

Lab Report - 4**Name** – Divya Kirtikumar Patel**Student ID** - 202001420**Build a API for Table app with Python SDK and Azure Cosmos DB****1. Login Azure**

```
(base) divya@Divyas-MacBook-Air ~ % az login
A web browser has been opened at https://login.microsoftonline.com/organizations/oauth2/v2.0/authorize. Please
continue the login in the web browser. If no web browser is available or if the web browser fails to open, use
the device code flow with 'az login --use-device-code'.
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "4bbefadb-03e7-42fd-b0be-c071d8ed9826",
    "id": "83dfa20c-9d3c-4d0e-befb-ae99f4e1a9b1",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Azure for Students",
    "state": "Enabled",
    "tenantId": "4bbefadb-03e7-42fd-b0be-c071d8ed9826",
    "user": {
      "name": "202001420@daiict.ac.in",
      "type": "user"
    }
  }
]
```

2. Make Resource Group

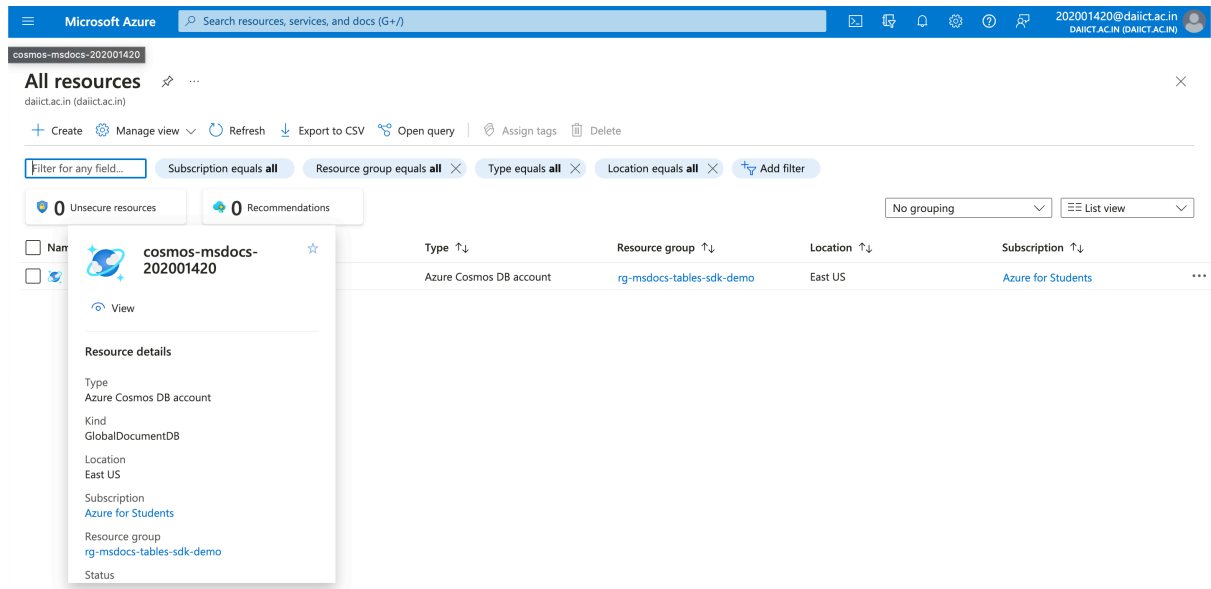
```
(base) divya@Divyas-MacBook-Air ~ % LOCATION='eastus'
RESOURCE_GROUP_NAME='rg-msdocs-tables-sdk-demo'
COSMOS_ACCOUNT_NAME='cosmos-msdocs-202001420'
COSMOS_TABLE_NAME='WeatherData'
```

```
(base) divya@Divyas-MacBook-Air ~ % az group create \
  --location $LOCATION \
  --name $RESOURCE_GROUP_NAME
{
  "id": "/subscriptions/83dfa20c-9d3c-4d0e-befb-ae99f4e1a9b1/resourceGroups/rg-msdocs-tables-sdk-demo",
  "location": "eastus",
  "managedBy": null,
  "name": "rg-msdocs-tables-sdk-demo",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

3. Create CosmosDB

```
(base) divya@Divyas-MacBook-Air ~ % az cosmosdb create \
--name $COSMOS_ACCOUNT_NAME \
--resource-group $RESOURCE_GROUP_NAME \
--capabilities EnableTable
{
  "analyticalStorageConfiguration": {
    "schemaType": "WellDefined"
  },
  "apiProperties": null,
  "backupPolicy": {
    "migrationState": null,
    "periodicModeProperties": {
      "backupIntervalInMinutes": 240,
      "backupRetentionIntervalInHours": 8,
      "backupStorageRedundancy": "Geo"
    },
    "type": "Periodic"
  },
  "capabilities": [
    {
      "name": "EnableTable"
    }
  ],
  "capacity": null,
  "connectorOffer": null,
  "consistencyPolicy": {
    "defaultConsistencyLevel": "BoundedStaleness",
    "maxIntervalInSeconds": 86400,
    "maxStalenessPrefix": 1000000
  },
  "cors": [],
```

Resource group and CosmosDB on Azure Portal



4. Create Table in CosmosDB

```
(base) divya@Divyas-MacBook-Air ~ % COSMOS_TABLE_NAME='WeatherData'

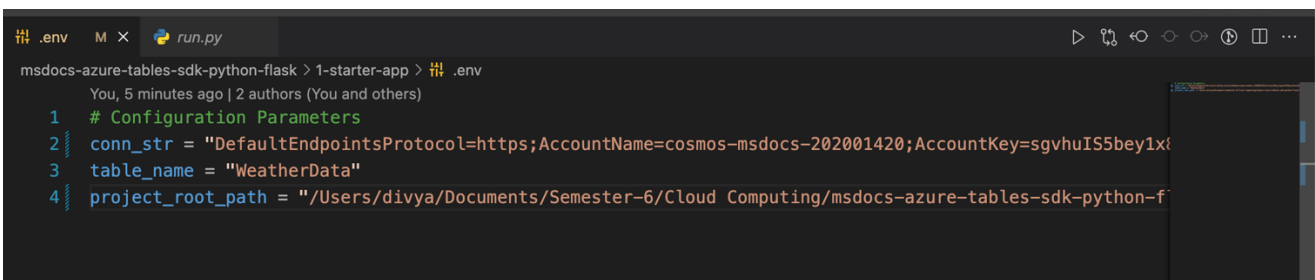
(base) divya@Divyas-MacBook-Air ~ % az cosmosdb table create \
  --account-name $COSMOS_ACCOUNT_NAME \
  --resource-group $RESOURCE_GROUP_NAME \
  --name $COSMOS_TABLE_NAME \
  --throughput 400
{
  "id": "/subscriptions/83dfa20c-9d3c-4d0e-befb-ae99f4e1a9b1/resourceGroups/rg-msdocs-tables-sdk-demo/providers/Microsoft.DocumentDB/databaseAccounts/cosmos-msdocs-202001420/tables/WeatherData",
  "location": null,
  "name": "WeatherData",
  "options": null,
  "resource": {
    "etag": "\"00000000-0000-0000-5cc4-468a580101d9\"",
    "id": "WeatherData",
    "rid": "MPIfAKtkEOo=",
    "ts": 1679492605.0
  },
  "resourceGroup": "rg-msdocs-tables-sdk-demo",
  "tags": null,
  "type": "Microsoft.DocumentDB/databaseAccounts/tables"
}
```

5. Get Connection strings

```
(base) divya@Divyas-MacBook-Air ~ % az cosmosdb keys list \
  --type connection-strings \
  --resource-group $RESOURCE_GROUP_NAME \
  --name $COSMOS_ACCOUNT_NAME \
  --query "connectionStrings[?description=='Primary Table Connection String'].connectionString" \
  --output tsv
DefaultEndpointsProtocol=https;AccountName=cosmos-msdocs-202001420;AccountKey=sgvhuIS5bey1x8c1bn1GUEGcrObpgyZ
GI3q4g1sMaoyjc5BhOMKj5BZvfVfKwAf2Xntr1j15gpKcACDbzLNDXA==;TableEndpoint=https://cosmos-msdocs-202001420.table.
osmos.azure.com:443/;
```

6. Run the application from Github

Clone github repo and Configure Parameters in the .env file



```
.env  M X  run.py
msdocs-azure-tables-sdk-python-flask > 1-starter-app > .env
You, 5 minutes ago | 2 authors (You and others)
1 # Configuration Parameters
2 conn_str = "DefaultEndpointsProtocol=https;AccountName=cosmos-msdocs-202001420;AccountKey=sgvhuIS5bey1x8c1bn1GUEGcrObpgyZ
3 table_name = "WeatherData"
4 project_root_path = "/Users/divya/Documents/Semester-6/Cloud Computing/msdocs-azure-tables-sdk-python-f"
```

Update functions in the helper.py file

```
.env M helper.py M X run.py M
msdocs-azure-tables-sdk-python-flask > 1-starter-app > webapp > helper.py > TableServiceHelper > query_entity
25 def query_entity(self, params):
26     filters = []
27     if params.get("partitionKey"):
28         filters.append("PartitionKey eq '{}'.format(
29             params.get("partitionKey"))
30     if params.get("rowKeyDateStart") and params.get("rowKeyTimeStart"):
31         filters.append("RowKey ge '{} {}'".format(params.get(
32             "rowKeyDateStart"), params.get("rowKeyTimeStart")))
33     if params.get("rowKeyDateEnd") and params.get("rowKeyTimeEnd"):
34         filters.append("RowKey le '{} {}'".format(
35             params.get("rowKeyDateEnd"), params.get("rowKeyTimeEnd")))
36     if params.get("minTemperature"):
37         filters.append("Temperature ge {}".format(
38             params.get("minTemperature")))
39     if params.get("maxTemperature"):
40         filters.append("Temperature le {}".format(
41             params.get("maxTemperature")))
42     if params.get("minPrecipitation"):
43         filters.append("Precipitation ge {}".format(
44             params.get("minPrecipitation")))
45     if params.get("maxPrecipitation"):
46         filters.append("Precipitation le {}".format(
47             params.get("maxPrecipitation")))
48     return list(self.table_client.query_entities(" and ".join(filters)))
49
50
51 def delete_entity(self):
52     partition_key = request.form.get("StationName")
53     row_key = request.form.get("ObservationDate")
54     return self.table_client.delete_entity(partition_key, row_key)
```

Run the app on port 8000:

```
(base) divya@Divyas-MacBook-Air 1-starter-app % python3 run.py webapp
* Serving Flask app 'webapp.webapp' (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
  WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8000
* Running on http://10.200.11.21:8000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 611-626-204
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET / HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /static/css/bootstrap.css HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /static/css/site.css HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /static/js/handlebars-v4.7.7.js HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /static/js/bootstrap.js HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /static/js/jquery.min.js HTTP/1.1" 200 -
10.200.11.21 - - [22/Mar/2023 19:44:06] "GET /favicon.ico HTTP/1.1" 404 -
```

Application Screen:

AzureTablesDemoApplicationHomeFilter Results

Insert using Table Entity

Insert using Expandable Data

Insert Sample Data

Weather Data

StationName	ObservationDate	Temperature	Humidity	Barometer	WindDirection	WindSpeed	Precipitation	Actions
gandhinagar	2022-12-12 00:12	49	99	10	SE	40	23	<div>UpdateDelete</div>

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Results on Azure portal:

cosmos-msdocs-202001420

Azure Cosmos DB account

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Cost Management

Quick start

Notifications

Data Explorer

+ Add Table

Refresh

Move

Data Explorer

Enable geo-redundancy

Delete Account

Subscription [\(move\)](#)

[Azure for Students](#)

Subscription ID

83dfa20c-9d3c-4d0e-befb-ae99f4e1a9b1

Total throughput limit

[No total throughput limit](#)

[See more](#)

Azure Table Endpoint

<https://cosmos-msdocs-202001420.table.cosmos.azure.com:4...>

Free Tier Discount

Opted Out

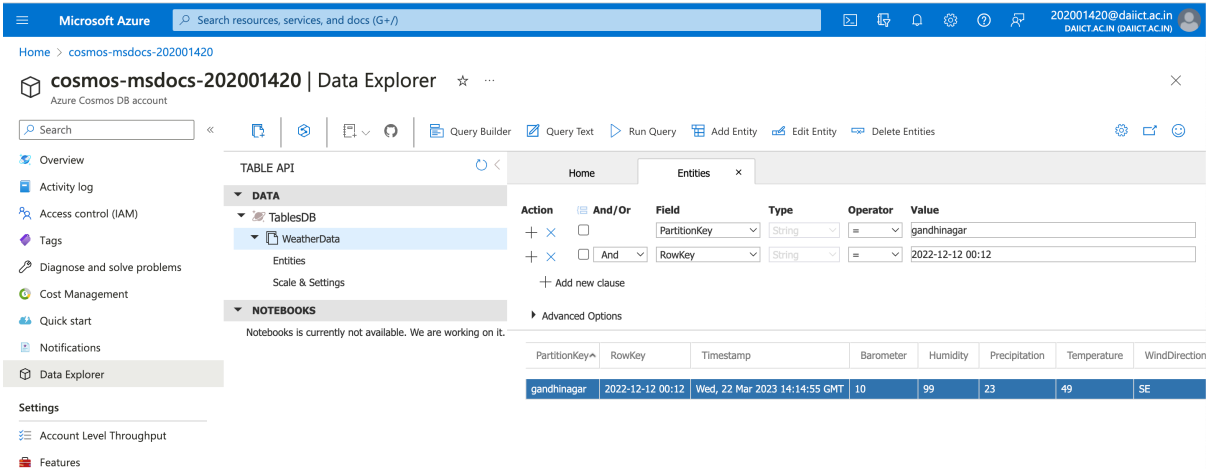
Capacity mode

Provisioned throughput

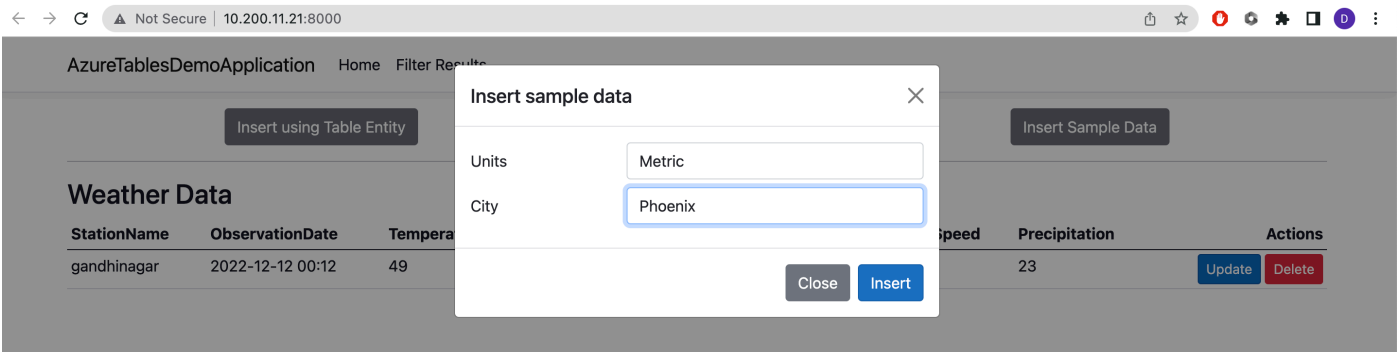
Tables

ID	Database	Throughput (RU/s)
WeatherData	TablesDB	400

The entry is visible on Azure Portal:



Inserting Sample Data :



Weather Data

StationName	ObservationDate	Temperature	Humidity	Barometer	WindDirection	WindSpeed	Precipitation	CloudCover	UvIndex	MaximumTemperature	Actions
Chicago	2023-03-20 15:00	91	50	30.03	W	7	0.00	None	None	None	<div>UpdateDelete</div>
Los Angeles	2023-03-20 16:00	100	75	25	CALM	6	0.00	40	4	105	<div>UpdateDelete</div>
Phoenix	2021-07-01 00:00	89	39	28.67	SE	8	0.0	None	None	None	<div>UpdateDelete</div>
Phoenix	2021-07-01 03:00	88	40	28.66	E	5	0.0	None	None	None	<div>UpdateDelete</div>
Phoenix	2021-07-01 06:00	86	38	28.69	E	3	0.0	None	None	None	<div>UpdateDelete</div>
Phoenix	2021-07-01 09:00	93	31	28.72	W	5	0.0	None	None	None	<div>UpdateDelete</div>
Phoenix	2021-07-01 12:00	100	23	28.67	W	9	0.0	None	None	None	<div>UpdateDelete</div>

Azure Portal:

TABLE API

Home Entities

DATA

TablesDB

WeatherData

Entities

Scale & Settings

NOTEBOOKS

Advanced Options

Action	And/Or	Field	Type	Operator	Value
+ X	<input type="checkbox"/>	PartitionKey	String	=	
+ X	<input type="checkbox"/> And	RowKey	String	=	2023-03-20 15:00

+ Add new clause

PartitionKey	RowKey	Timestamp	Barometer	CloudCover	Humidity	MaximumTemperature	Precipitation	Temperature	UvIndex	Wind
Chicago	2023-03-20 15:00	Tue, 21 Mar 2023 17:21:51 GMT	30.03		50		0.00	91		W
Los Angeles	2023-03-20 16:00	Tue, 21 Mar 2023 17:32:04 GMT	25	40	75	105	0.00	100	4	CALM
Phoenix	2021-07-01 00:00	Tue, 21 Mar 2023 17:35:43 GMT	28.67		39		0	89		SE
Phoenix	2021-07-01 03:00	Tue, 21 Mar 2023 17:35:43 GMT	28.66		40		0	88		E
Phoenix	2021-07-01 06:00	Tue, 21 Mar 2023 17:35:43 GMT	28.69		38		0	86		E

Results 1 - 34 of 34

Clean-up Resources:

Resources, services, and docs (G+)

202001420@daiict.ac.in

rg-msdocs-tables-sdk-demo

Resource group

Search

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Deployments

Security

Policies

Properties

Locks

Cost Management

Cost analysis

Cost alerts (preview)

Budgets

Advisor recommendations

Monitoring

Insights (preview)

Create

Manage view

Essentials

Resources

Recommendations

Filter for any field...

Type equals

Showing 1 to 1 of 1 records.

Show hidden

Name

cosmos-msdocs-202001420

Are you sure you want to delete "rg-ms..."

Warning! Deleting the "rg-msdocs-tables-sdk-demo" resource group is irreversible. The action you're about to take can't be undone. Going further will delete this resource group and all the resources in it permanently.

TYPE THE RESOURCE GROUP NAME:

rg-msdocs-tables-sdk-demo

AFFECTED RESOURCES

There are 1 resources in this resource group that will be deleted.

Name	Type	Location
cosmos-msdocs-202001420	Azure Cosmos DB a...	East US

Delete

Cancel