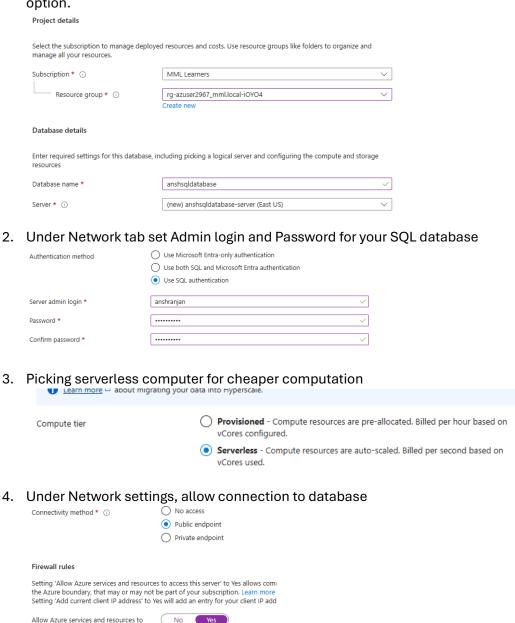
# **Ansh Ranjan**

# **Azure Data**

# **EXERCISE 2 - Introduction to Azure Databases**

## TASK 1: Deploy a sample database in Azure Cosmos DB and Azure SQL Database

- SQL DATABASE
- 1. Go to SQL Databases > Create > Enter details > Create a new database server if you do not have existing option.



- COSMOS DB MONGO DB

Add current client IP address \*

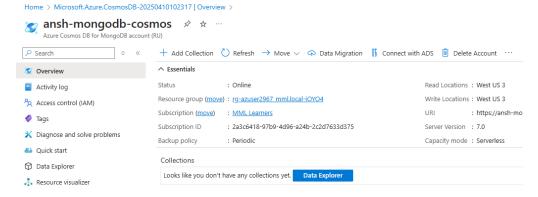
# 1. Open Cosmos DB > Create > Cozmos DB for MongoDB Create an Azure Cosmos DB account ... Which API best suits your workload? Azure Cosmos DB is a fully managed NoSQL and relational database service for building scalable, high performance applications. Learn more To start, select the API to create a new account. The API selection cannot be changed after account creation. Recommended APIs Others Azure Cosmos DB for NoSQL Azure Cosmos DB's core, or native API for working with documents. Supports fast, flexible development with familiar SQL query language and client libraries for .NET, JavaScript, Python, and Java. Azure Cosmos DB for MongoDB workloads that you plan to migrate to Azure Cosmos DB.

2. Request Unit database account > Enter details > Review and Create

Create Learn more

Choose a workload type that best aligns each setting to fit your needs or stick to	with your goals. This helps us provide an optimized starting point for your Azure Cosmos DB account : the defaults provided.
Workload Type * ①	Development / Testing
	Balanced cost and performance. Ideal to test and develop an application before going to productio
Select the subscription to manage deploy	yed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *	MML Learners
Resource Group *	rg-azuser2967_mml.local-iOYO4
	Create new
Instance Details	
Account Name *	ansh-mongodb-cosmos
Configure availability zone settings for yo	our account. You cannot change these settings once the account is created.
Availability Zones (i)	○ Enable ● Disable

3. Your Azure Cosmos DB API for Mongo DB will be created and running



## TASK 2: Document key features and use cases for each

### **Azure Synapse Analytics**

**Project Details** 

## **Key Features:**

- Unified platform for big data and data warehousing.
- Massively Parallel Processing (MPP) for large datasets.
- Integrated pipelines for ETL/ELT with Azure Data Factory.
- Synapse Studio for data exploration and analytics.
- Scalable, secure, and supports machine learning.

#### **Use Cases:**

- Data warehousing and big data analytics.
- Business intelligence with Power BI integration.

• Advanced analytics and IoT data processing.

# Azure SQL Database

## **Key Features:**

- Fully managed relational database service.
- High availability, scalability, and automated maintenance.
- Elastic pools for resource sharing.
- Advanced security and geo-replication.
- Seamless integration with other Azure services.

#### **Use Cases:**

- Transactional workloads (OLTP).
- Backend for web/mobile apps and e-commerce systems.
- ERP/CRM databases and lightweight analytics.

## **Comparison of Use Cases**

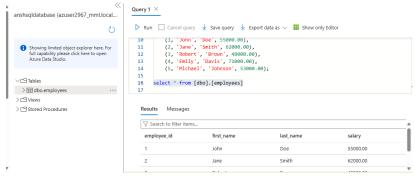
Feature/Use Case	Azure Synapse Analytics	Azure SQL Database
Primary Focus	Analytical workloads (OLAP)	Transactional workloads (OLTP)
Data Volume	Petabytes of data	Gigabytes to terabytes of data
Scalability	Massively parallel processing	Elastic scaling for transactional data
Integration	Big data tools, Power BI, Data Lake	Web apps, mobile apps, and business apps
Machine Learning	Advanced analytics and Al workloads	Limited to lightweight analytics
Use Case Examples	Data warehousing, predictive analytics	E-commerce systems, ERP/CRM databases

# **TASK 3: Perform basic CRUD operations**

- SQL DATABASE
- 1. Go to your DB > Query Editor > Login with admin ID and password

2. You will be presented with query page. Write a query to create a table in your database

3. Insert records into your database table and read them



4. Updating and Deleting records

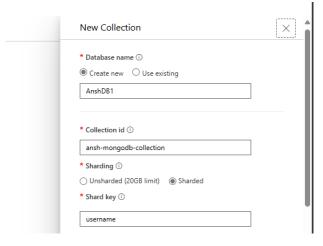
```
18  /*Updating Records*/
19  UPDATE employees SET first_name = 'Smith'
20  WHERE employee_id = 1;
21
22  /*Deleting rows*/
23  DELETE FROM employees
24  WHERE employee_id = 5;

Results  Messages

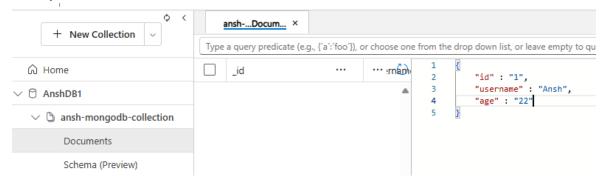
Query succeeded: Affected rows: 2
```

#### - COSMOS DB MONGO DB

1. Go to Data Explorer > Create Database > New Collection > Select Database or create new, give collection id, shard key



2. Once your collection is created > click New Document and enter data in document > Save



3. You can add more documents now that your mongo db is up and running

