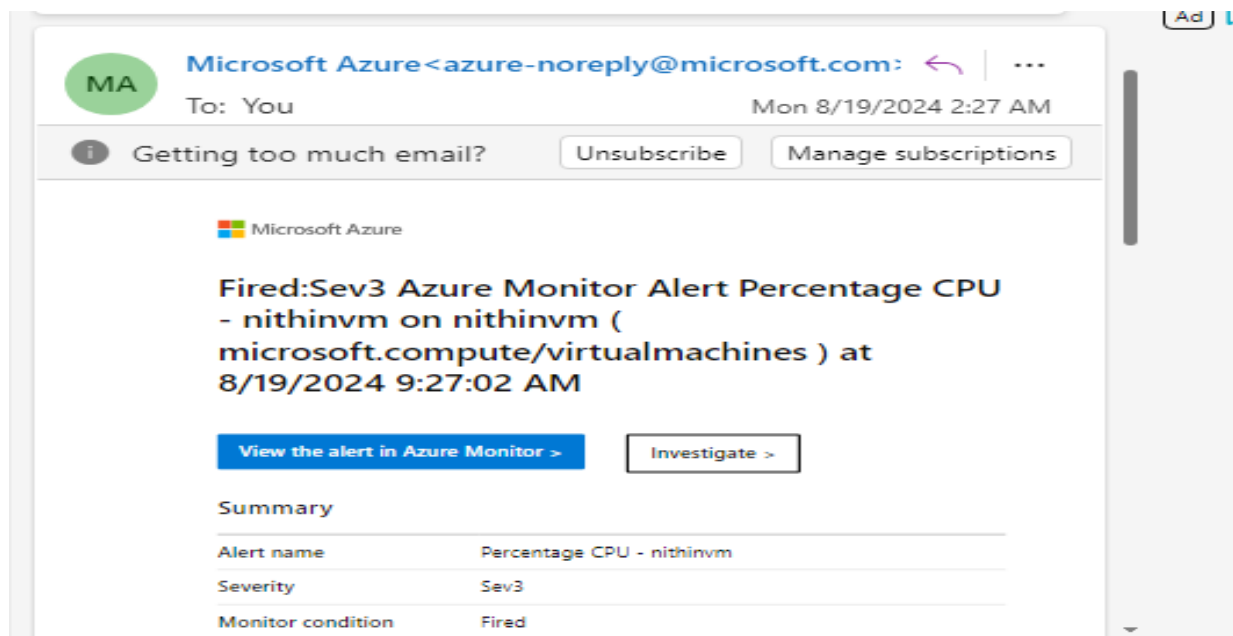


Step-5: Install a stress increasing tool in the RDP and maximize the stress.

The screenshot shows the Windows Task Manager Performance tab. The CPU usage is highlighted in red at 100%, and Memory usage is highlighted in yellow at 82%. Below the summary, a list of processes is shown with their respective CPU and memory usage.

Name	Status	CPU	Memory
Apps (4)			
CPU Stress		45.9%	1.8 MB
PRIME95 Application		50.8%	5,069.6 MB
Task Manager		0.3%	16.6 MB
Windows Explorer (3)		0%	28.2 MB
Background processes (23)			
AggregatorHost		0%	0.5 MB
Antimalware Service Executable		0%	161.9 MB
COM Surrogate		0%	2.1 MB
Credential Guard & VBS Key Isol...		0%	0.7 MB
CTF Loader		0%	2.9 MB
Host Process for Windows Tasks		0%	2.5 MB
Host Process for Windows Tasks		0%	1.8 MB

Step-6: Because we enabled the alerts options available in the monitoring we will get an email stating the CPU utilization is more.



Step-7: Now check the CPU metric that you created in the VM it is also Increased than 80%.

