Platform Engineering Assignment-3

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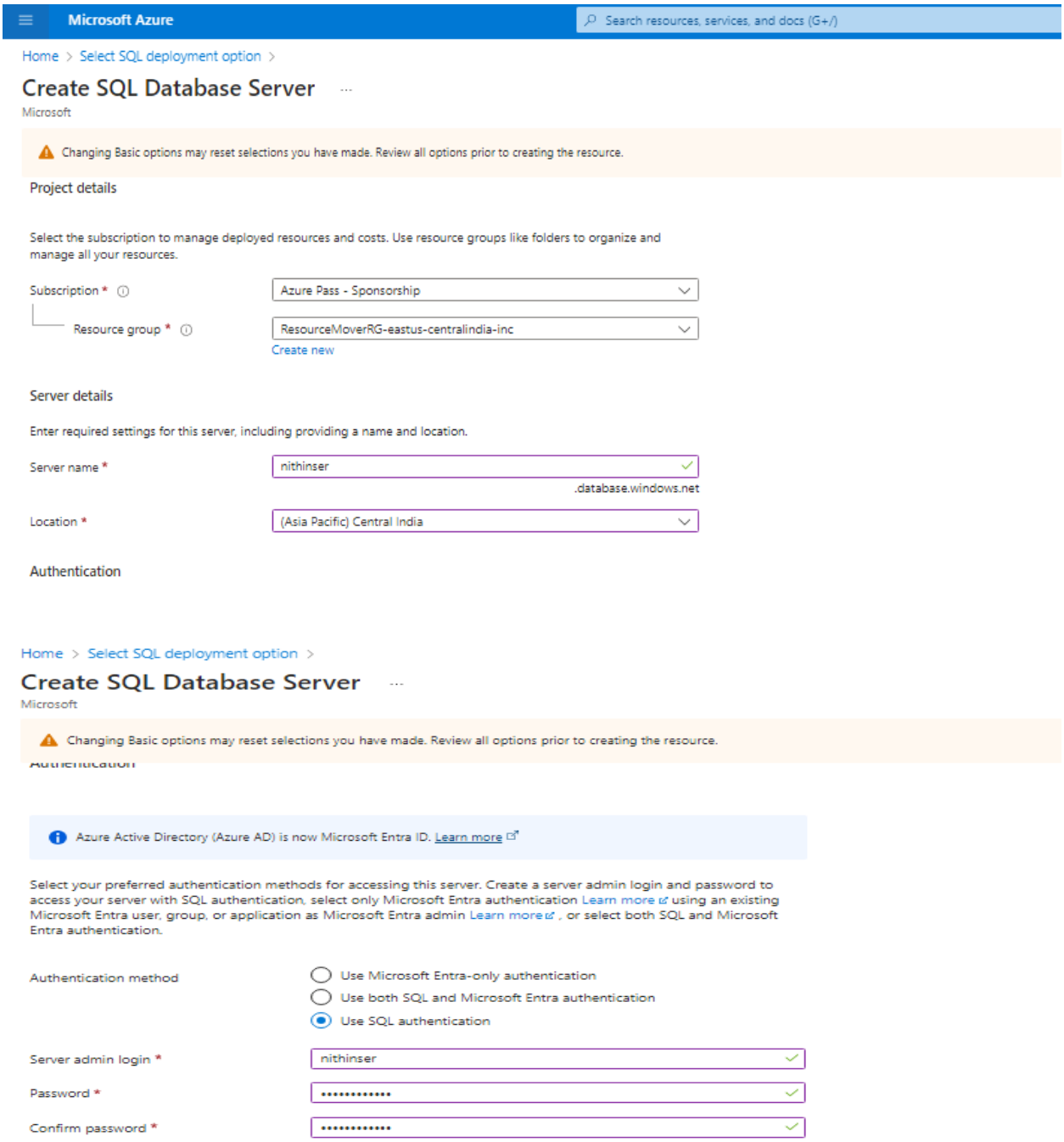
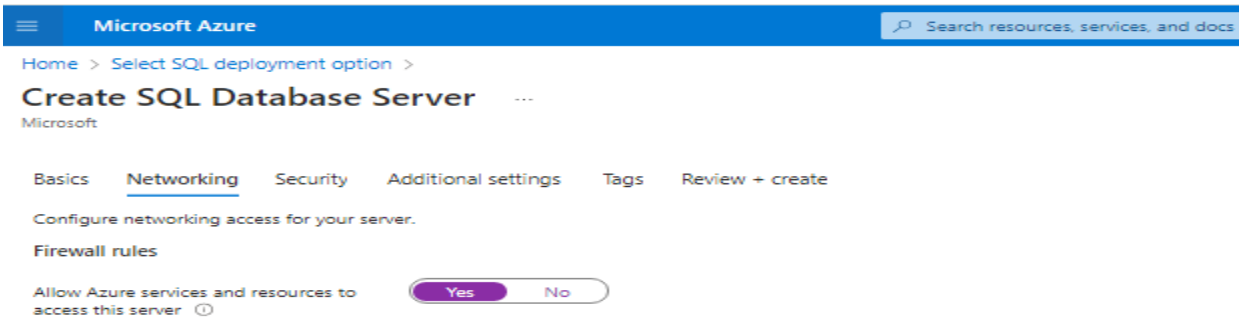
1433832

1) Create and Configure an Azure SQL Database:

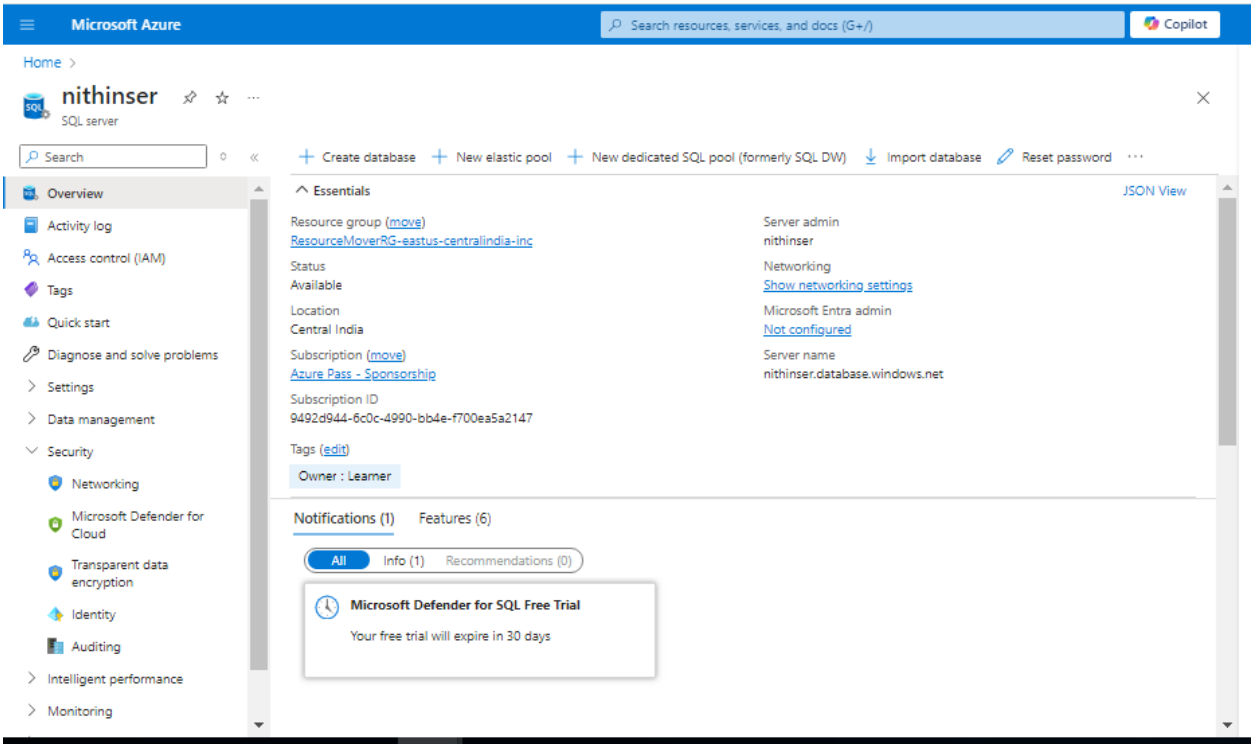
Step -1: Create a new Azure SQL Database.



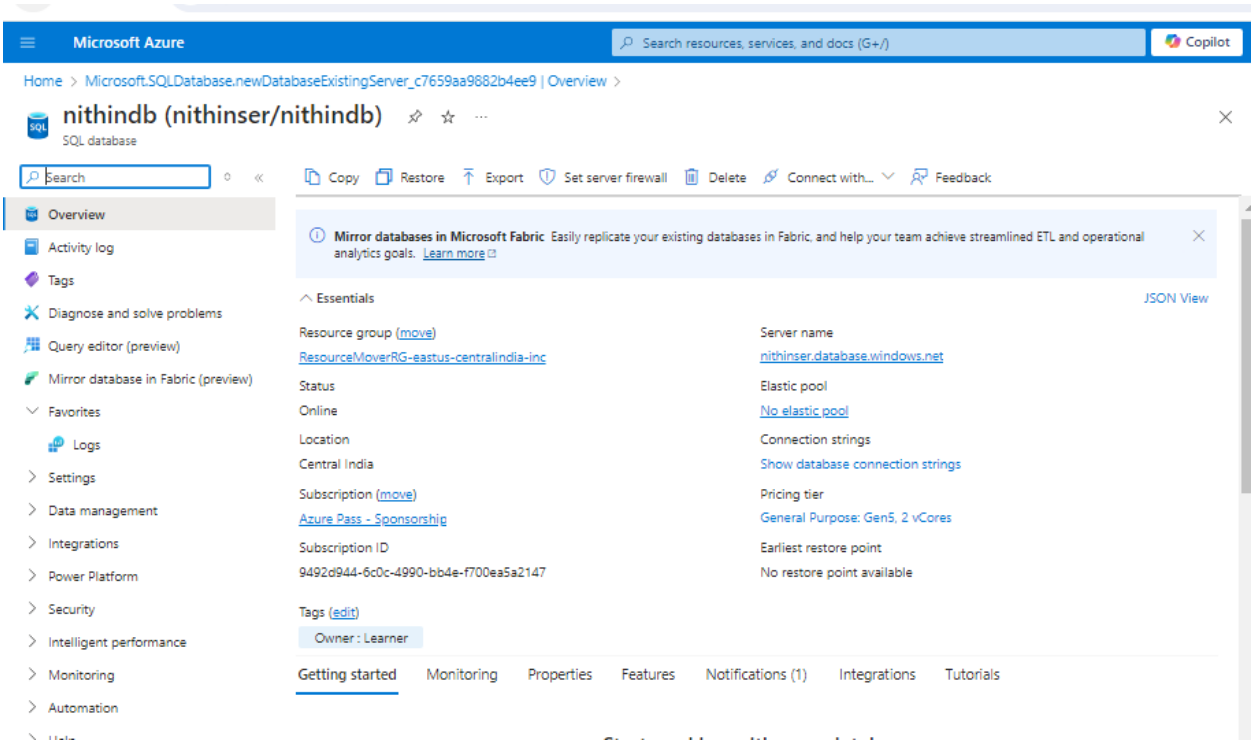
- Change the firewall rules to yes for allowing the IP adsress



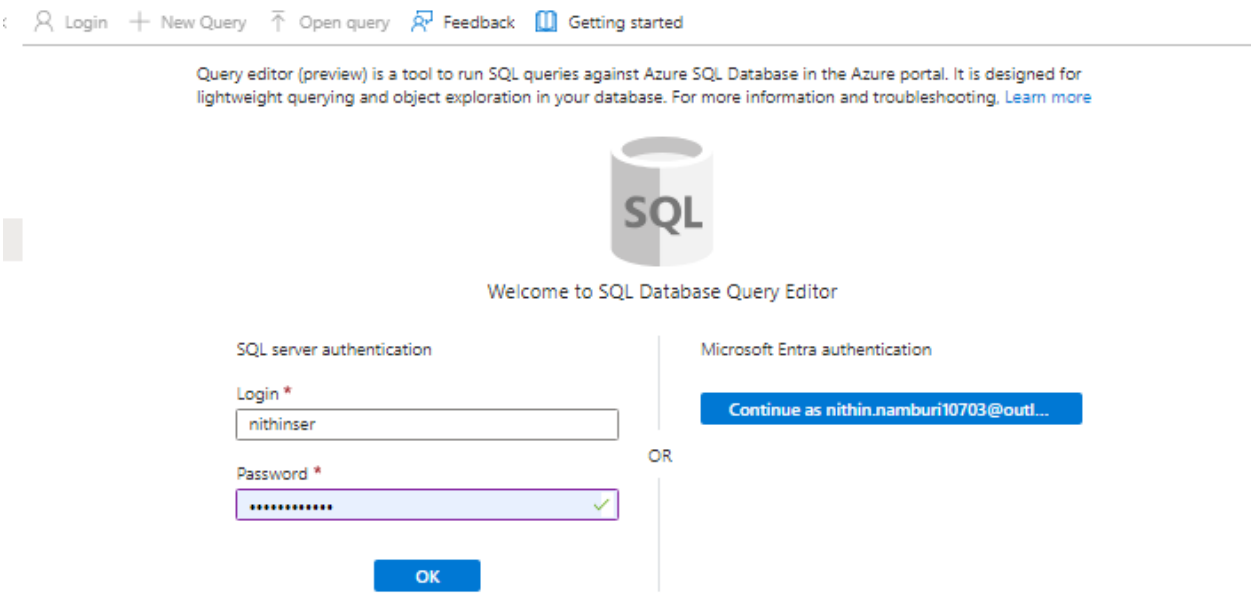
- Now click Review ad create.



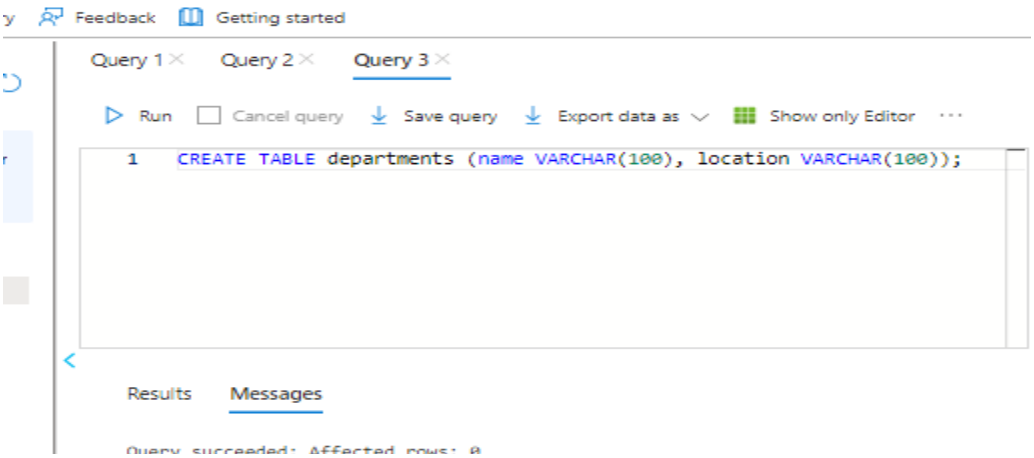
Step-2: Click on the create database and create one database with sample data.

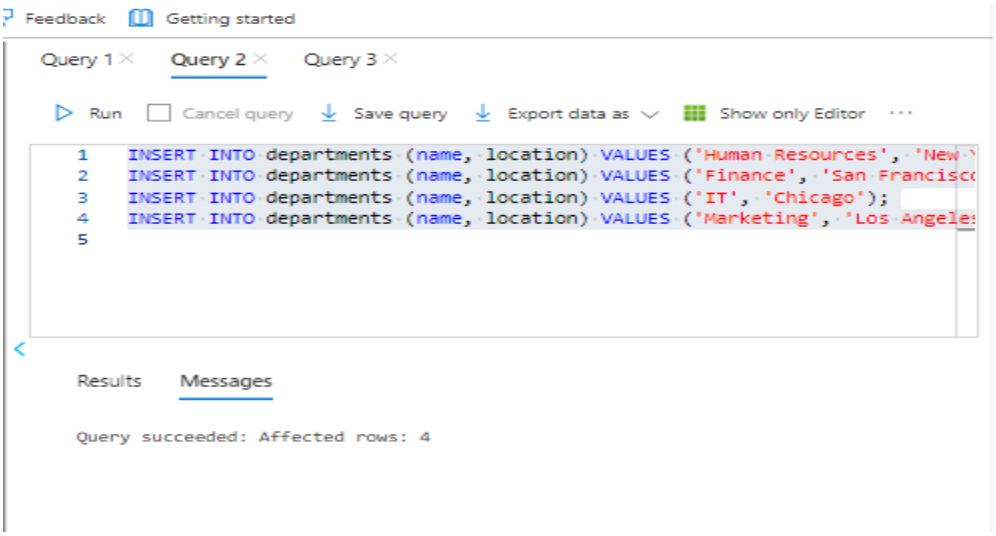


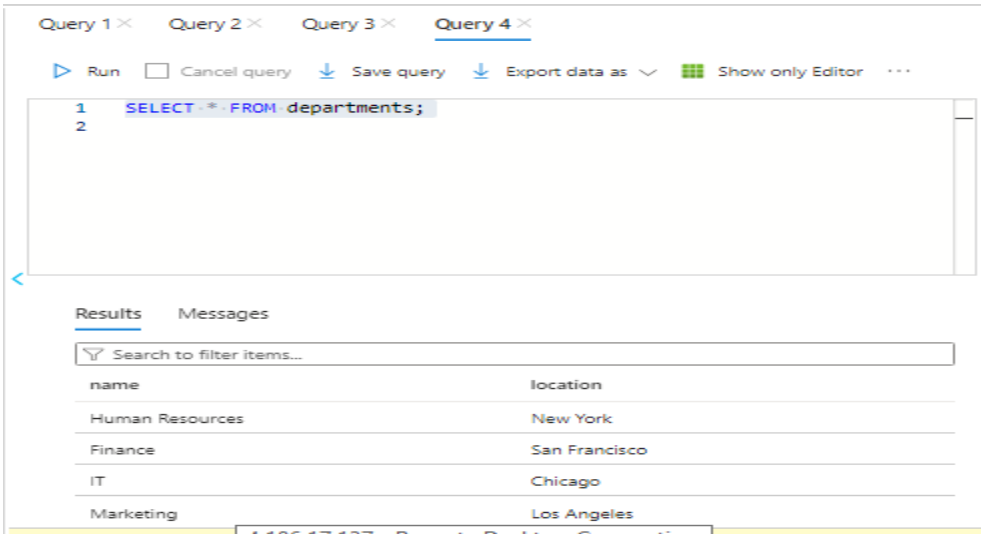
Step-3:After creation of DB login to it.



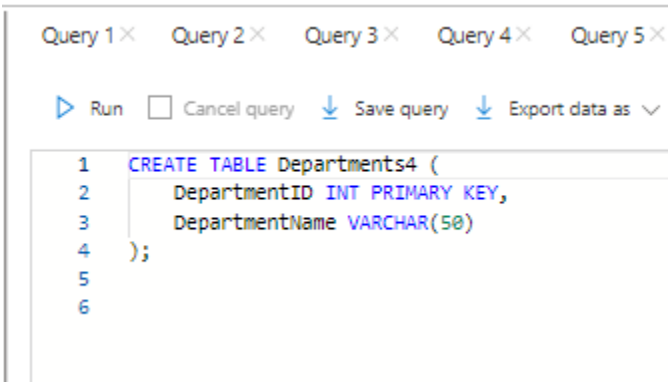
Step-4: Create tables, insert sample data, and run basic SQL queries.

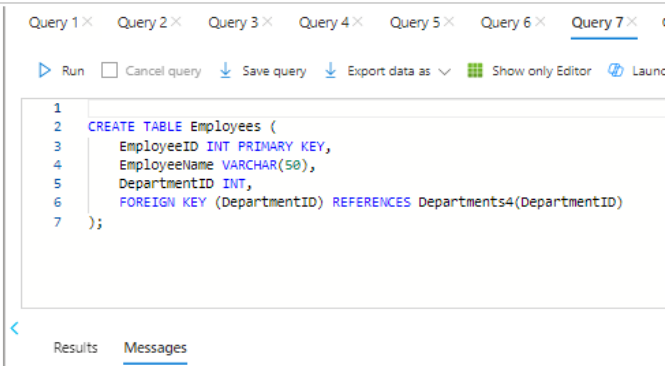

Feedback
Getting started
Query 1
Query 2
Query 3
Run
Cancel query
Save query
Export data as
Show only Editor
1 CREATE TABLE departments (name VARCHAR(100), location VARCHAR(100));
Results
Messages


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
2 INSERT INTO departments (name, location) VALUES ('Finance', 'San Francisc
3 INSERT INTO departments (name, location) VALUES ('IT', 'Chicago');
4 INSERT INTO departments (name, location) VALUES ('Marketing', 'Los Angele
5
Results
Messages
Query succeeded: Affected rows: 4

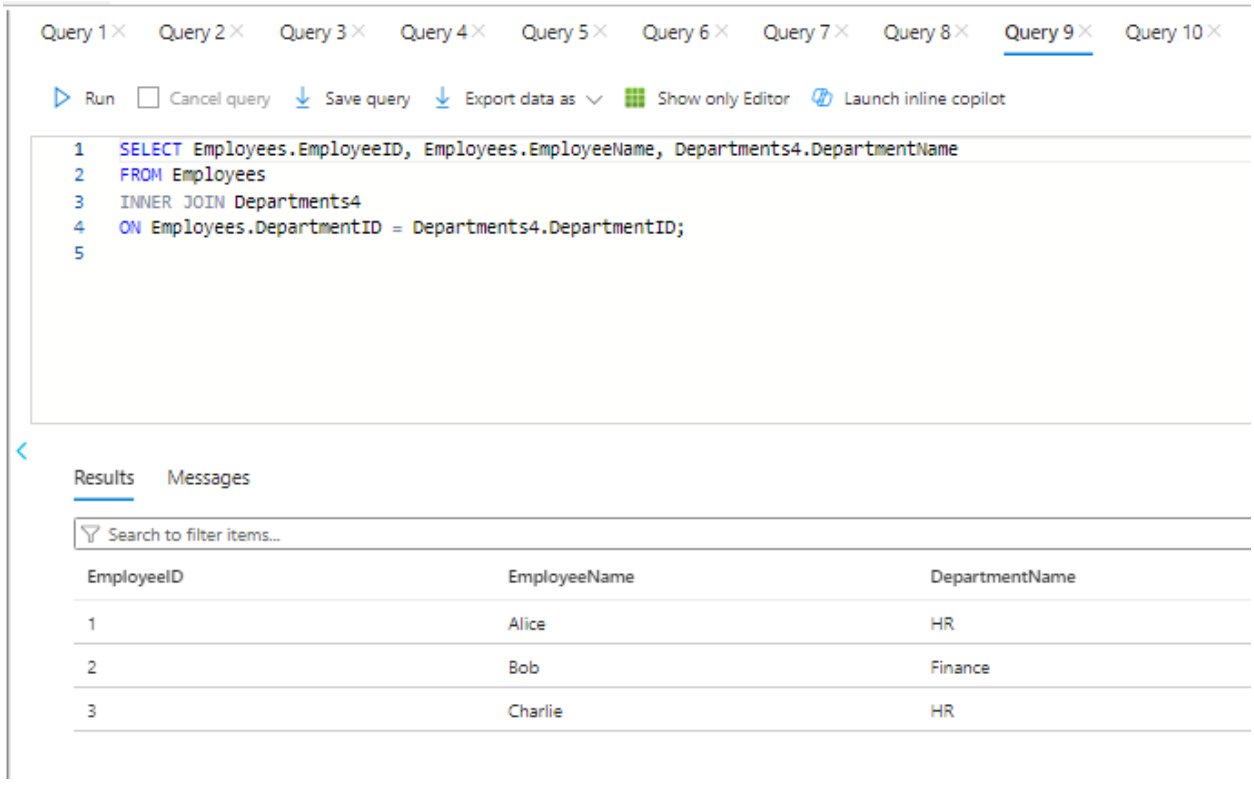

Query 1
Query 2
Query 3
Query 4
Run
Cancel query
Save query
Export data as
Show only Editor
1 SELECT * FROM departments;
2
Results
Messages
Search to filter items...
name
location
Human Resources
New York
Finance
San Francisco
IT
Chicago
Marketing
Los Angeles

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

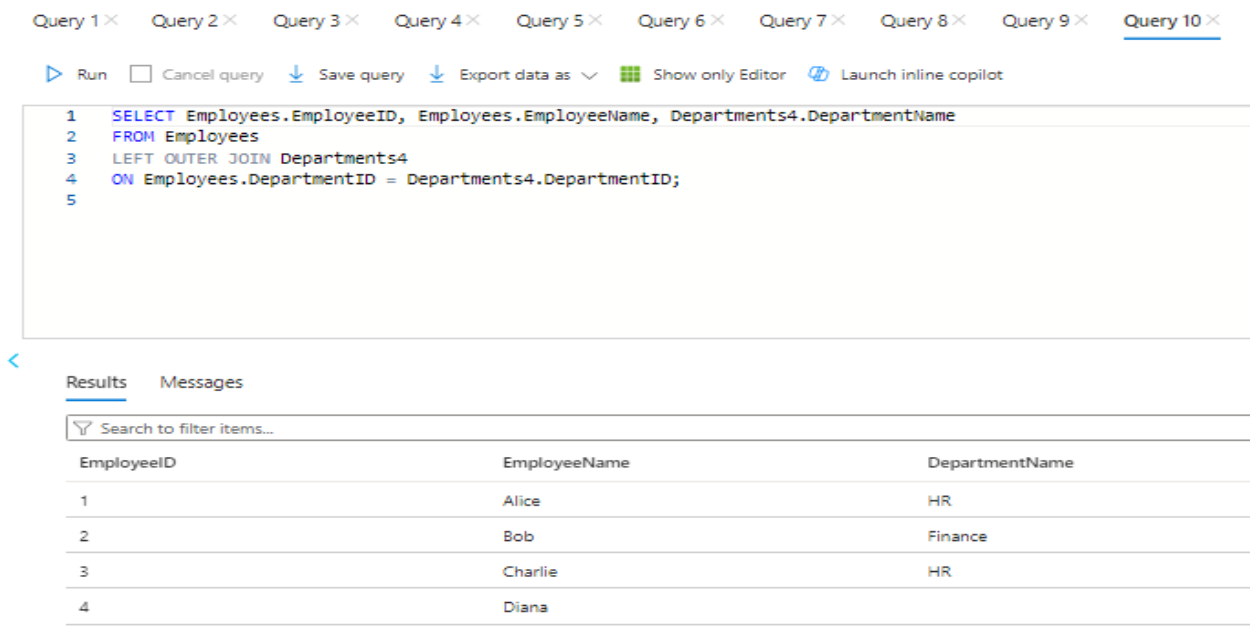




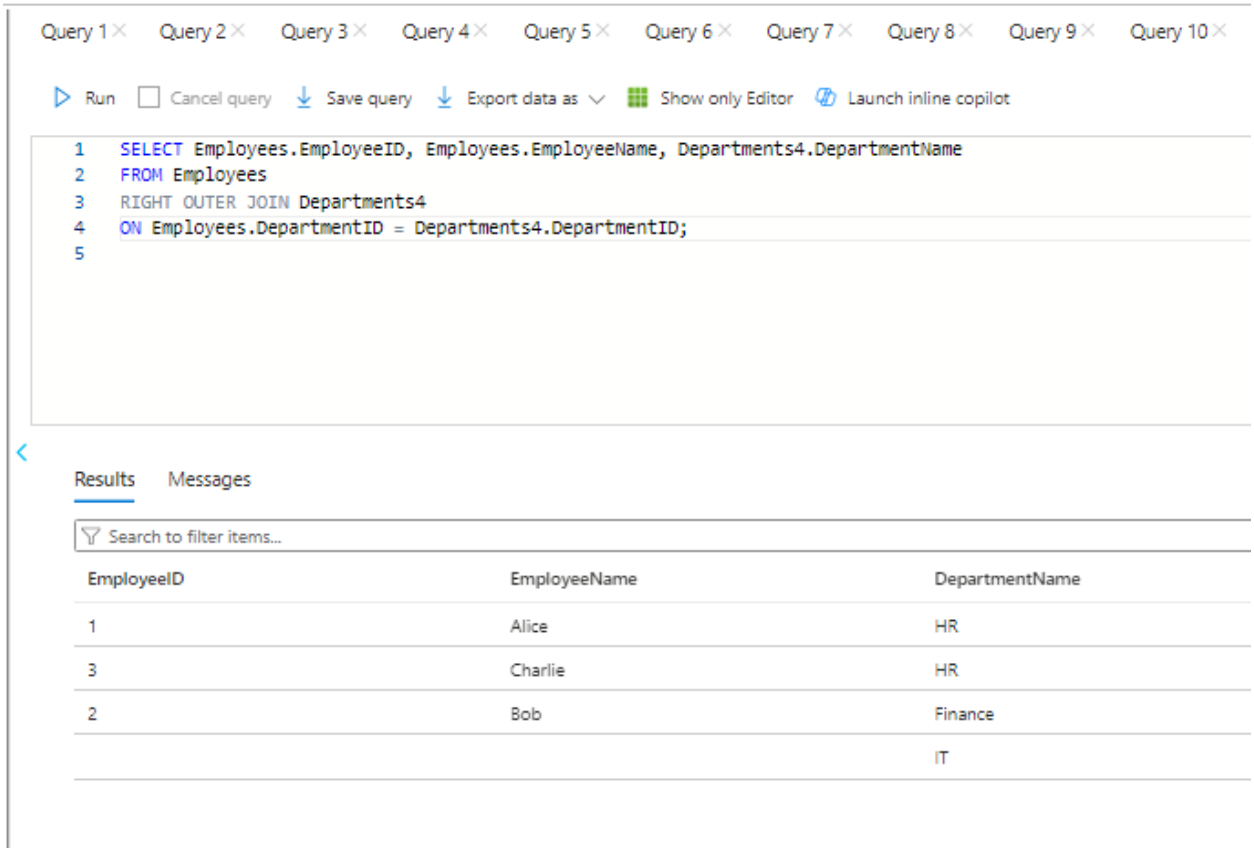
- Inner Join



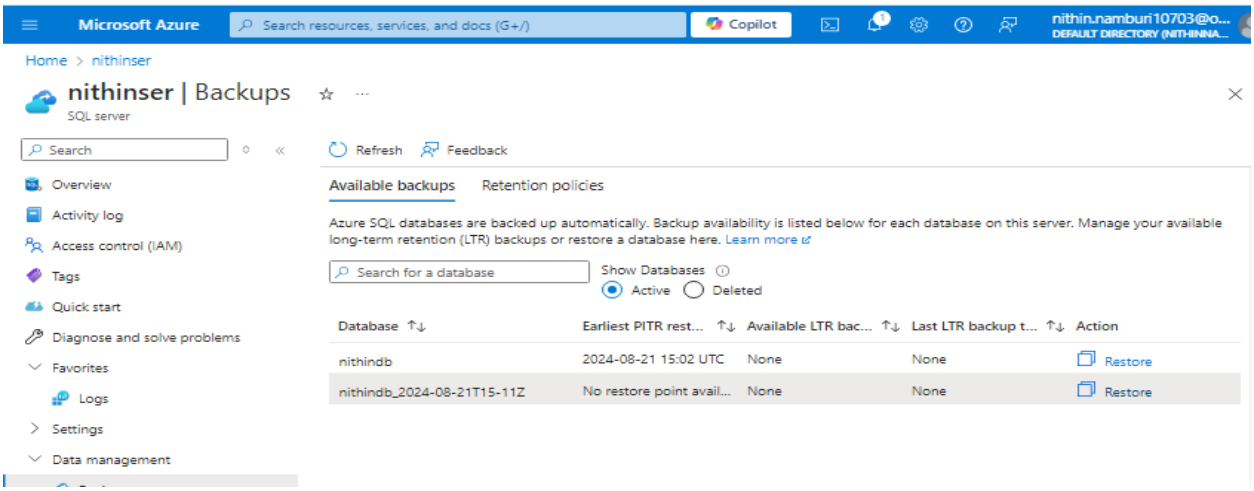
- Left Outer join



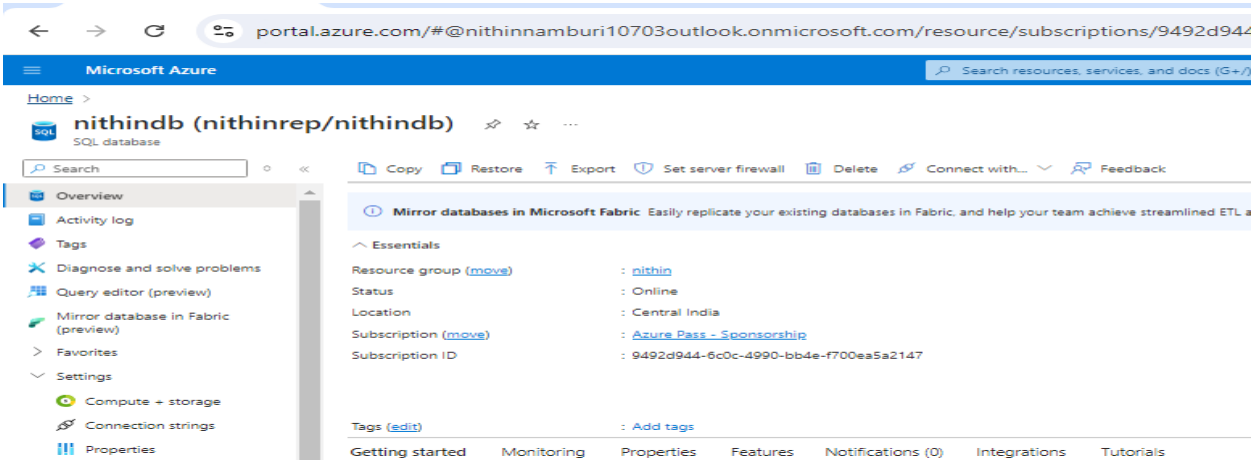
- Right outer join.



Step-6 :Create a backup for the database.



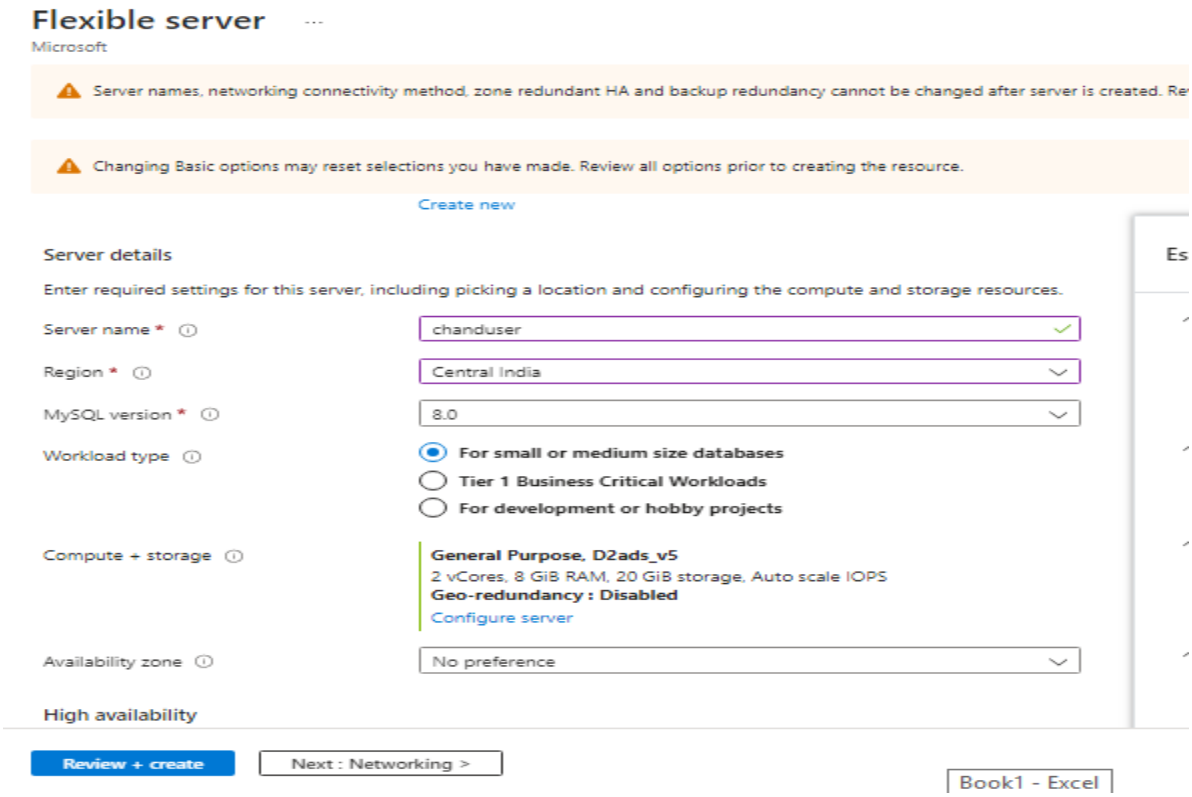
Step-7: Crate replica for it.



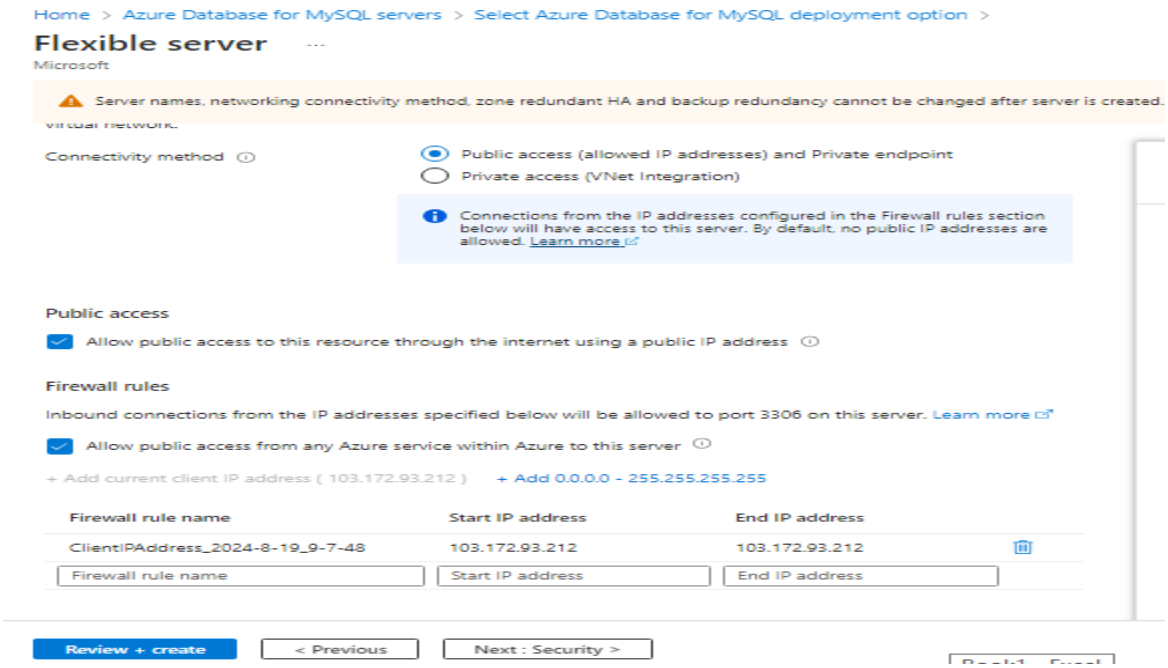
Here when you try to crete or update any of the query its not going to happen because it is just a read replica.

2) Create and Configure an Azure MYSQL Database.

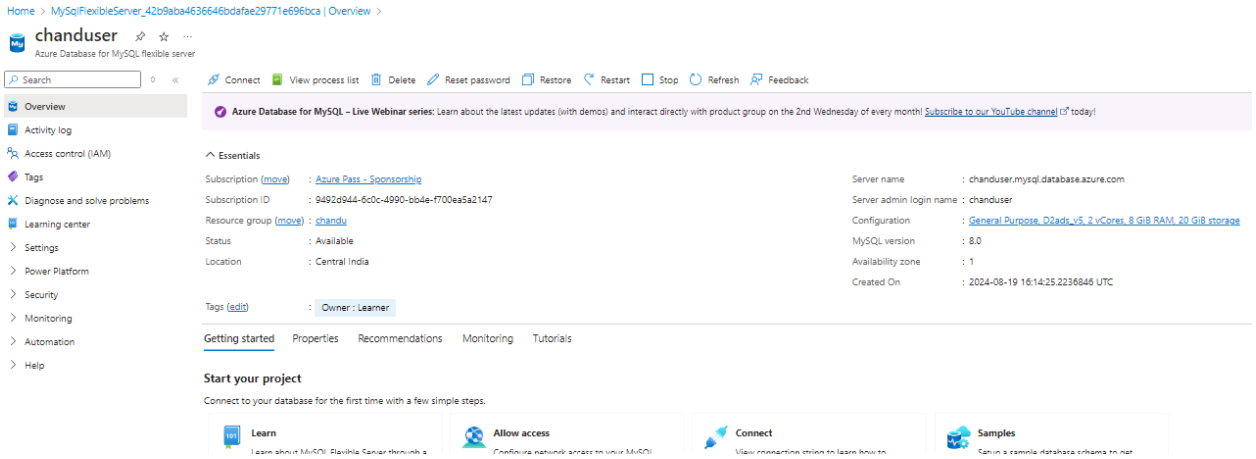
Step-1: Create a new Azure SQL Database.



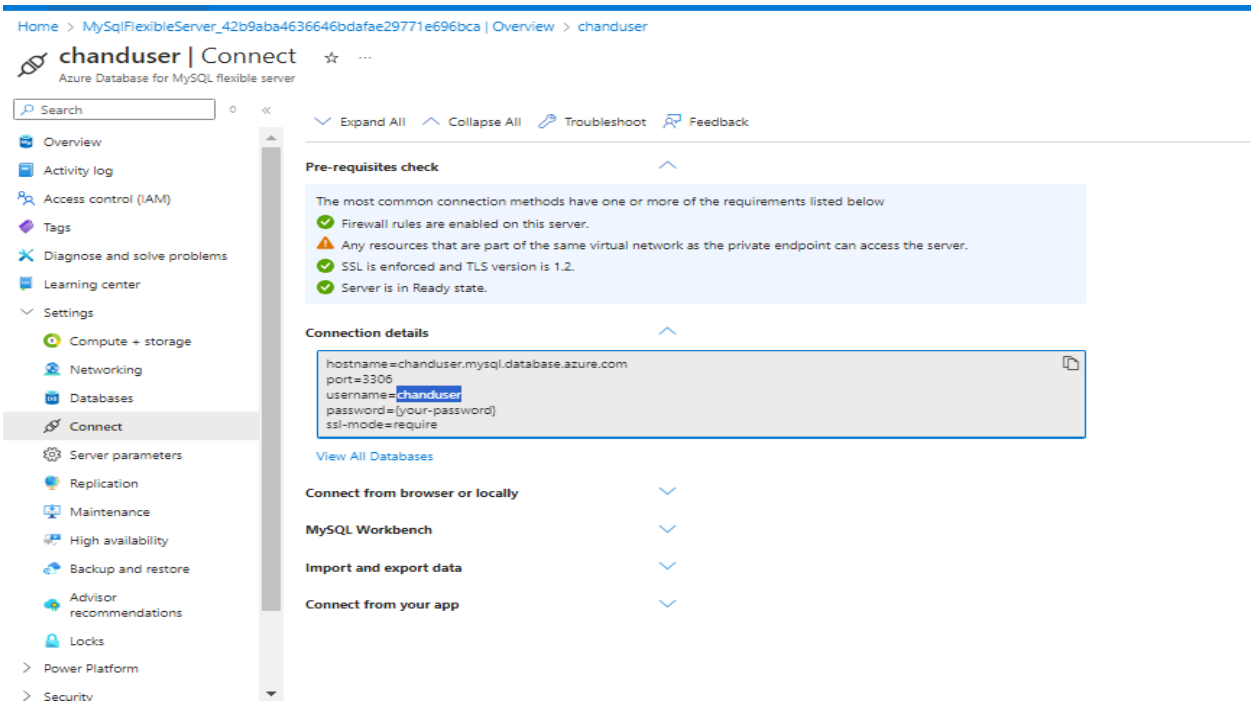
Step-2: In Networking setting change the firewall rules to allow the specific IP addresses. Configuring firewall rules to allow access to your database from specific IP addresses.



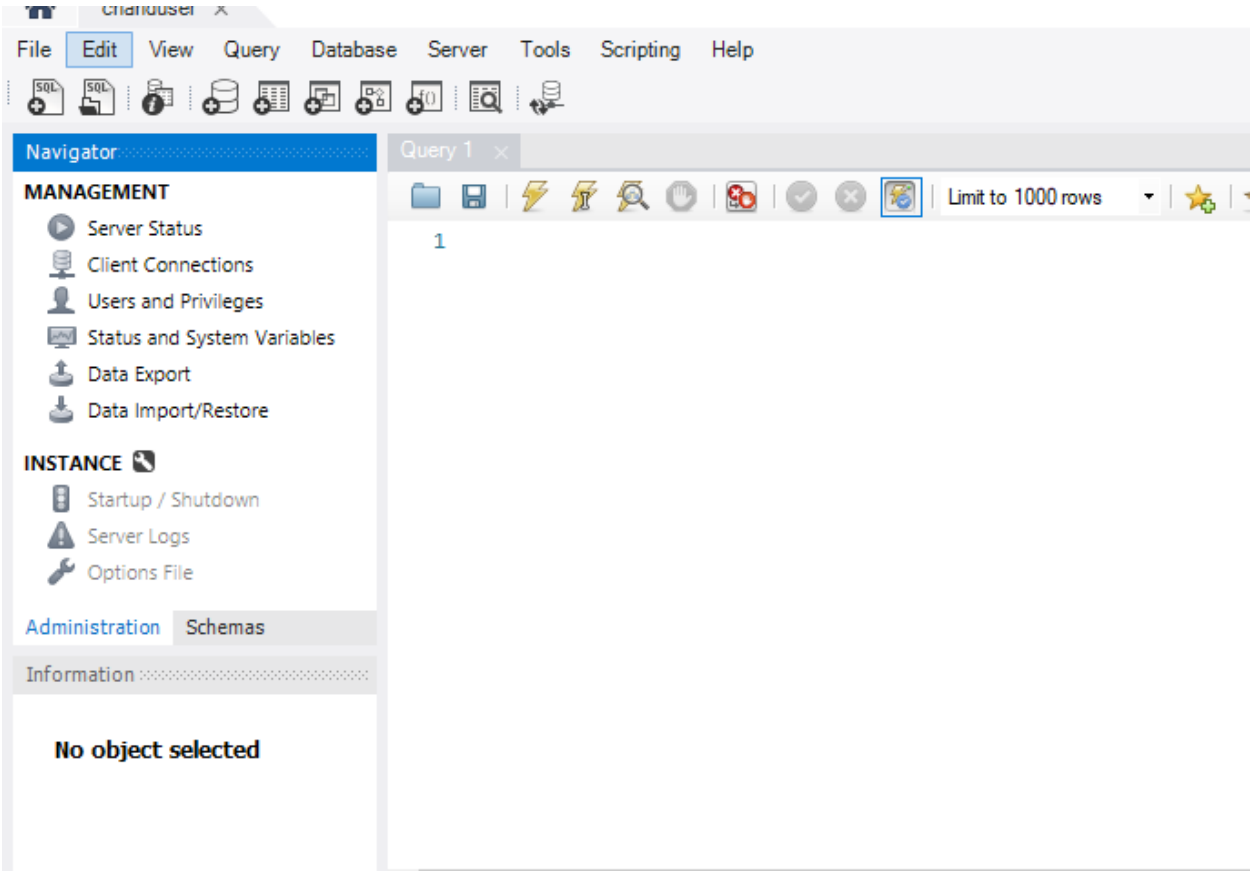
Step-3:Click on Review and create and go to the resource.



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

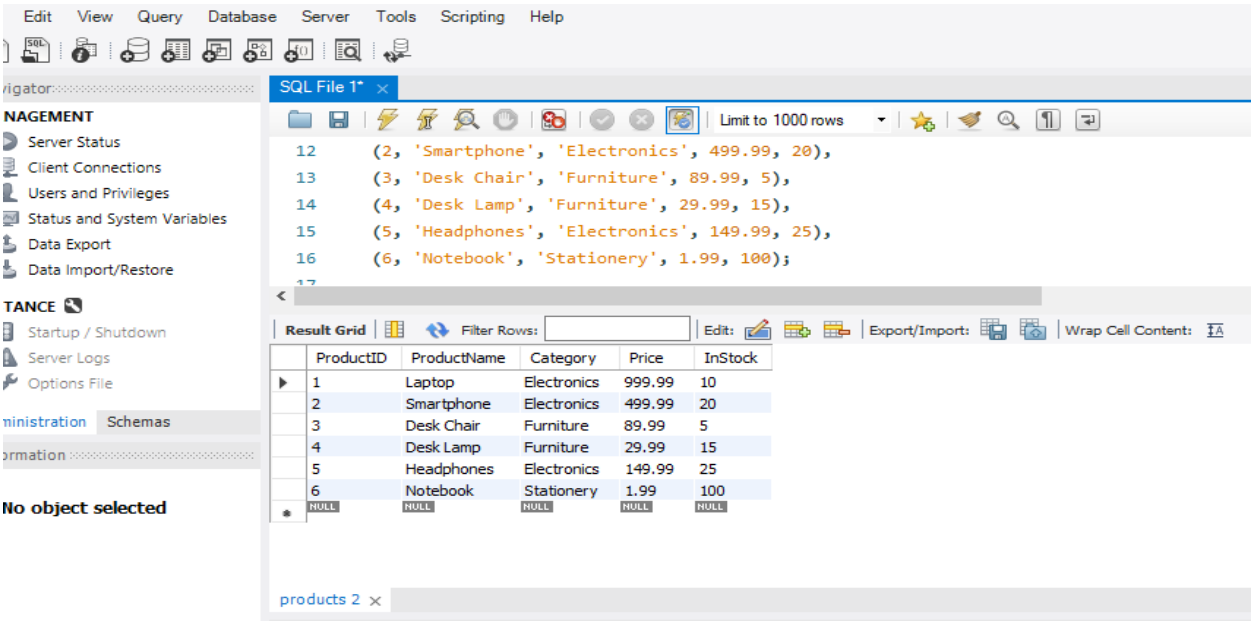


Step-5: Now click on the new SQL editor created.



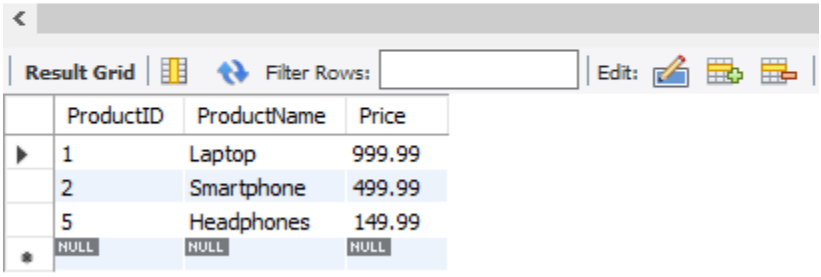
Step-6:Now you can perform the queries of your interest.

- 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
```



```
20
21 •  SELECT ProductID, ProductName, Price
22    FROM Products
23    WHERE Category = 'Electronics';
```

Result Grid | Filter Rows: | Edit: | Export

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

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

Limit to 1000 rows

```
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

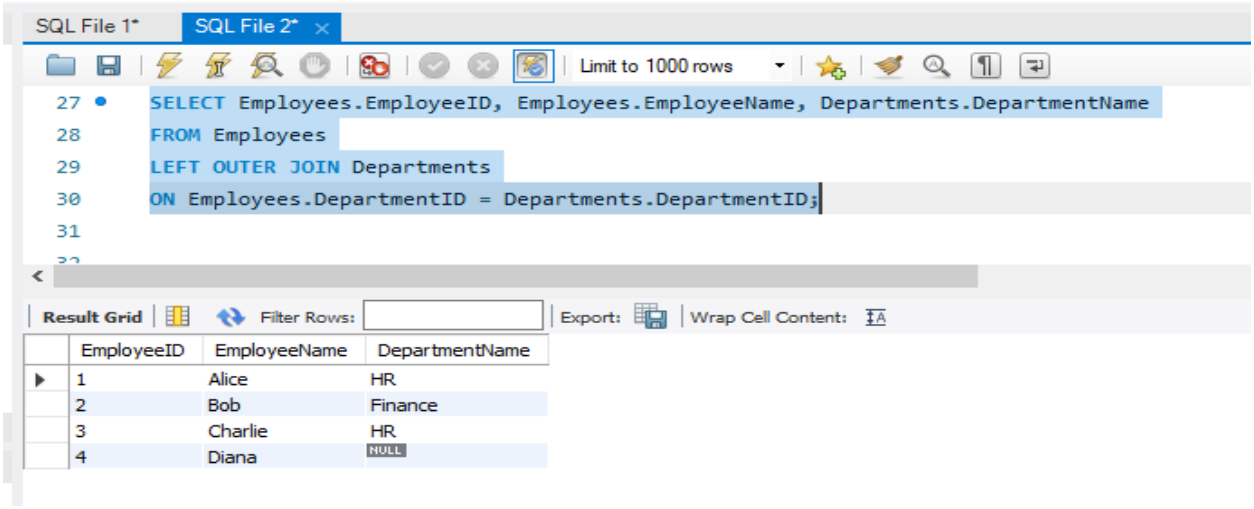
Limit to 1000 rows

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

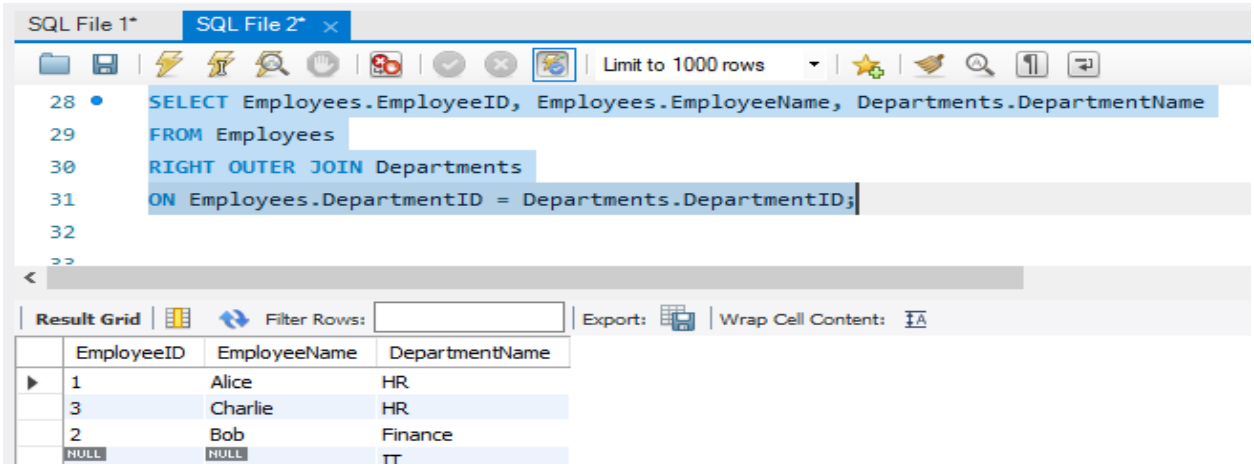
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

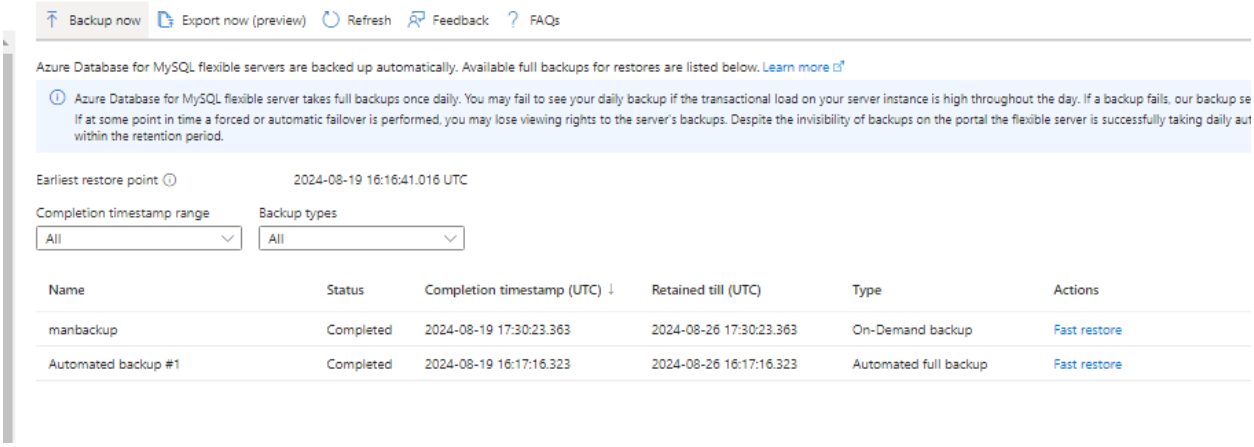
- Left Outer Join



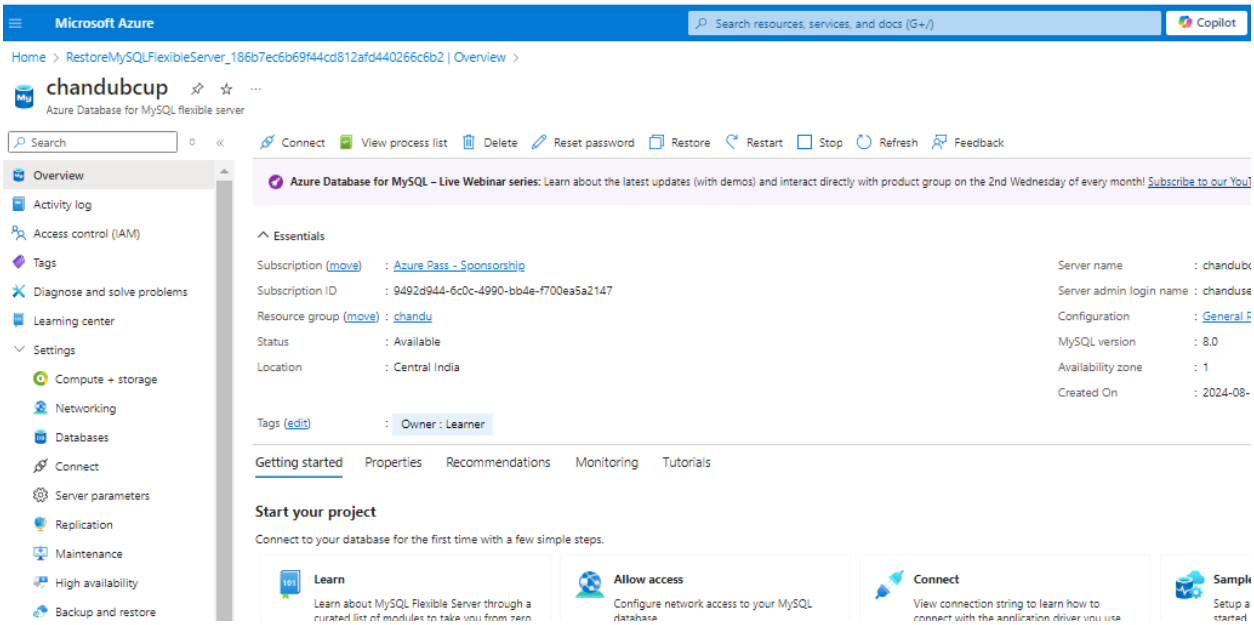
- Right Outer Join



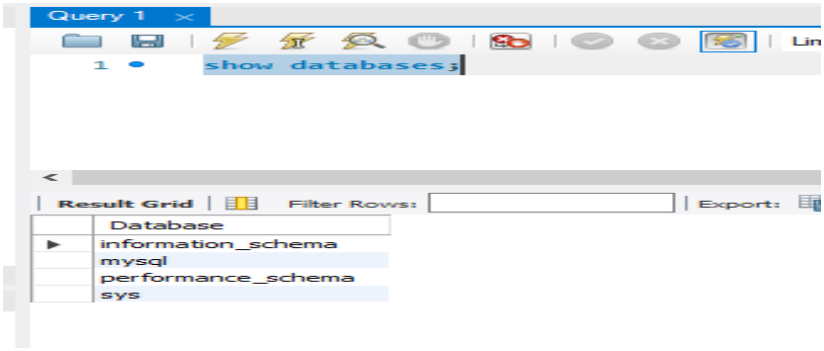
Step-8 : Configure automated backups and test restoring a database from a backup



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

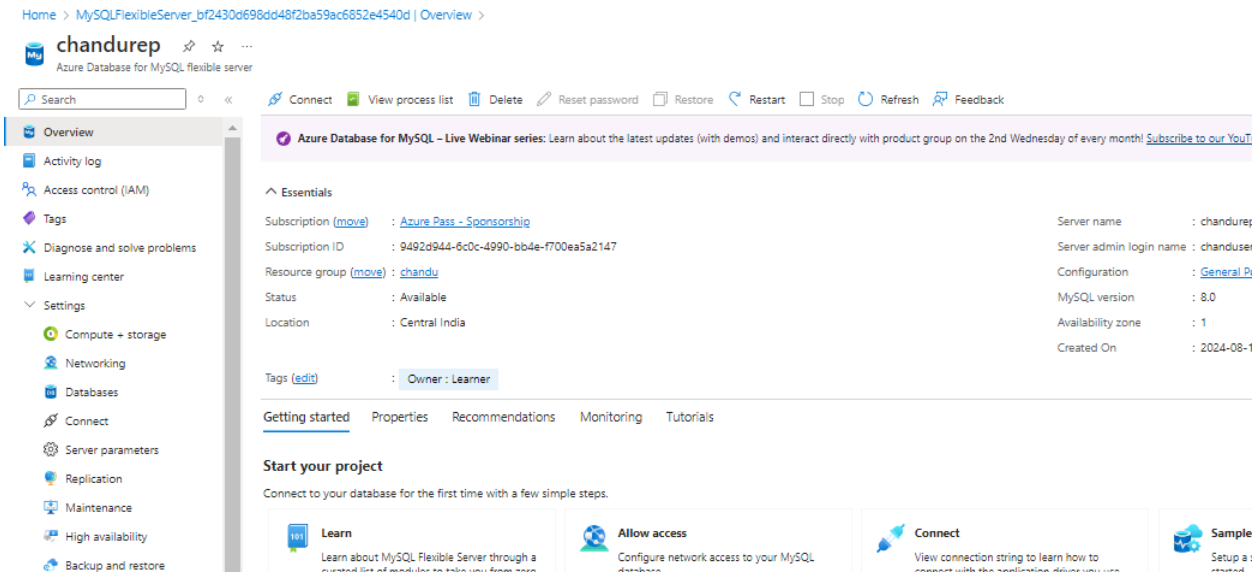


Now connect to the workbench for the backup database and check point of time backup.

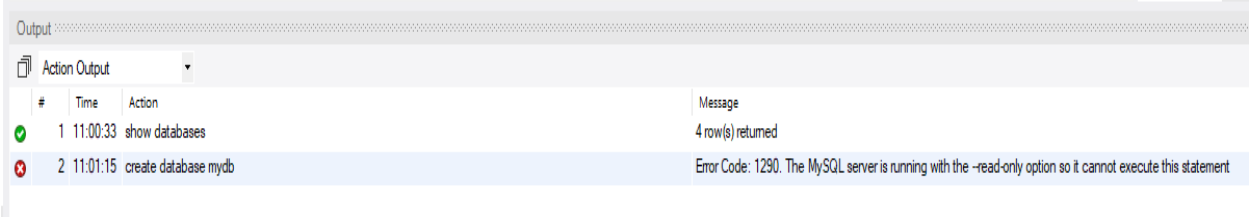


Step-10: Set up and configure geo-replication to create readable secondary replicas in different regions.

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



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

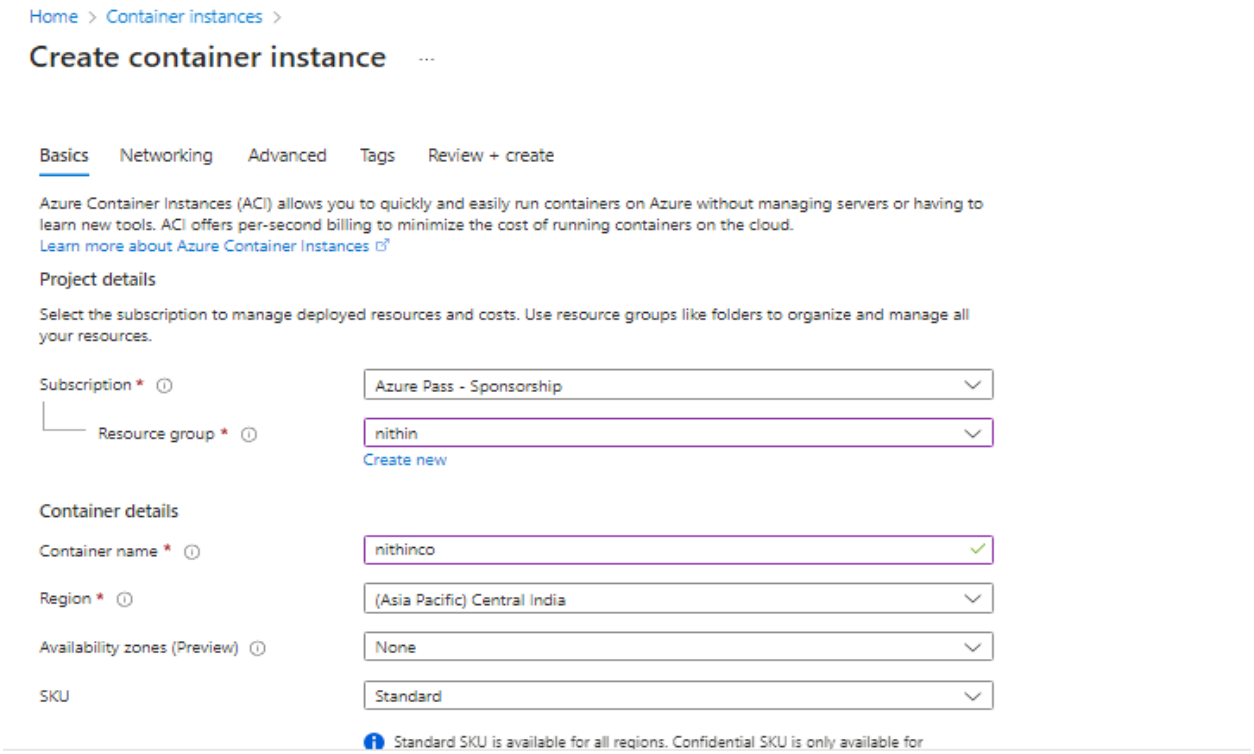


- We use replicas to only read the databases but not to manipulate the databases.

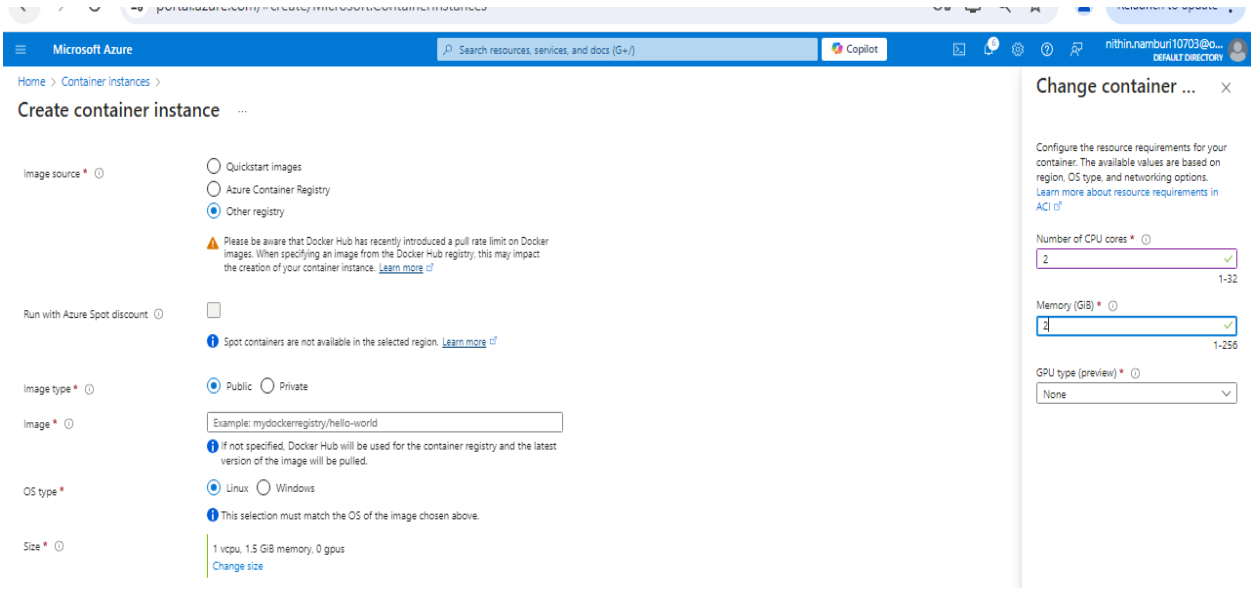
3) Host a Jenkins image on azure container instance.

Ans)

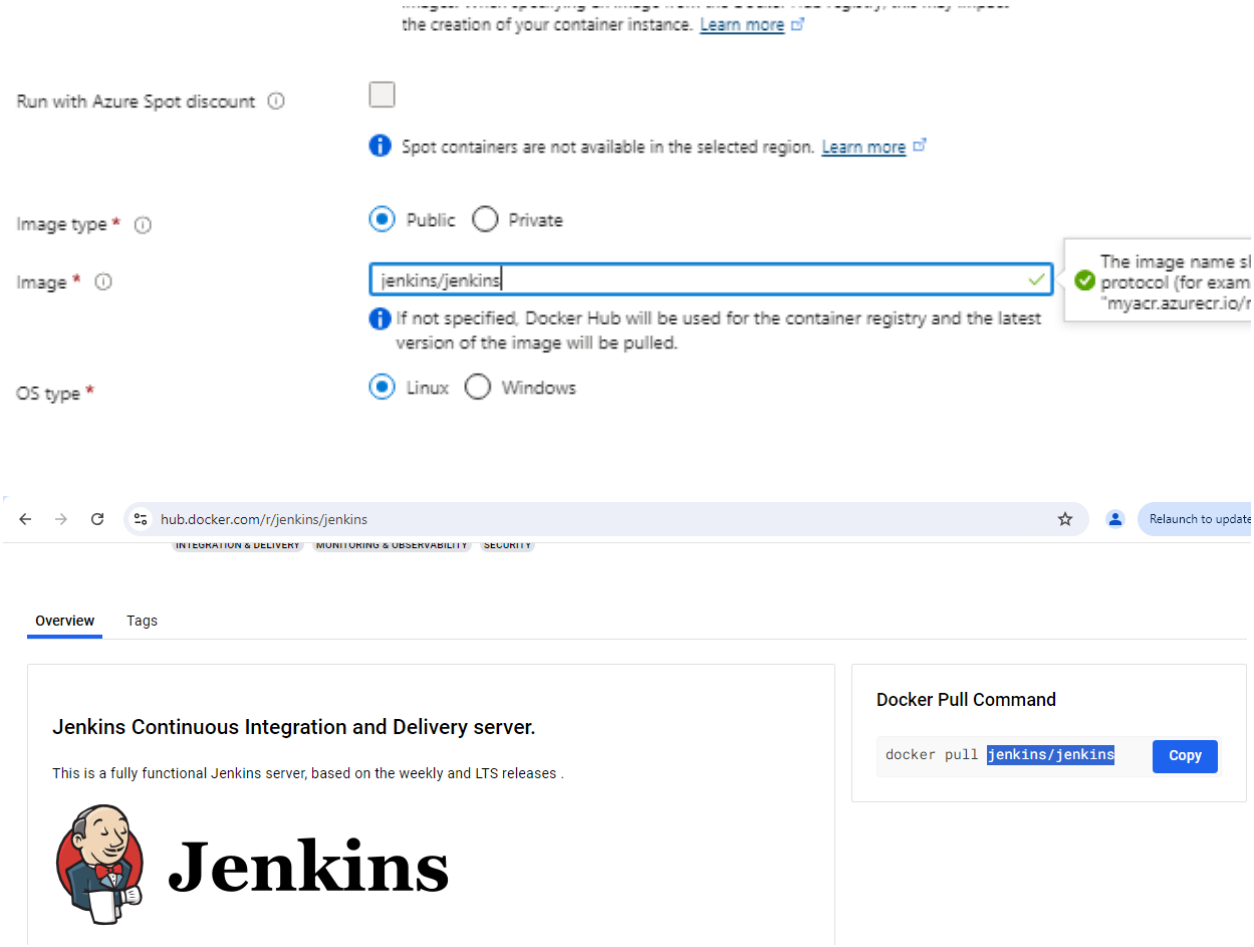
Step-1: Create a Container instance.



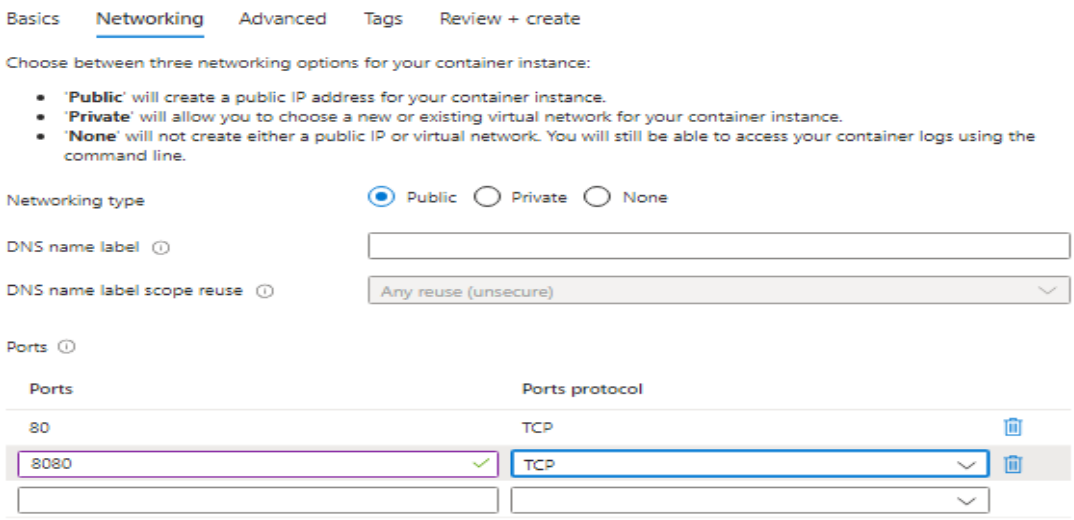
Step-2: On the basics page change the image resource to the other registry and configure the size to 2 cpu's , 2GB memory.



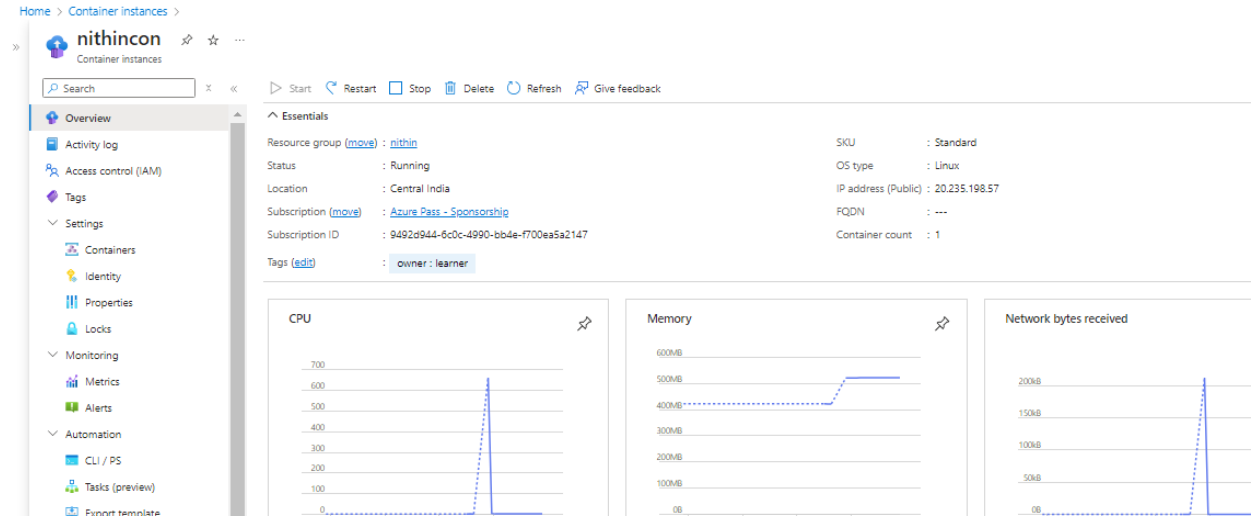
Step-3: Give the image path as jenkins/Jenkins it will automatically retrieve from the docker hub.



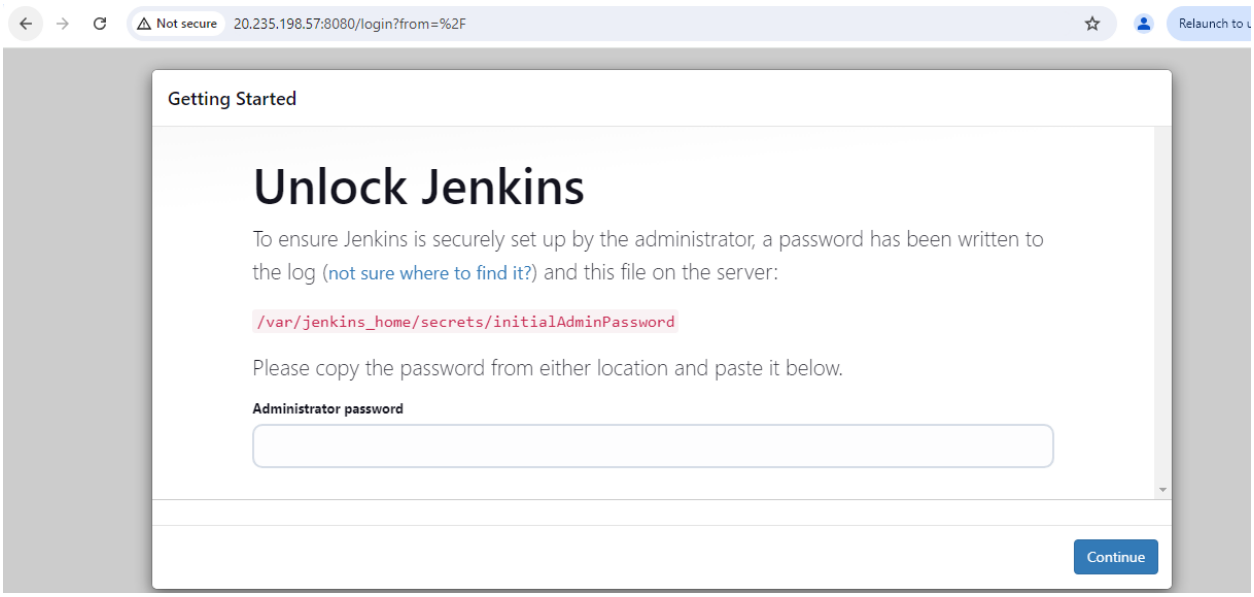
Step-4: Go to the network page and add the port number 8080 as TCP.



Step-5: Now click review and create.



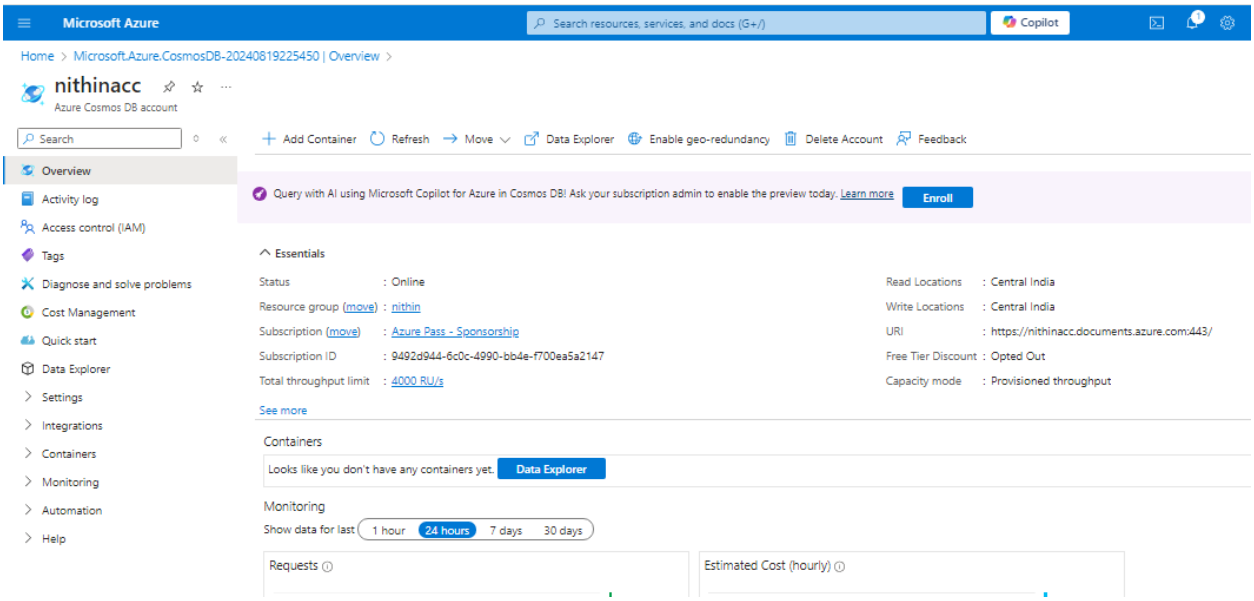
Step-6: Copy the IP address and check for the Instance.



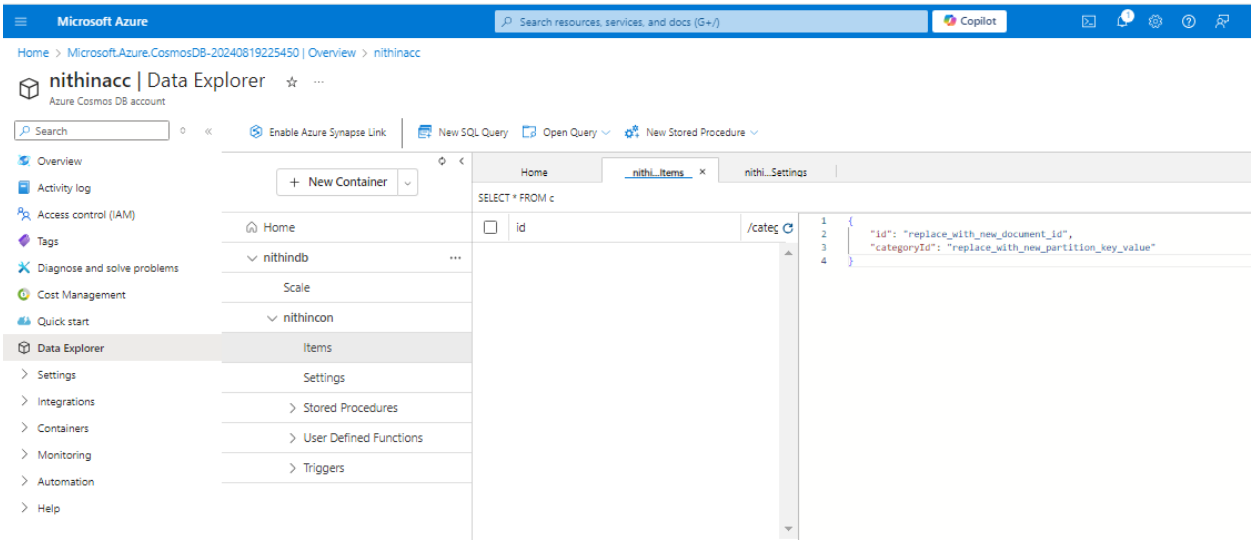
4) Create and Configure a Cosmos DB Account and demonstrate CRUD (Create, Read, Update, Delete) operations.

Ans)

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

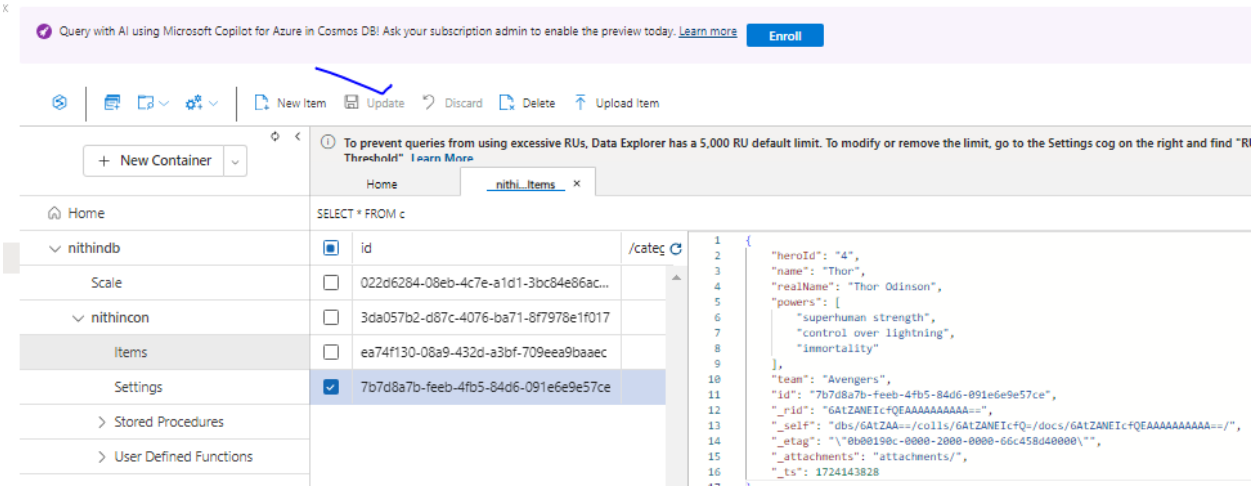


Step-2 : Goto Data explorer and click on create new container.

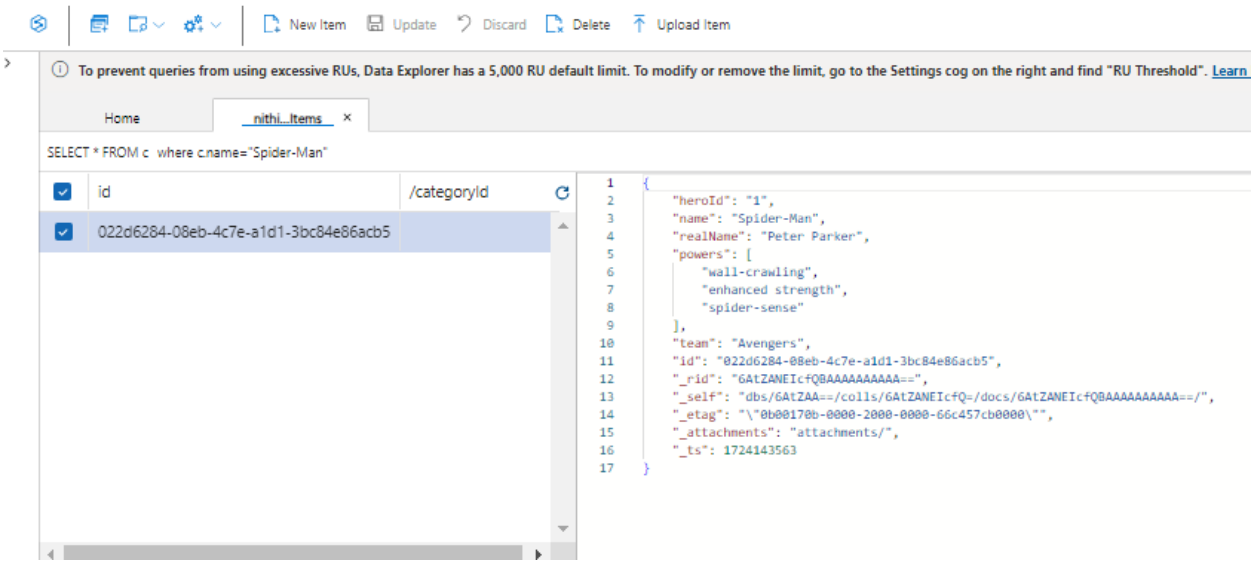


Step-3 : click on the new item in items setting and some data to it.

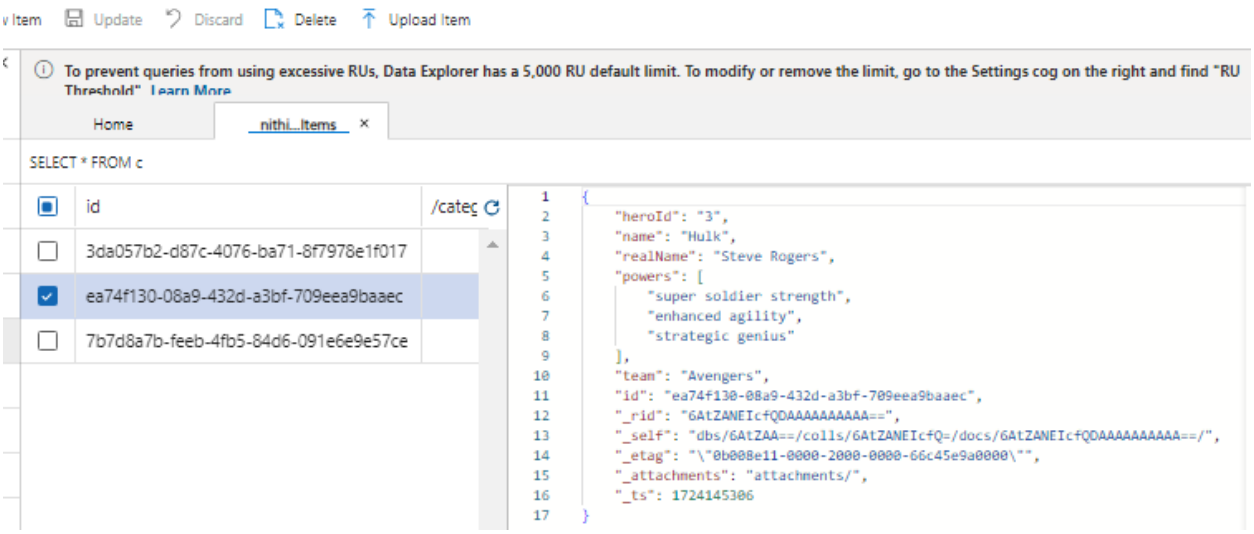
Create Operation:



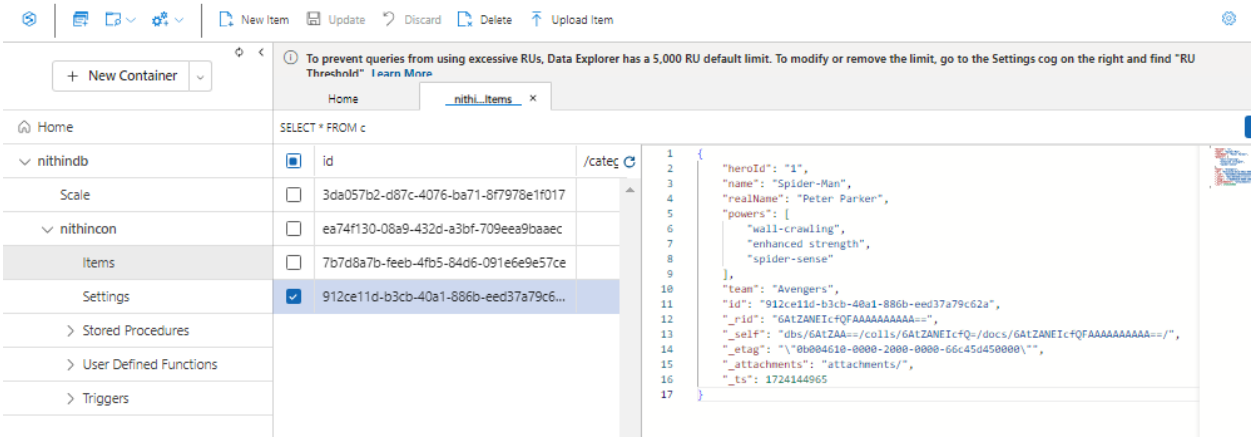
Read-Operation:



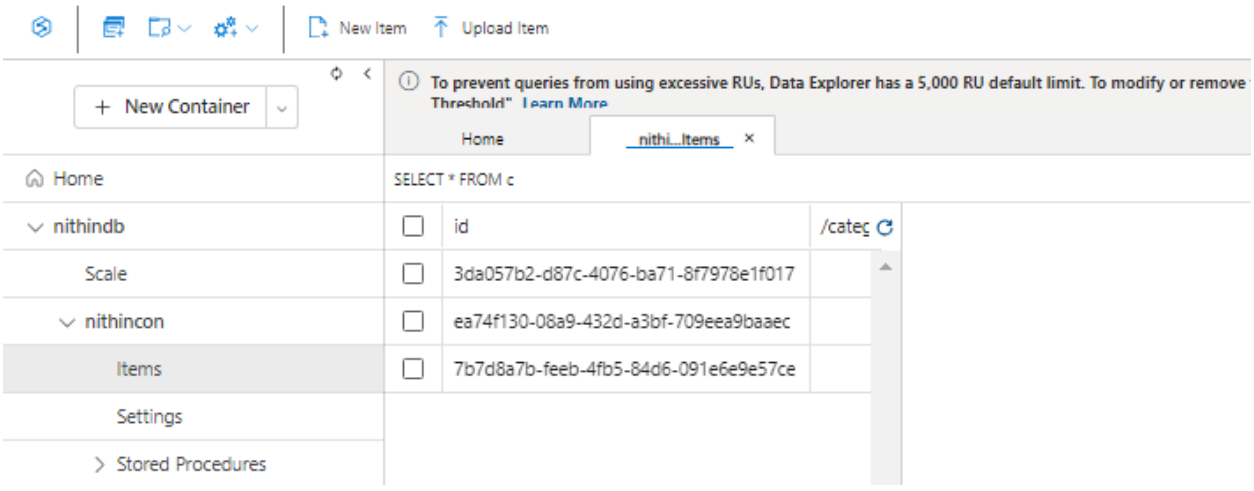
Update Operation: we updated the name from captain america to hulk.



Delete Operation:
before deletion: we have four rows.



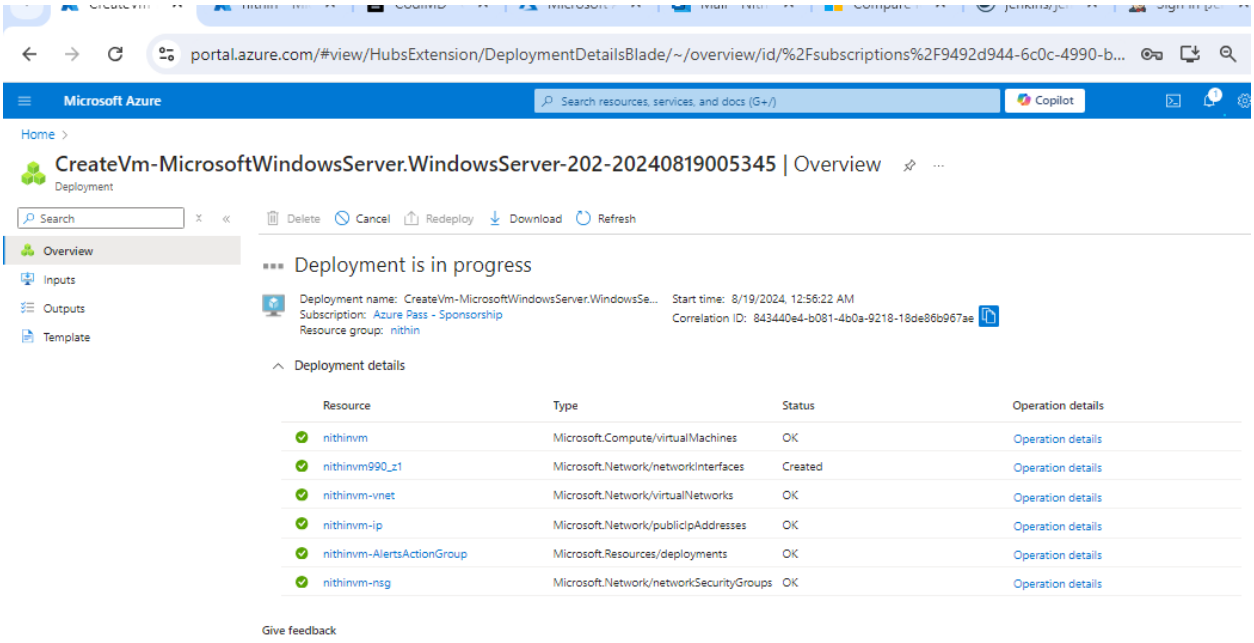
After deletion: we will have only three rows.



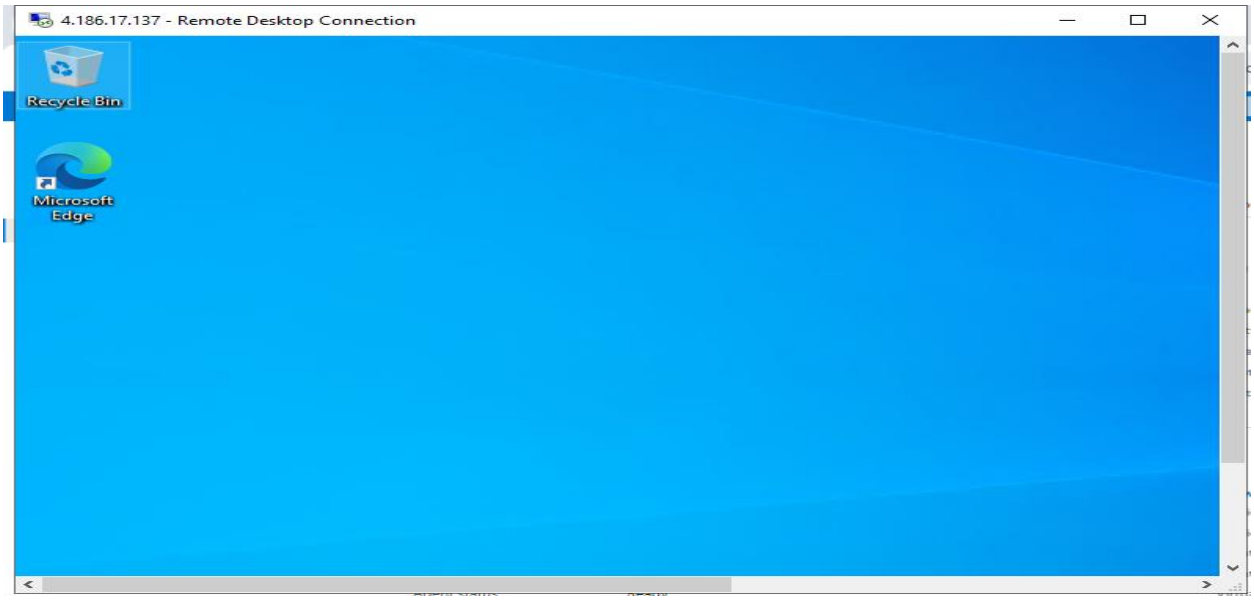
5) create alert for the high cpu usage with email notification on windows server.

Ans)

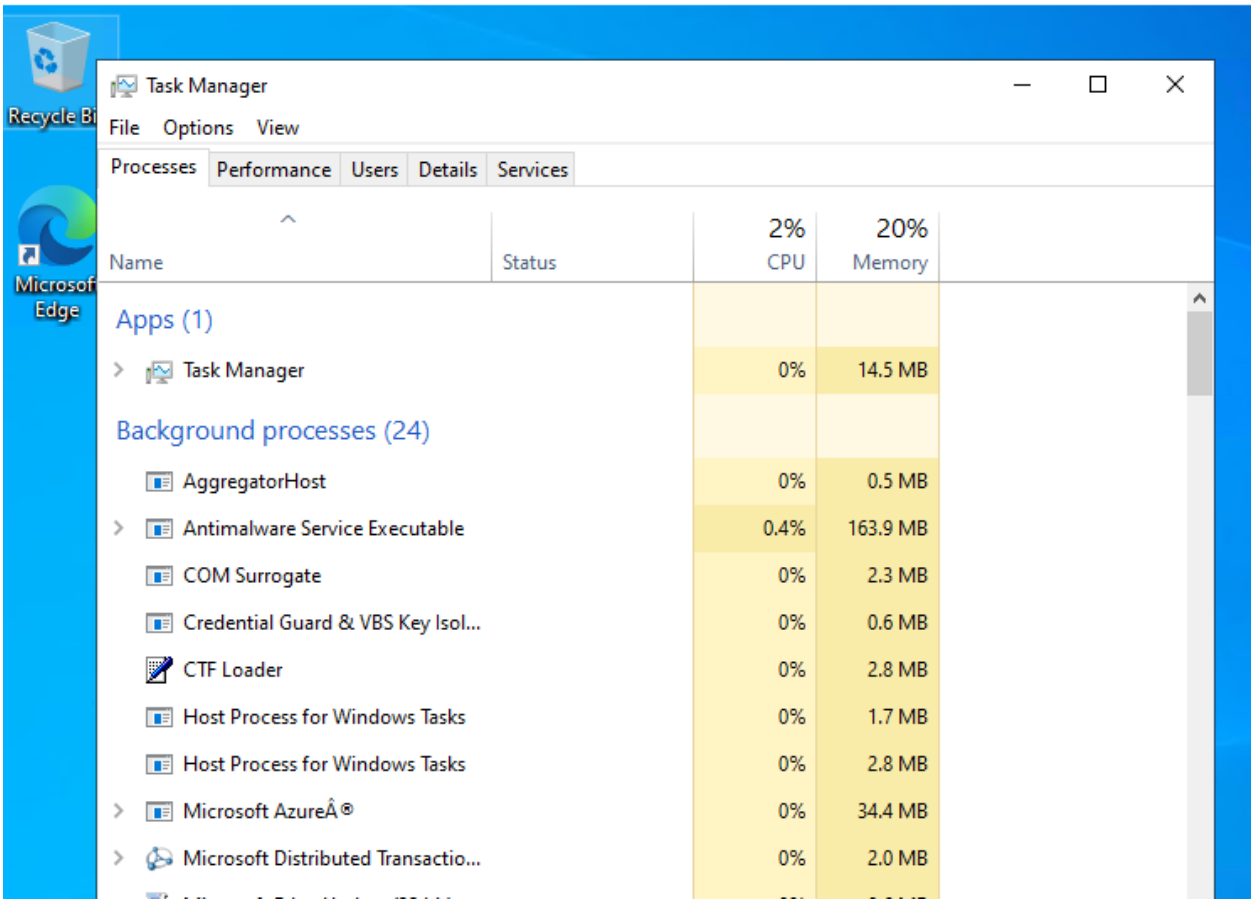
Step-1: Create a VM with windows as the image and change the size to the D2Sv3 and with enabling the alerts in the monitoring section.



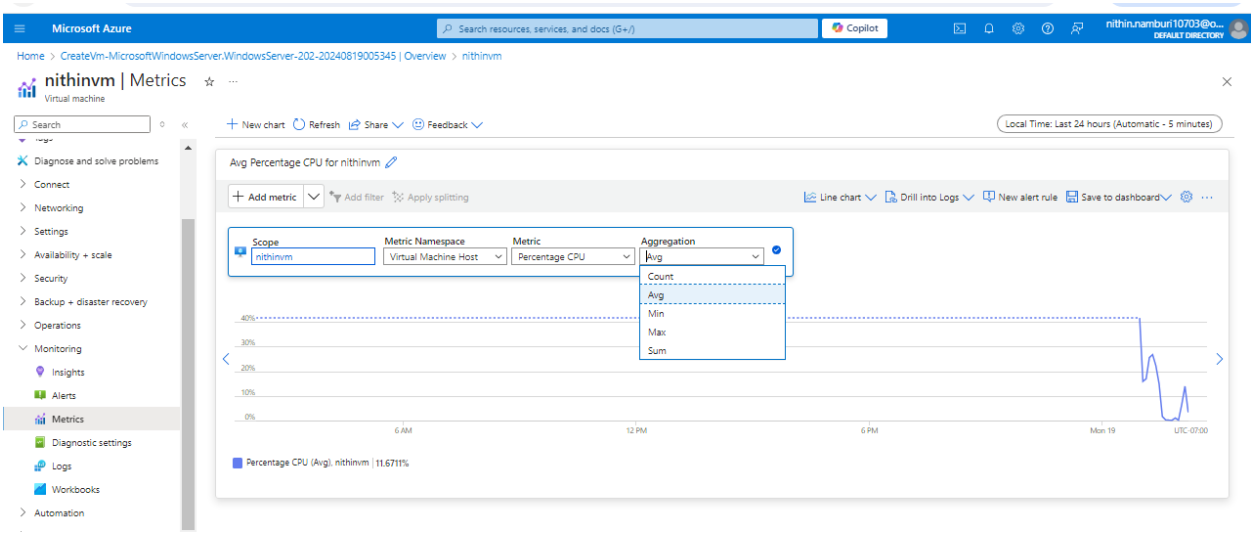
Step-2: Now connect the VM (IP address) to the RDP.



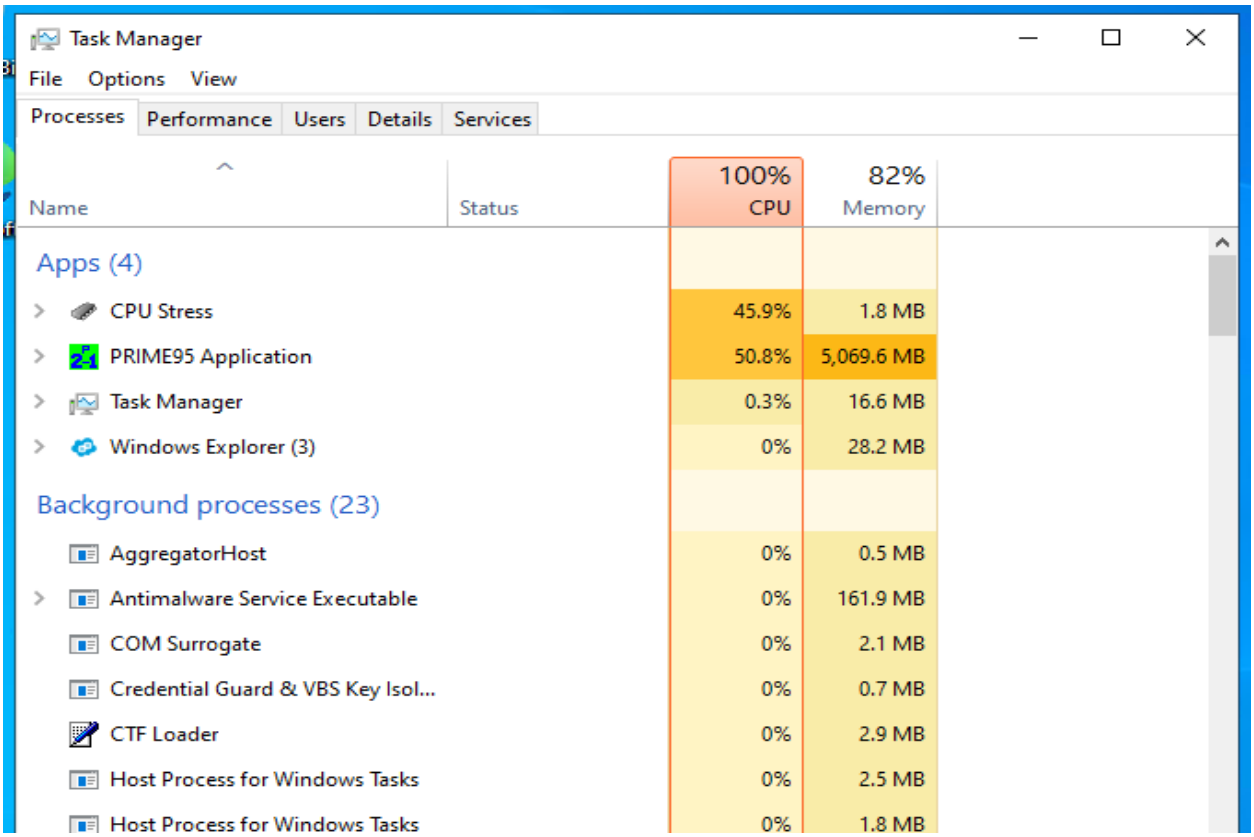
Step-3: Open the task manager and check for the CPU utilization.



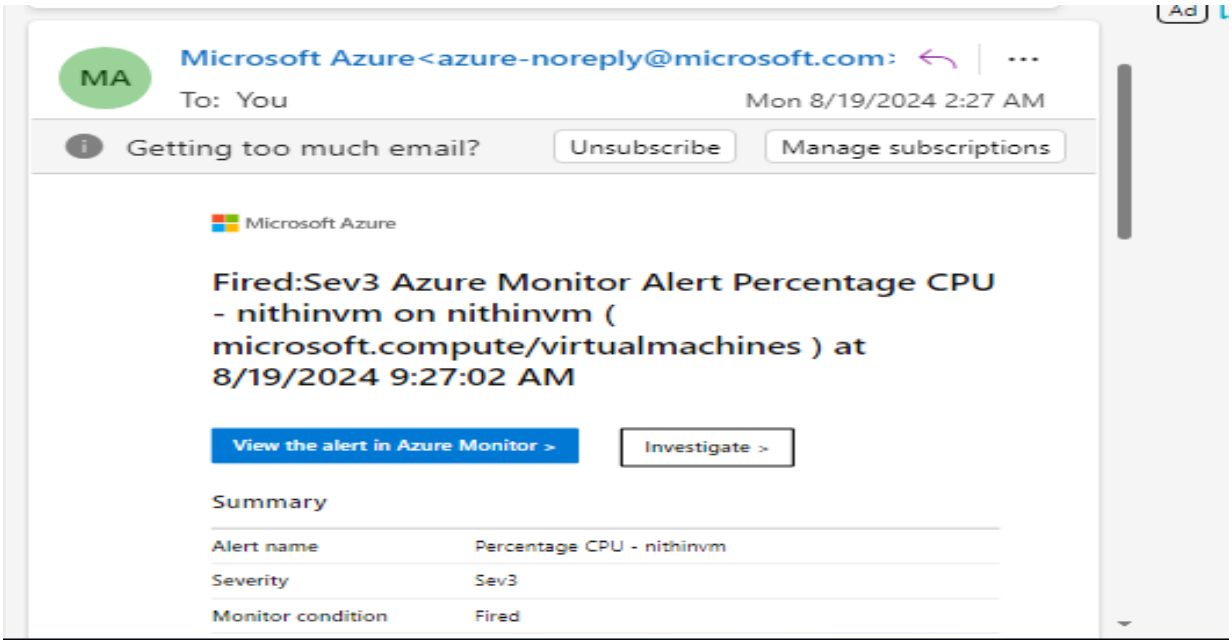
Step-4: go to the monitoring in the VM and set a metric for CPU percentage



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



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%.