中原大學 雲端計算平台實務

11/25-作業報告

Work with relational data in Azure

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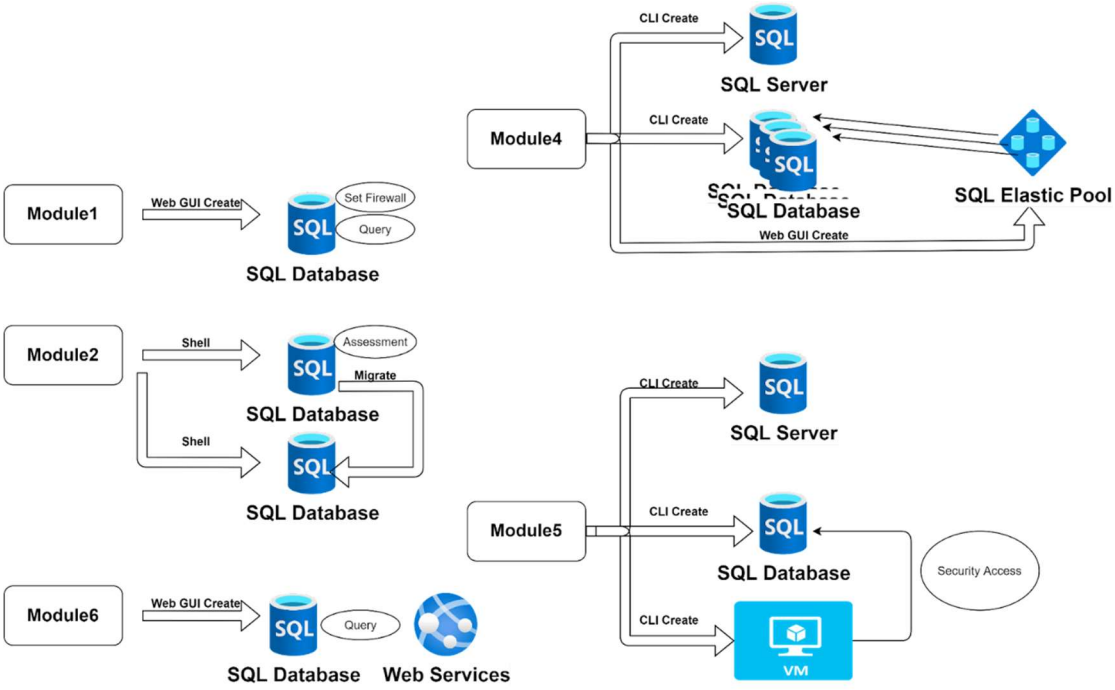
中華民國一一一年十一月

1. Model Intro

Work with relational data in Azure

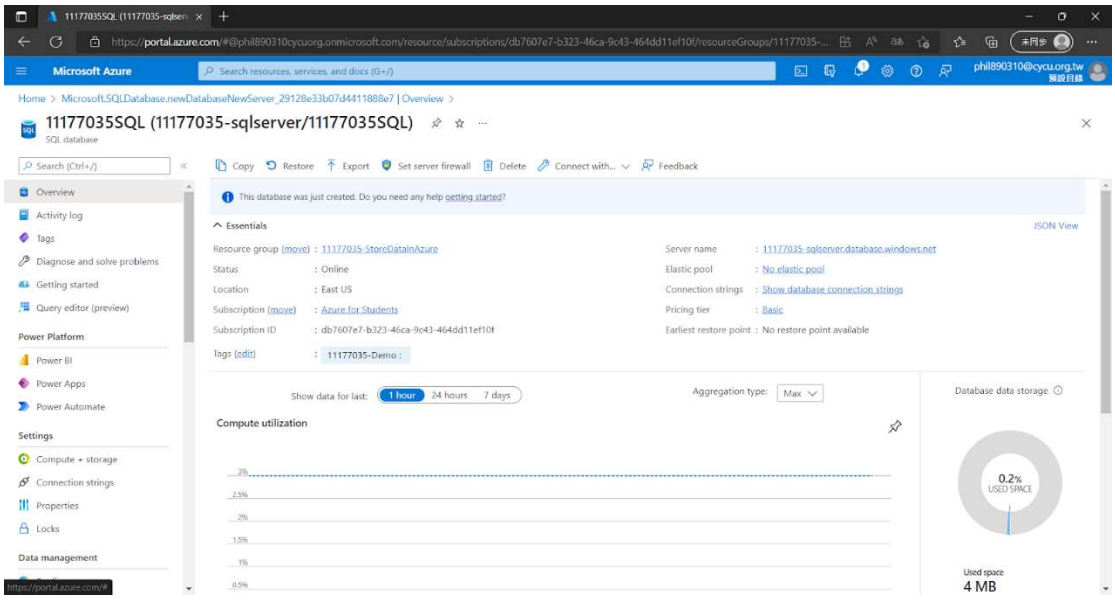
https://docs.microsoft.com/en-us/learn/paths/work-with-relational-data-in-azure/

2. Summary Homework Assignment

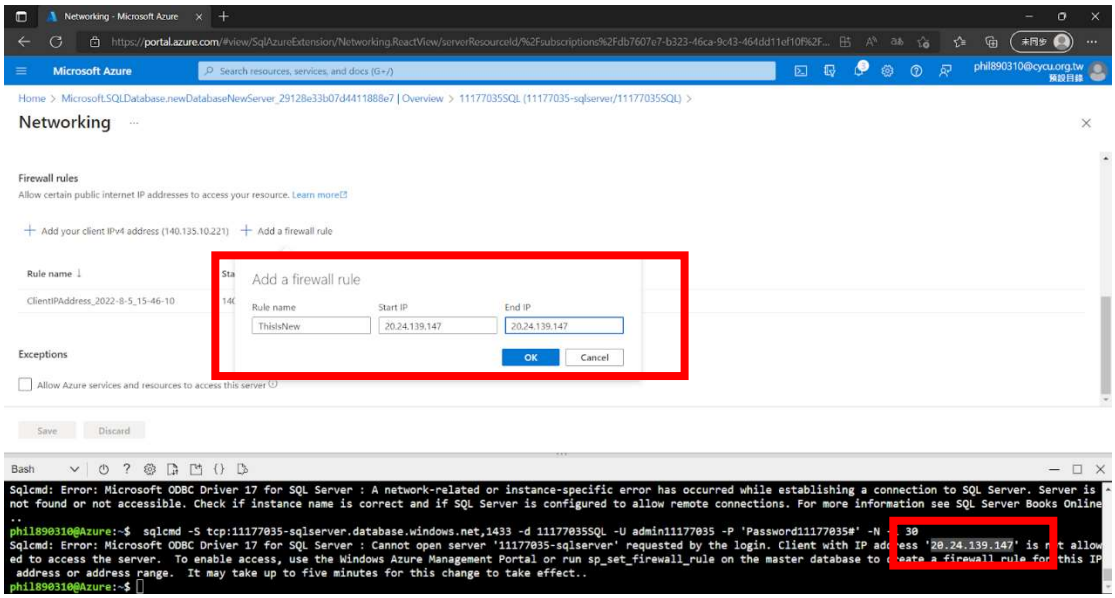


Module 1: Provision an Azure SQL database to store application data

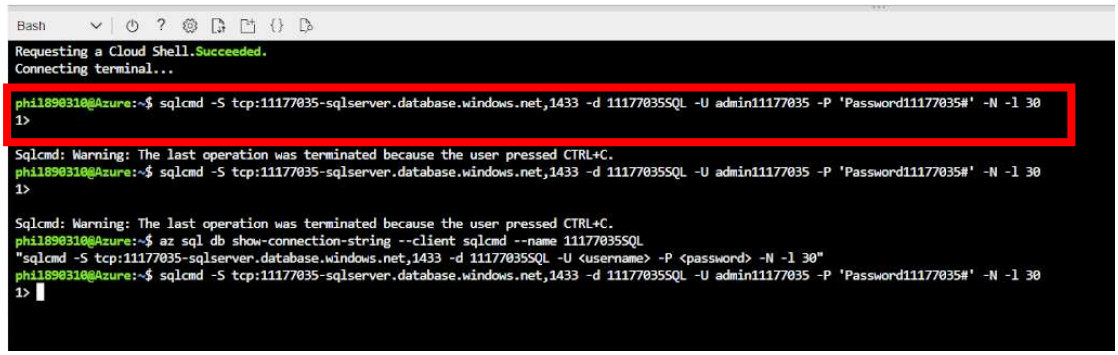
1. Create a web SQL in the Azure portal



2. Set server firewall



3. Use Azure Cloud Shell to connect SQL



4. Create, Query, Update, Delete for SQL

```
1> CREATE TABLE Drivers (DriverID int, LastName varchar(255), FirstName varchar(255), OriginCity varchar(255));
2> GO
1> SELECT name FROM sys.tables;
2> GO
name
----------------------------------------------------------------------------------------------------------------
Drivers

(1 rows affected)
1>
```

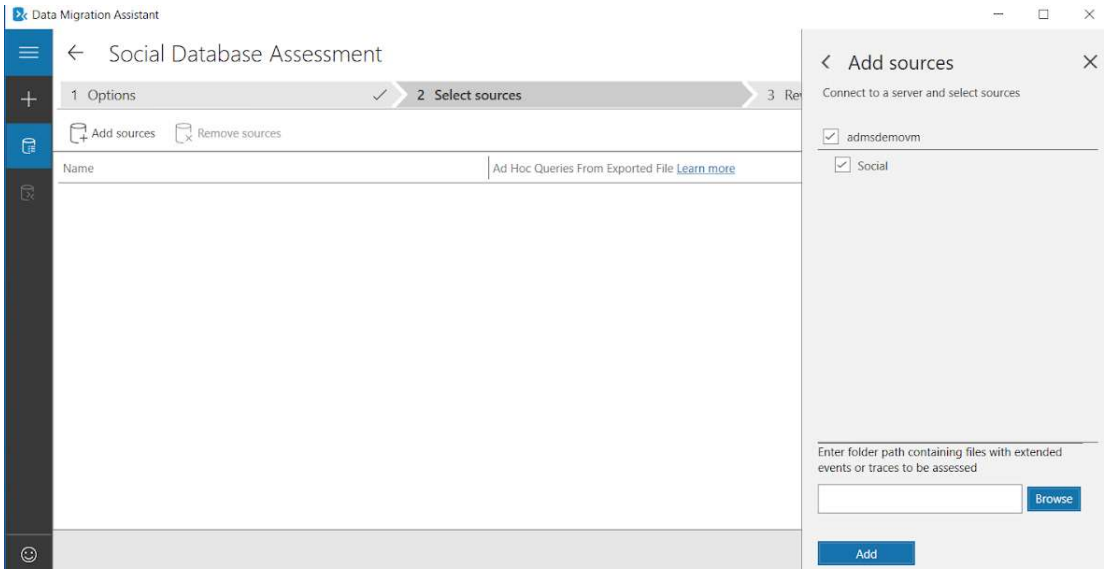
```
2>
3> INSERT INTO Drivers (DriverID, LastName, FirstName, OriginCity) VALUES (123, 'Zirne', 'Laura', 'Springfield');
4> GO

(1 rows affected)
```

```
(1 rows affected)
1> UPDATE Drivers SET OriginCity='Boston' WHERE DriverID=123;
2> GO

(1 rows affected)
1> SELECT DriverID, OriginCity FROM Drivers;
2> GO
DriverID    OriginCity

----------- --------------------------------------------------
--------------------------------------------------------------
        123 Boston
```

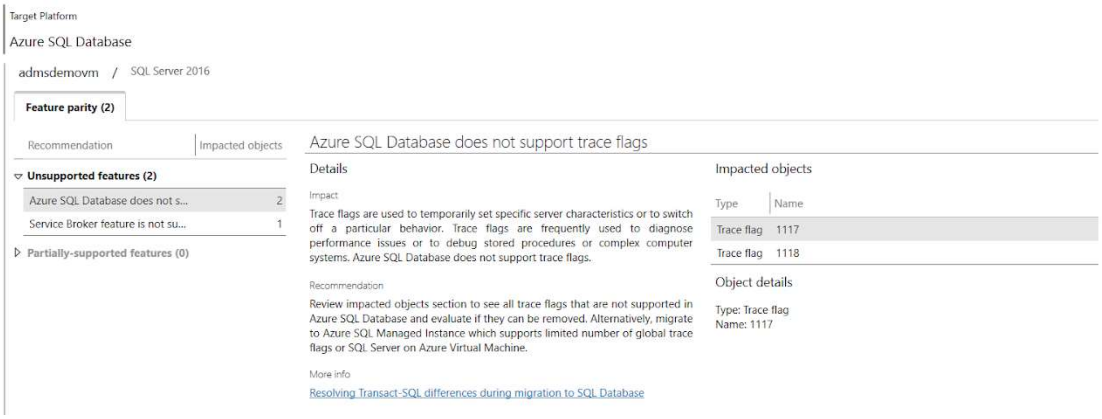
Module 2: Migrate your relational data stored in SQL

Server to Azure SQL Database

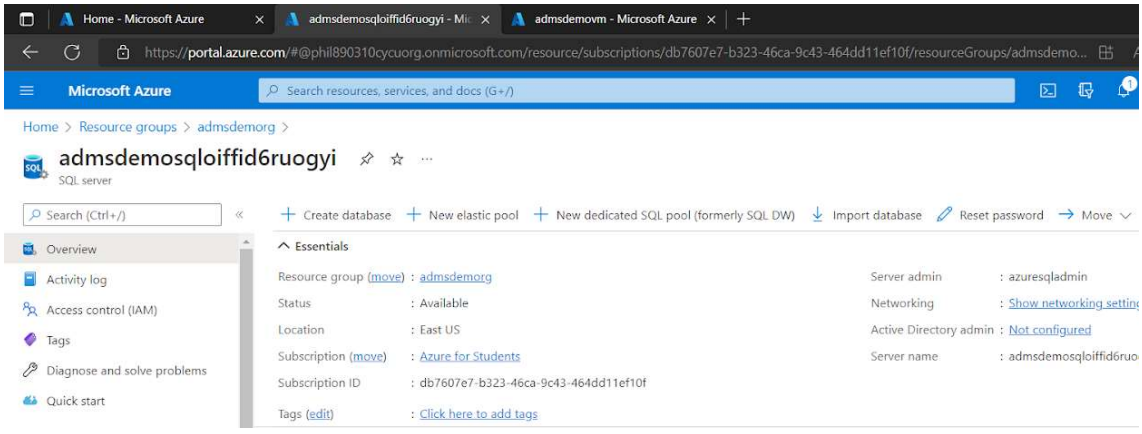
1. Create a VM then add database



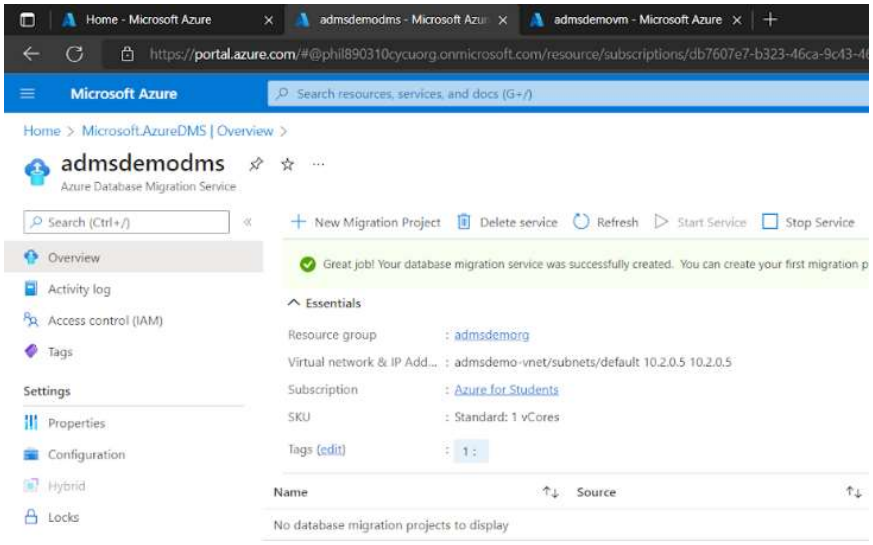
2. Assessment Results



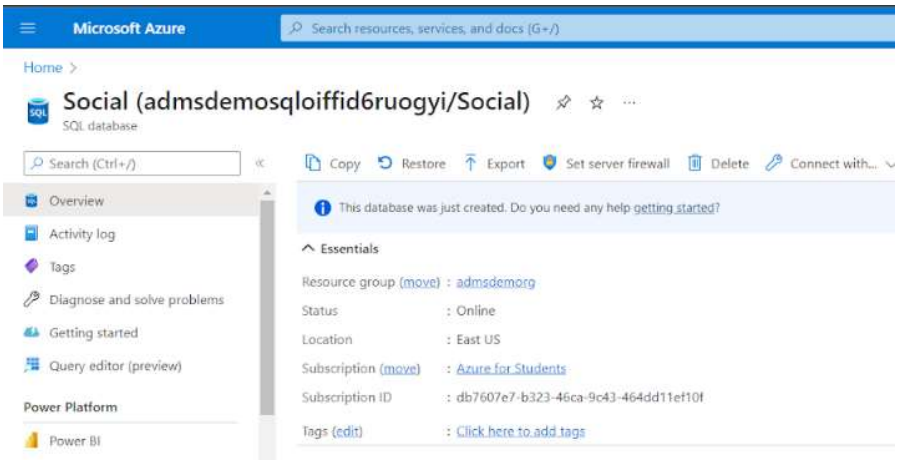
3. Use Data Migration Assistant to deploy schema



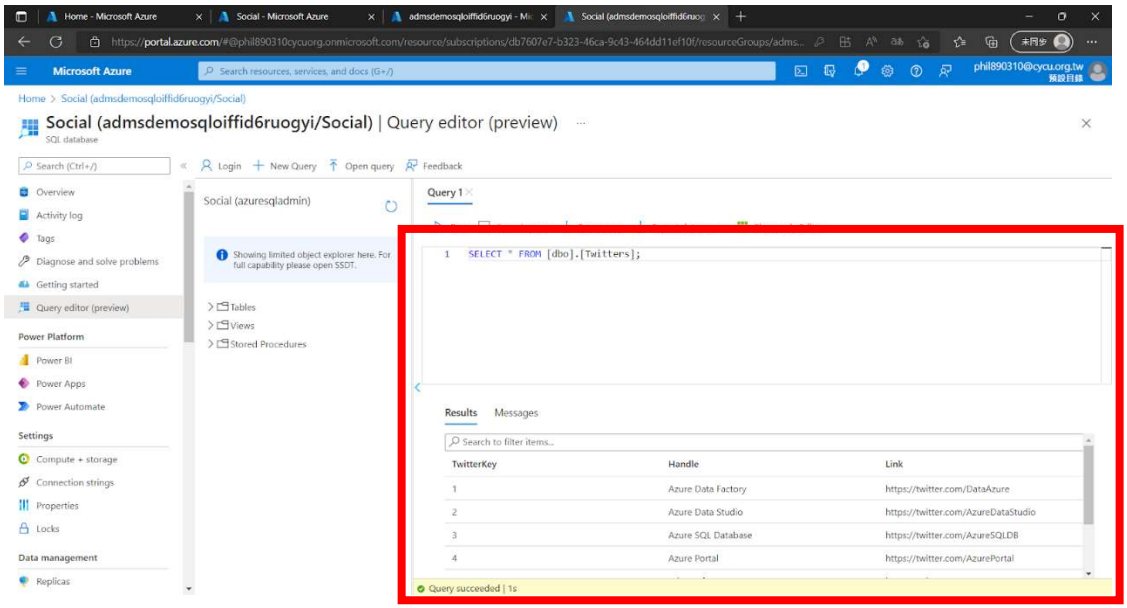
4. Create Azure Database Migration Service



5. Migration schema to new database

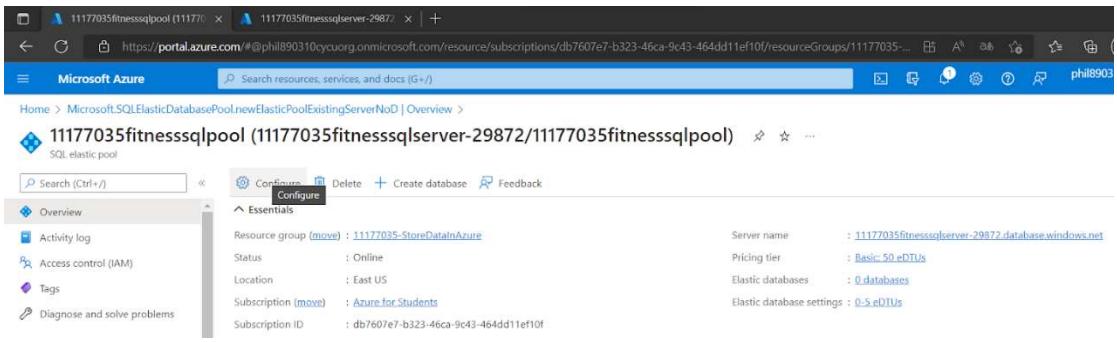


6. View Results

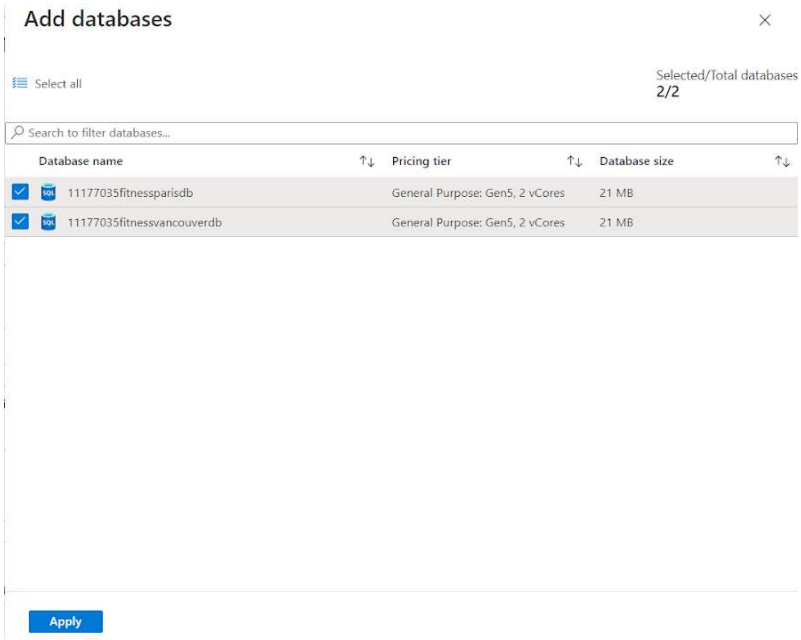


Module 4: Scale multiple Azure SQL Databases with SQL elastic pools

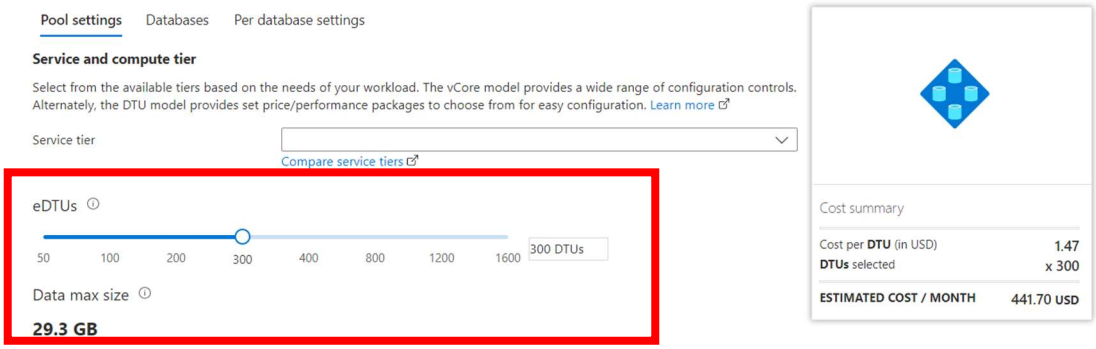
1. Create a SQL elastic pool



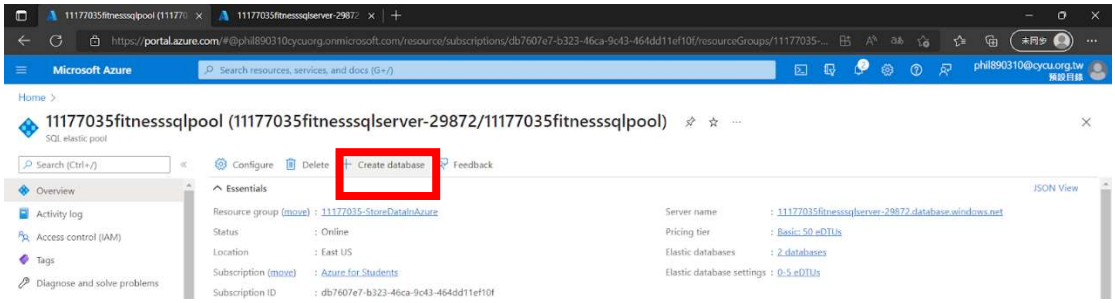
2. Create 2 SQL db then add to SQL elastic pool



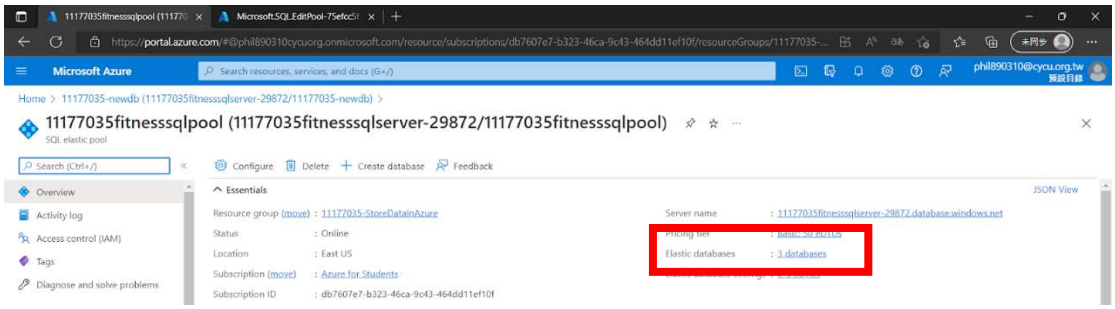
3. Adjust elastic pool settings



4. Create new SQL db in pool

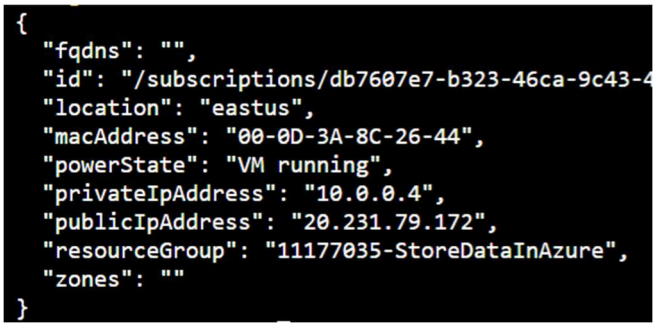


5. Results



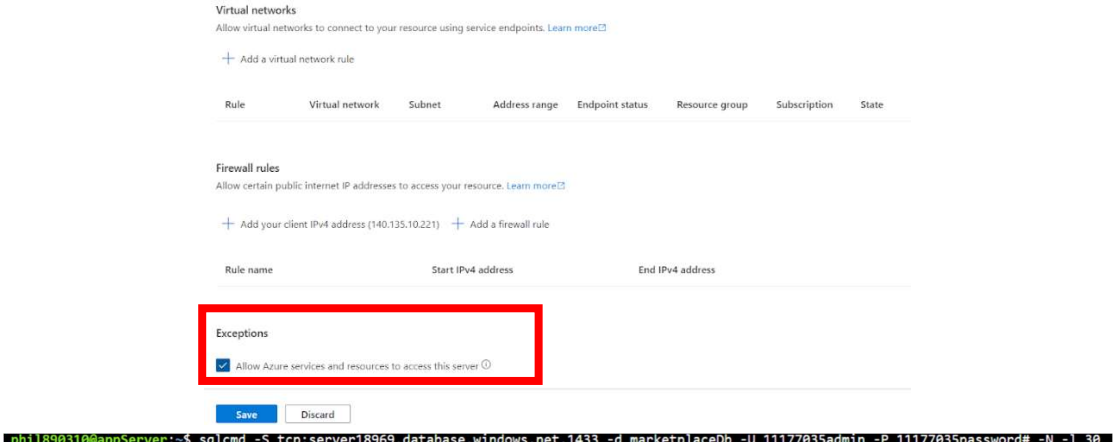
Module 5: Secure your Azure SQL Database

1. Setup environment (1 VM + 1 SQL db)




```
phil890310@Azure:~$ az sql db show-connection-string --client sqlcmd --name marketplaceDb --server $SERVERNAME | jq -r
sqlcmd -S tcp:server21167.database.windows.net,1433 -d marketplaceDb -U <username> -P <password> -N -l 30
```

2. Use server-level rule to access DB



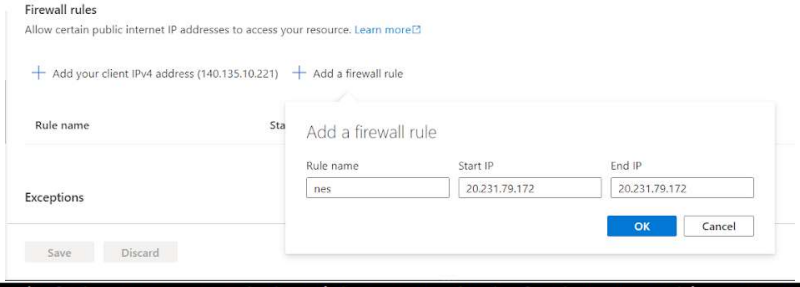

```
phil890310@appServer:~$ sqlcmd -S tcp:server18969.database.windows.net,1433 -d marketplaceDb -U 11177035admin -P 11177035password# -N -l 30
1>
```

3. Use database-level rule to access DB

```
1> EXECUTE sp_set_database_firewall_rule N'My Firewall Rule', '20.231.79.172', '20.231.79.172';

2> GO
```

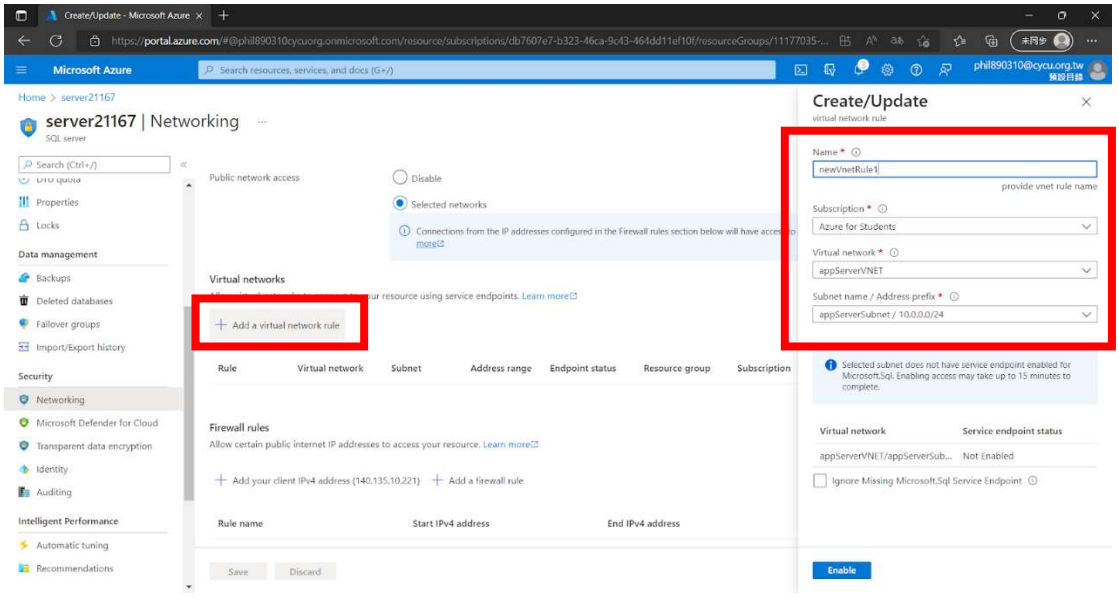
```
phil890310@appServer:~$ sqlcmd -S tcp:server18969.database.windows.net,1433 -d marketplaceDb -U 11177035admin -P 11177035password# -N -l 30
1>
```

4. Use server-level IP address rule to access DB




```
phil890310@appServer:~$ sqlcmd -S tcp:server18969.database.windows.net,1433 -d marketplaceDb -U 11177035admin -P 11177035password# -N -l 30
1>
```

5. Use server-level v-net rule to access DB

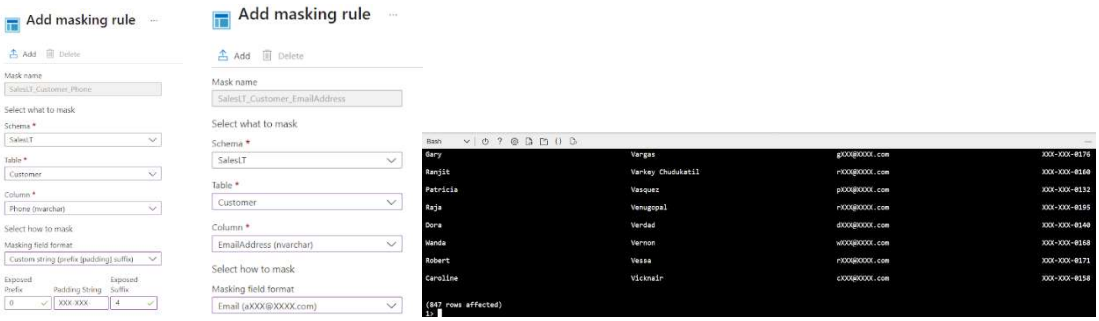



```
phil890310@appServer:~$ sqlcmd -S tcp:server21167.database.windows.net,1433 -d marketplaceDb -U 11177035admin -P 11177035password# -N -l 30
1>
```

6. Control DB role to access DB

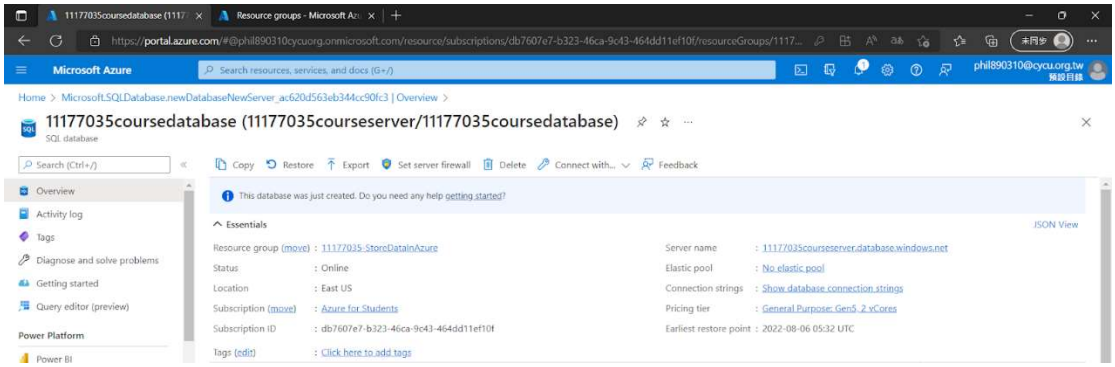
```
1> SELECT * FROM SalesLT.Address;
2> GO
Msg 229, Level 14, State 5, Server server21167, Line 1
The SELECT permission was denied on the object 'Address', database 'marketplaceDb', schema 'SalesLT'.
```

7. Encryption data

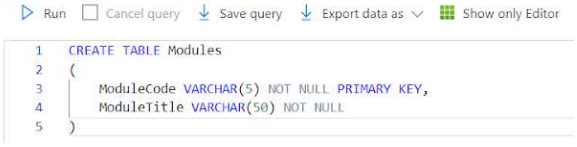


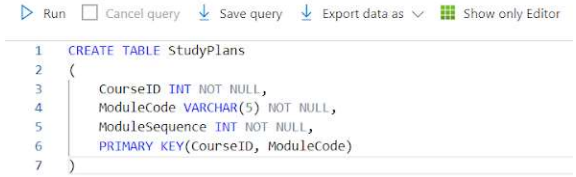
Module 6: Develop and configure an ASP.NET application that queries an Azure SQL database

1. Create SQL DB

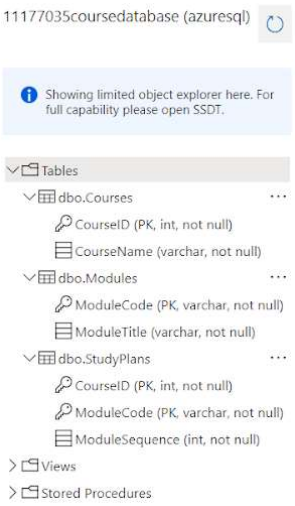


2. Create SQL DB schema

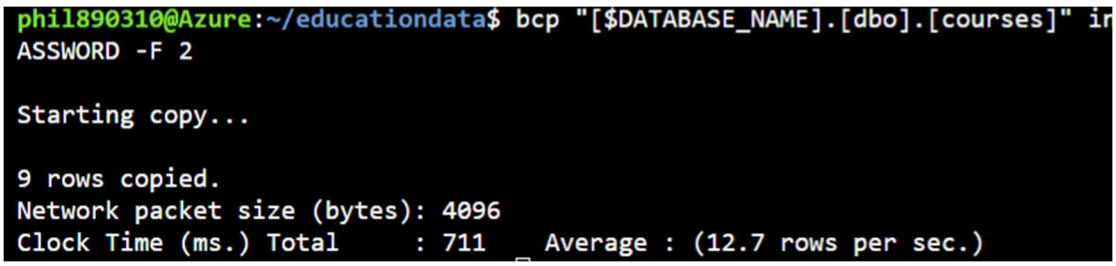




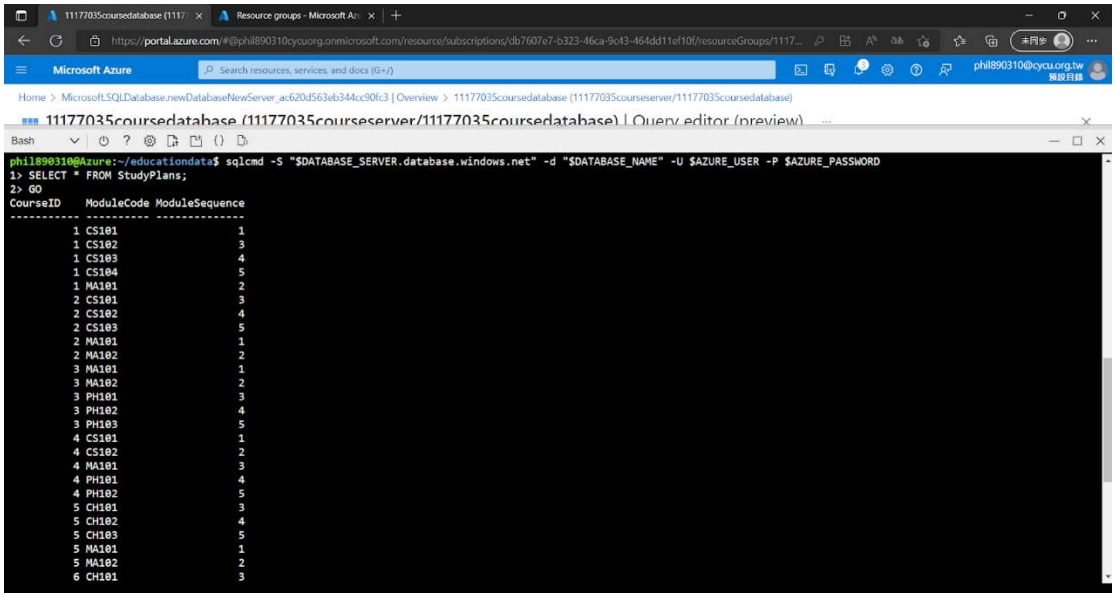
3. Schema Overview



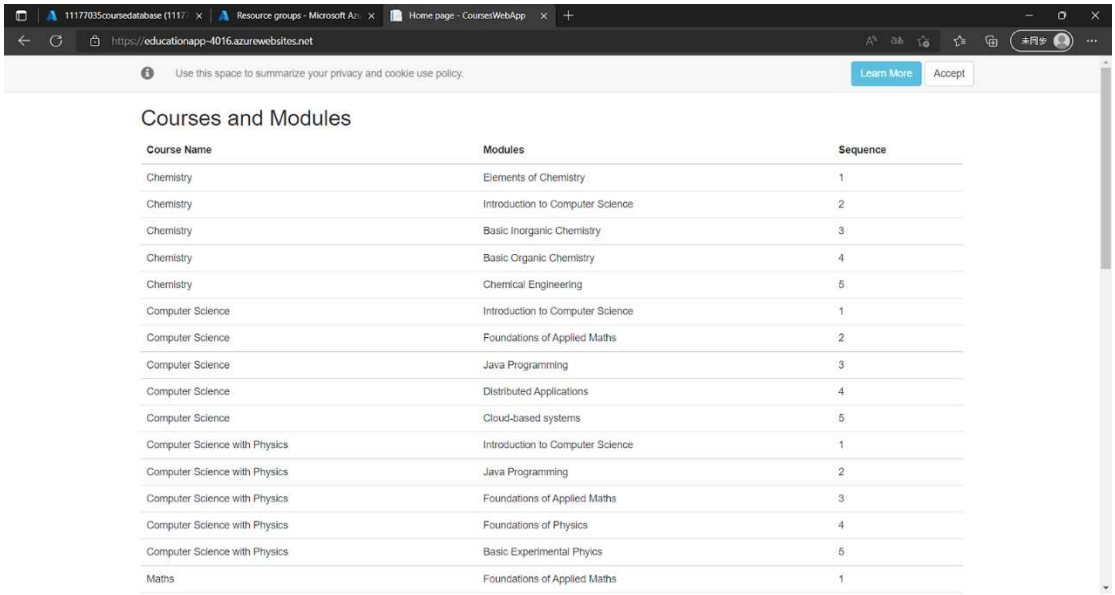
4. Import data



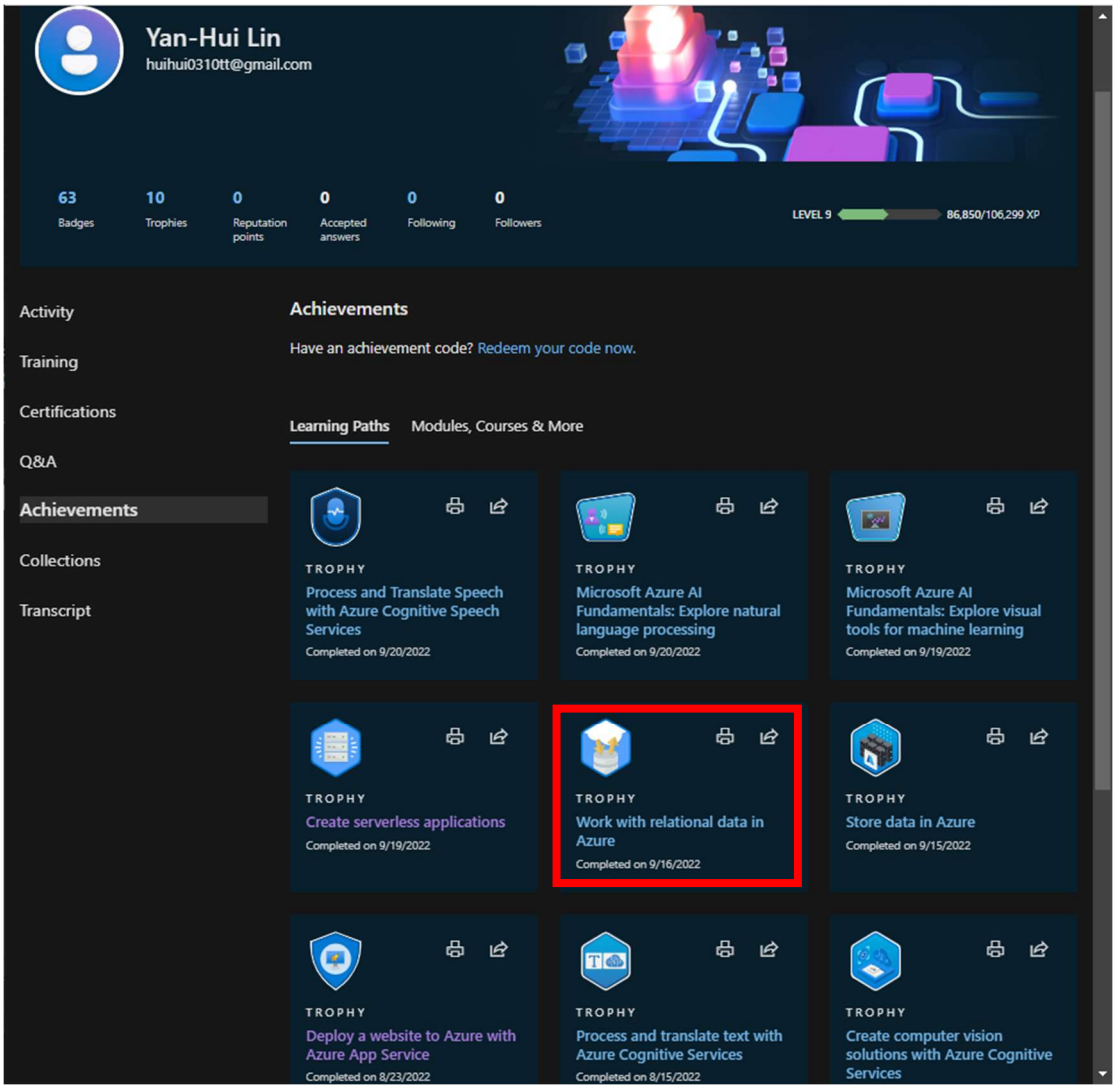
5. Query data



6. Connect an ASP.NET application to Azure SQL DB



Take screenshots of Badges and Trophies



Learned from the Learning Path

Database 是存儲資料重要的一環，任何網路上的資料都需要一個 Database 來存儲，例如 logs、info、data，因此學習操作 Database 是一個工程師基礎必備的技能，透過這次的模組，重點學到雲端如何針對資料庫提供服務，例如評估、轉移，以及 Scale out、Scale up 的擴展特性。最後再搭配一個小型的 Web 展示如何將 Database 的資料呈現到前端。這個 Learning Path 為雲端展示了一系列的服務滿足開發人員可以在任何情境下對於資料存儲的需求。

3. Problems

Module5 的後半段，Monitor 部分需要更新 Learning Path 的內容，實際操作情形已經無法與教程內容相符。

FeedBack

此 Learning Path 當中只有針對 Structured Data 進行介紹，但在儲存 Unstructured Data 的資源並沒有特別進行介紹，例如 cosmosdb，期許在未來可以新增一個 Learning Path 特別介紹如 cosmosdb 的實作模組。另外，在 SQL elastic pools 的實作部分，希望可以設計一個小實驗來驗證 Elastic Pools。