

## NAKHEEL ASSIGNMENT WALKTHROUGH

1. WE WILL CREATE A DATA FACTORY, DATA LAKE AND SQL DATABASE RESOURCES IN OUR AZURE ACCOUNT. ALSO, FOR THIS ASSIGNMENT, A RESOURCE GROUP HAS BEEN CREATED AS Nakheel\_assignment.

Home > nakheel\_assignment

Subscription (move): Subscription1  
Subscription ID: c4fc464a-431a-4223-9a50-d76271046224  
Tags (edit): Click here to add tags

Deployments: 6 Succeeded  
Location: West Europe

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 4 of 4 records. Show hidden types

Name	Type	Location
adfnakheel	Data factory (V2)	West Europe
nakheelserver	SQL server	West Europe
sqldb (nakheelserver/sqldb)	SQL database	West Europe
stgaccountnakheel	Storage account	West Europe

2. NOW WE WILL CREATE A CONTAINER IN OUR DATA LAKE TO STORE THE CSV FILES COMING FROM THE CLIENT AS:

Home > stgaccountnakheel\_1658568460298 > stgaccountnakheel

stgaccountnakheel | Containers

Search containers by prefix

Name	Last modified	Public access level
\$logs	7/23/2022, 11:28:11 AM	Private
input	7/23/2022, 11:28:26 AM	Private

3. INSIDE THE ROOT FOLDER 'input', we will create three directories for each csv file received from the client as :

Home > nakheel\_assignment > stgaccountnakheel > input

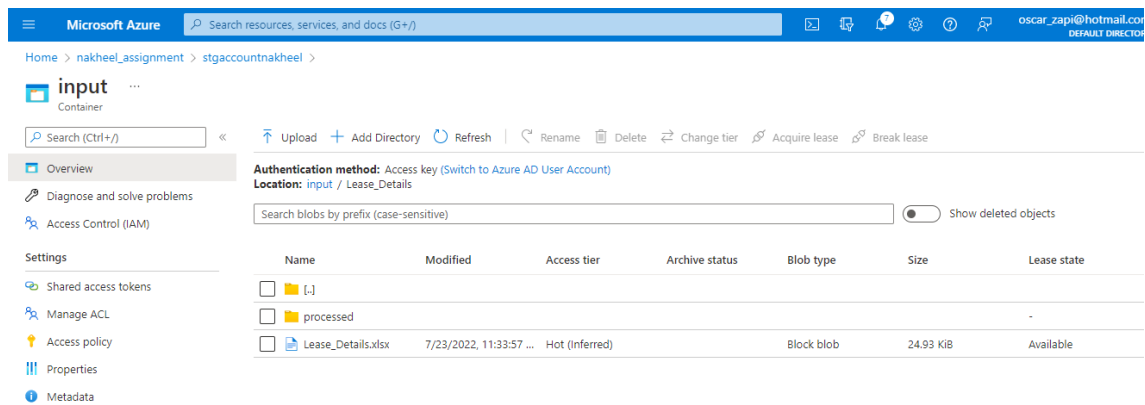
Successfully added directory  
Successfully added directory 'Lease\_Sales'.

Authentication method: Access key (Switch to Azure AD User Account)  
Location: input

Search blobs by prefix (case-sensitive)

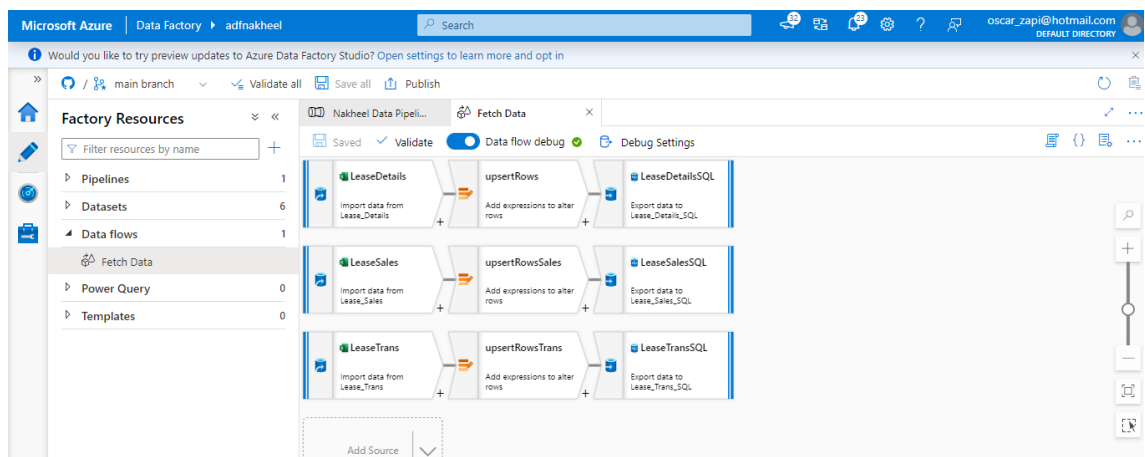
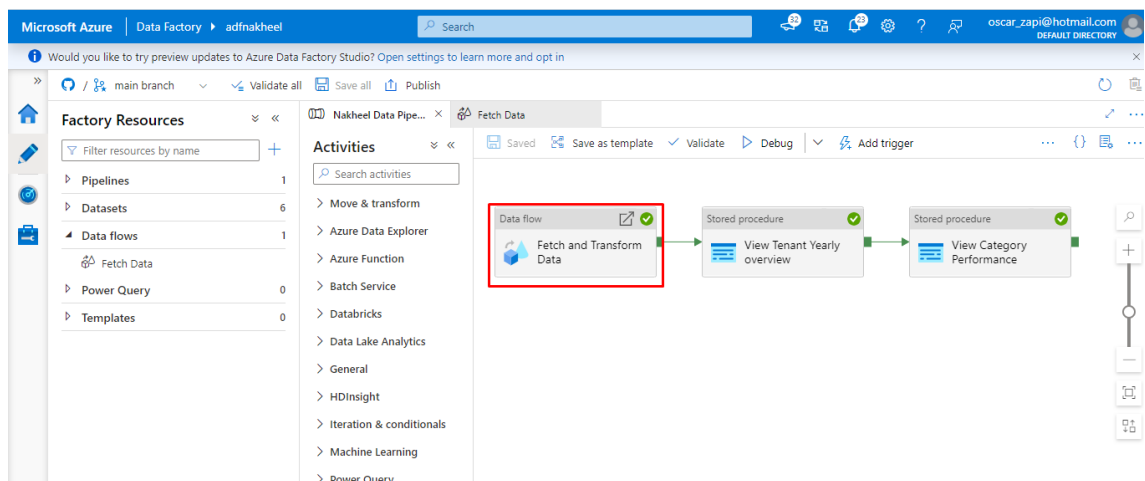
Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
Lease_Details						...
Lease_Sales						...
Lease_Trans						...

4. INSIDE EACH FOLDER, THERE WILL BE A 'processed' folder to store the historical data from older files and the current files sent by the client.

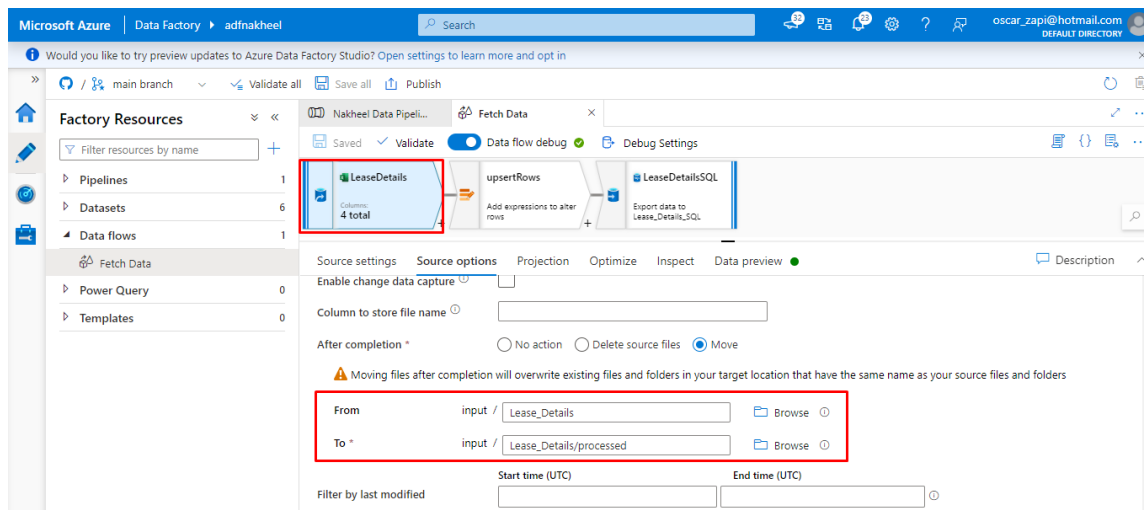


## 5. NOW WE WILL CREATE THE PIPELINES TO INSERT DATA INTO OUR AZURE SQL DATABASE

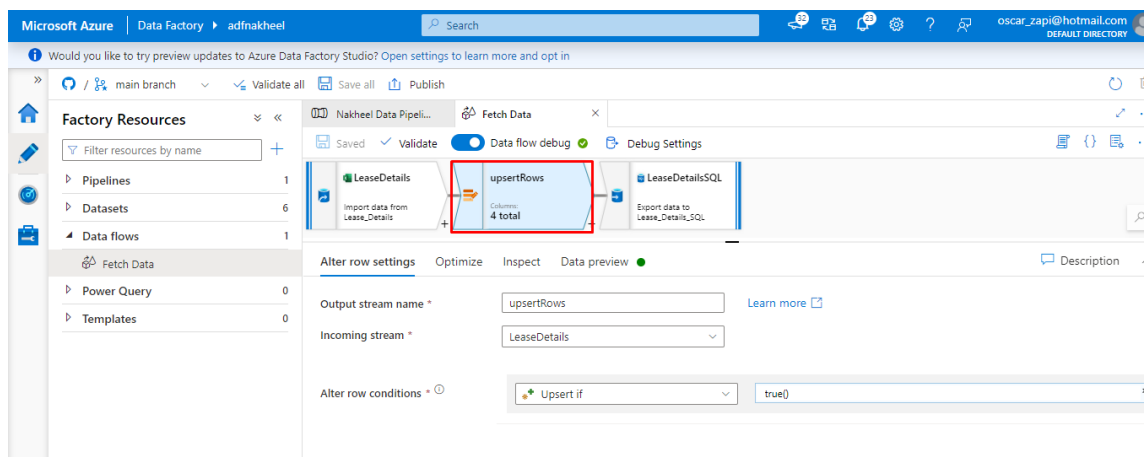
We will make use of dataflows to do it all at once, as follows:



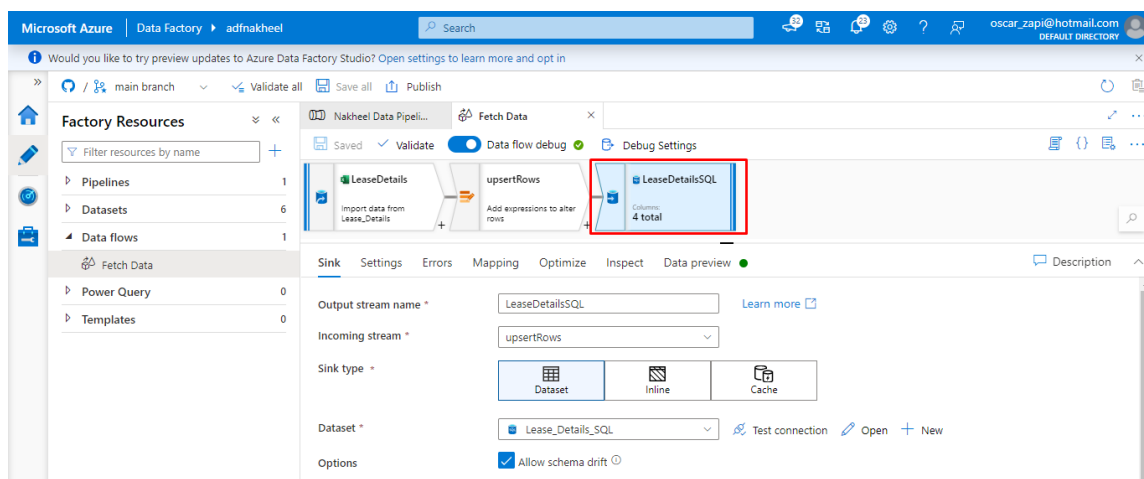
Each dataflow does exactly the same but taking the different files provided by the client. For example, the first step would be to read from our directory in the datalake the 'LeaseDetails' file and once it's done it will move it to another folder for 'processed' files.



Then we add another step to insert or update those values existing in the final table.

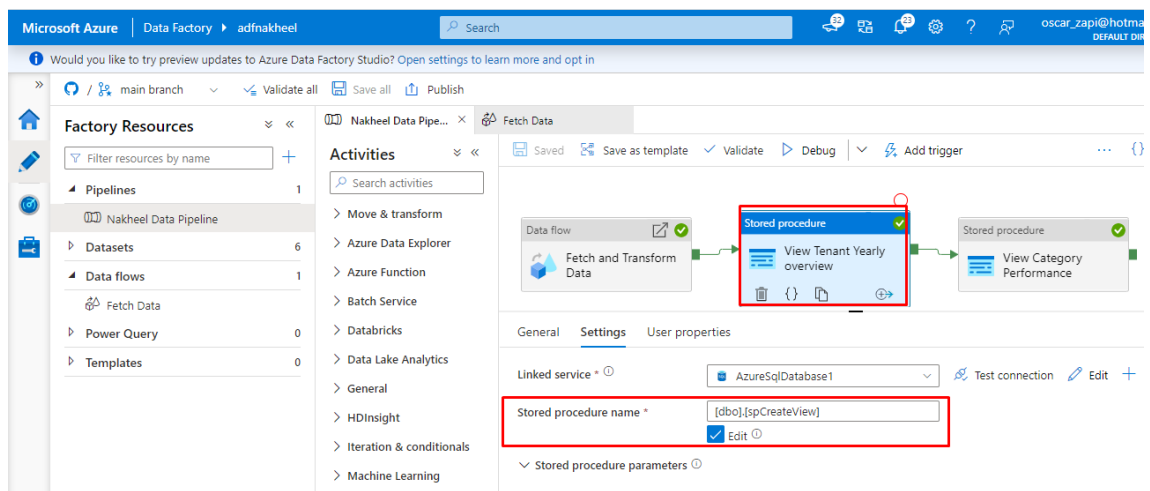
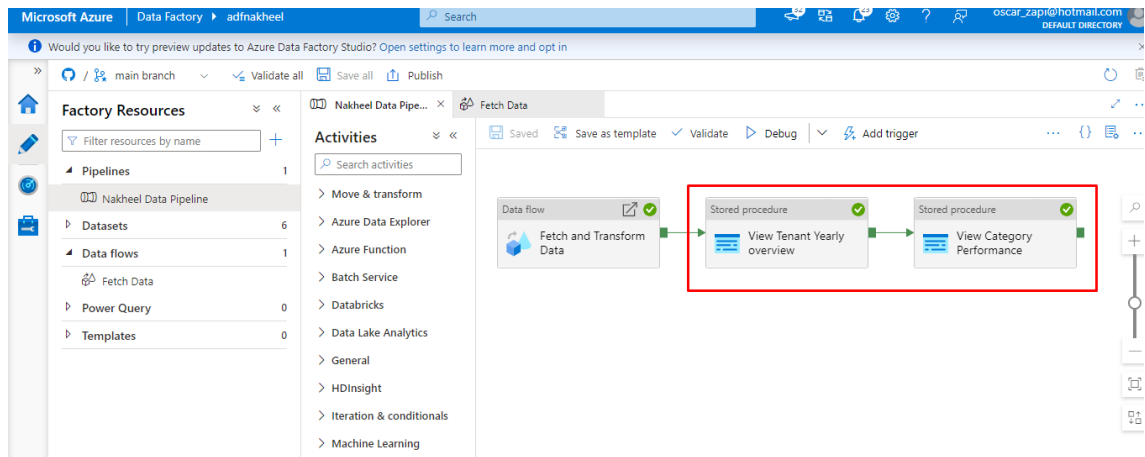


And the last step would be to connect to the final table and map those columns from the excei file to the final table as:



The same process would be for the other two files.

Finally we create store procedures to create or alter the views requested as :



Which are stored procedures we previously created:

```
CREATE PROCEDURE spCreateView
```

```
AS
```

```
EXEC ('
```

```
CREATE OR ALTER VIEW vwYearlyOverview
```

```
AS
```

```
select LD.L_ID as Tenant_ID
```

```
, LD.lease_type
```

```
, LD.category
```

```
, LT.Area_PerSqFT
```

```
, LT.Monthly_Rent*12 AS Annual_Rent
```

```
, LT.Lease_From
```

```

, LT.Lease_To
, LS.Annual_sales
from [dbo].[Lease_Details] LD
join [dbo].[Lease_Trans] LT on LD.L_ID = LT.L_ID and LD.lease_status = "Current"
join
(select L_ID,
SUM(case
when Source_main is null and Source_Sub is not null then Source_Sub
when Source_main is not null and Source_Sub is null then Source_main
when Source_main is not null and Source_Sub is not null then (Source_main +
Source_Sub)/2
else null end) as Annual_sales
FROM [dbo].[Lease_Sales]
WHERE year_number =year(getdate())
GROUP BY L_ID
) LS on LS.L_ID = LD.L_ID

')

```

Once we trigger our pipeline,

The screenshot displays the Microsoft Azure Data Factory Studio interface. On the left, the 'Factory Resources' pane shows the hierarchy: Pipelines (1), Datasets (6), Data flows (1), and Templates (0). The 'Nakheel Data Pipeline' is selected. The main canvas shows the pipeline diagram with three activities: 'Fetch and Transform Data' (Data flow), 'View Tenant Yearly overview' (Stored procedure), and 'View Category Performance' (Stored procedure). The 'Debug' button in the top toolbar is highlighted with a red box. Below the diagram, the 'Output' tab is active, showing a table of pipeline run details.

Name	Type	Run start	Duration
View Category Performance	Stored procedure	2022-07-23T14:44:20.2529514	00:00:03
View Tenant Yearly overview	Stored procedure	2022-07-23T14:44:16.6655702	00:00:02
Fetch and Transform Data	Data flow	2022-07-23T14:43:53.4414787	00:00:22

we will move our initial files to their corresponding 'processed' folders :

Microsoft Azure

Home > stgaccountnakheel > input

Container

Search (Ctrl+/)

Upload Add Directory Refresh Rename Delete Change tier Acquire lease Break lease

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Manage ACL

Access policy

Properties

Metadata

Authentication method: Access key (Switch to Azure AD User Account)

Location: input / Lease\_Details / processed

Search blobs by prefix (case-sensitive)

Show deleted objects

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
Lease_Details.xlsx	7/23/2022, 1:50:08 PM	Hot (Inferred)		Block blob	24.93 KiB	Available

We will be able to see the data in our final tables inside the DB created in azure.

Microsoft Azure

Home > nakheel\_assignment > nakheelserver > sqldb (nakheelserver/sqldb)

sqladb (nakheelserver/sqldb)

SQL database

Search (Ctrl+/)

Login New Query Open query Feedback

Overview

Activity log

Tags

Diagnose and solve problems

Getting started

Query editor (preview)

Power Platform

Power BI

Power Apps

Power Automate

Settings

Compute + storage

Connection strings

Showing limited object explorer here. For full capability please open SSDT.

Tables

Views

sys.database\_fire

sys.ipv6\_databases

Stored Procedures

Query 1

Run Cancel query Save query Export data as Show only Editor

```

1 select * from [dbo].[Lease_Sales]
2 select * from [dbo].[Lease_Details]
3 select * from [dbo].[Lease_Trans]
4 select * from vwYearlyOverview
5 select * from vwCategoryPerformance

```

Results	Messages
ABC0013144	2021 11 27366.00000 28734.00000
ABC0013144	2021 12 25104.00000 26359.00000
ABC0013144	2022 1 38346.00000 40262.00000
ABC0013144	2022 2 27547.00000 14464.00000

Microsoft Azure

Home > nakheel\_assignment > nakheelserver > sqldb (nakheelserver/sqldb)

sqladb (nakheelserver/sqldb)

SQL database

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1 select * from [dbo].[Lease_Sales]
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3 select * from [dbo].[Lease_Trans]
4 select * from vwYearlyOverview
5 select * from vwCategoryPerformance

```

Tenant_ID	lease_type	category	Area_PerSqFt	Annual_Rent	Lease_From	L
ABC0005533	Shop/Retail	Food and Beverages	18578	270036.00000	2021-03-01T00:00:00...	2
ABC0011662	F&B	Food and Beverages	7278		2021-09-01T00:00:00...	2

Query succeeded | 0s

As per requirements, a Github repository has been set up to store the code created in the pipelines:

oscarzapi / nakheel\_assignment Public

main 2 branches 0 tags

Your main branch isn't protected

Commit Message	Time
Updating pipeline: Nakheel Data Pipeline	2 hours ago
Updating pipeline: Nakheel Data Pipeline	2 hours ago
Updating linkedService: AzureSqlDatabase1	5 hours ago
Updating pipeline: Nakheel Data Pipeline	31 minutes ago

```
{
  "name": "Nakheel Data Pipeline",
  "properties": {
    "activities": [
      {
        "name": "Fetch and Transform Data",
        "type": "ExecuteDataFlow",
        "dependsOn": [],
        "policy": {
          "timeout": "1.00:00:00",
          "retry": 0,
          "retryIntervalInSeconds": 30,
          "secureOutput": false,
          "secureInput": false
        }
      }
    ]
  },
  "userProperties": {}
}
```

The github account is: [https://github.com/oscarzapi/nakheel\\_assignment](https://github.com/oscarzapi/nakheel_assignment)

Finally, a simple powerBI report has been created to connect to this data , using the connection from our DB:

Server: nakheelserver.database.windows.net

User:aadmin

Pass: Aa\_1111111111

# Navigator

Display Options

nakheelserver.database.windows.net [1]

sqladb [7]

sys.database\_firewall\_rules

sys.ipv6\_database\_firewall\_rules

vwCategoryPerformance

vwYearlyOverview

Lease\_Details

Lease\_Sales

Lease\_Trans

No items selected for preview

Untitled - Power BI Desktop

Search

Sign in

FileHomeHelp

PasteCutCopy

Get dataExcel workbookData SQL ServerEnter dataDataverseRecent sources

Transform dataRefresh data

Manage relationships

Manage rolesView as

Q&A setupLanguage Linguistic schema

Sensitivity

Share

Clipboard

Table icon

Table icon

Table icon

Lease\_Trans

Area PerSqFT

L ID

Lease From

Lease To

Monthly Rent

Collapse

Lease\_Details

Category

L ID

lease status

lease type

Collapse

Lease\_Sales

L ID

month number

Source main

Source Sub

year number

Collapse

Fields

Search

Lease\_Details

Lease\_Sales

Lease\_Trans

Properties

Lease\_Trans

All tables



FileHomeInsertModelingViewHelpFormatData / Drill

Get

Excel

Data

SQL

Enter

Database

Server

Data

Transform

Refresh

Queries

New

visual

Text

box

More

visuals

New

measure

measure

Sensitivity

Sensitivity

Publish

Share

Clipboard

data

workbook

data

data

Server

Data

Transform

Refresh

Queries

New

visual

Text

box

More

visuals

New

measure

measure

Sensitivity

Sensitivity

Publish

Share

Tenant\_ID

Lease\_From

Lease\_To

AB

AB

AB

Tenant\_ID

lease\_type

category

Annual\_sales

Annual\_Rent

Area\_PerSqFT

Lease\_From

Lease\_To

ABC001454

Shop/Retail

Services

545,368.50

327,792.00

1862

Thursday, April 08, 2021

Sunday, April 07, 2024

ABC001952

Shop/Retail

Home-Furnishings

494,240.00

0.00

2456

Thursday, October 07, 2021

Thursday, October 06, 2022

ABC001370

Shop/Retail

Services

491,498.50

101,700.00

1608

Wednesday, February 10, 2021

Friday, February 09, 2024

ABC001404

Shop/Retail

Books and Stationery

476,334.00

0.00

7142

Thursday, April 08, 2021

Monday, April 07, 2023

ABC001030

Shop/Retail

Services

451,371.00

286,900.00

2512

Sunday, August 01, 2021

Wednesday, July 31, 2024

ABC001580

Shop/Retail

Food and Beverages

454,906.00

343,032.00

968

Tuesday, February 02, 2021

Thursday, February 01, 2024

ABC001587

Shop/Retail

Other

447,921.00

0.00

2556

Sunday, August 08, 2021

Friday, August 07, 2020

ABC001511

Pocket Shop

Fashion and Accessories

439,113.00

0.00

664

Friday, May 28, 2021

Saturday, August 27, 2022

ABC001460

Shop/Retail

Perfumes and Cosmetics

415,491.00

274,200.00

1828

Thursday, April 08, 2021

Sunday, April 07, 2024

ABC001468

Shop/Retail

Other

389,820.00

80,845.00

930

Thursday, April 08, 2021

Sunday, April 07, 2024

ABC001461

Shop/Retail

Other

363,322.00

88,880.00

856

Thursday, April 08, 2021

Sunday, April 07, 2024

ABC001407

Shop/Retail

Food and Beverages

361,454.00

489,744.00

1362

Thursday, April 01, 2021

Friday, March 31, 2023

ABC001007

Shop/Retail

Other

351,751.00

130,062.00

826

Sunday, October 18, 2021

Wednesday, October 09, 2024

ABC001608

Pocket Shop

Fashion and Accessories

351,558.50

0.00

1008

Monday, November 01, 2021

Monday, October 31, 2022

ABC001523

Shop/Retail

Luxury Watches and Jewelry

347,434.00

278,872.00

1320

Thursday, June 02, 2021

Sunday, June 02, 2024

ABC001587

Shop/Retail

Food and Beverages

346,888.00

0.00

2814

Monday, November 15, 2021

Thursday, November 14, 2024

ABC001629

Shop/Retail

Other

342,711.50

180,000.00

2684

Tuesday, December 14, 2021

Wednesday, December 13, 2023

ABC001404

Shop/Retail

Other

340,554.00

132,000.00

1780

Wednesday, April 21, 2021

Sunday, April 20, 2025

ABC001473

Shop/Retail

Other

338,949.50

360,720.00

1002

Wednesday, September 15, 2021

Saturday, September 14, 2024

ABC001542

Shop/Retail

Leisure and Entertainment

338,374.00

459,768.00

11146

Monday, November 08, 2021

Saturday, November 07, 2026

ABC001610

Shop/Retail

Other

325,071.00

117,168.00

1302

Wednesday, February 02, 2022

Monday, February 01, 2027

ABC001574

Shop/Retail

Other

324,944.50

0.00

7152

Friday, October 29, 2021

Wednesday, October 28, 2026

ABC001584

Shop/Retail

Other

321,951.00

142,720.00

1156

Thursday, October 07, 2021

Sunday, October 06, 2024

ABC001584

Shop/Retail

Food and Beverages

315,254.00

342,000.00

152

Thursday, September 09, 2021

Friday, September 08, 2023

ABC001447

Shop/Retail

Other

315,126.00

200,160.00

3336

Thursday, July 01, 2021

Tuesday, June 30, 2026

ABC001586

Shop/Retail

Food and Beverages

311,878.00

198,240.00

1312

Thursday, August 12, 2021

Sunday, August 11, 2024

ABC001676

Shop/Retail

Services

308,524.00

184,692.00

5416

Sunday, October 10, 2021

Friday, October 09, 2026

ABC001580

Shop/Retail

Food and Beverages

308,006.00

385,560.00

1088

Tuesday, March 23, 2021

Friday, March 22, 2024

ABC001548

Shop/Retail

Fashion and Accessories

307,821.50

124,388.00

2132

Monday, March 28, 2021

Thursday, March 27, 2025

Total

25,821,854.50

96,330,348.00

4012003

Filters

Visualizations

Fields

Search

Filters on this visual

Annual\_Rent is (All)

Annual\_sales is (All)

Area\_PerSqFT is (All)

category is (All)

Lease\_From is (All)

Lease\_To is (All)

lease\_type is (All)

Tenant\_ID

Build visual

vwYearlyOverview

Columns

Tenant\_ID

lease\_type

category

Annual\_sales

Annual\_Rent

Area\_PerSqFT

Lease\_From

Lease\_To

Fields

Lease\_Details

Lease\_Sales

Lease\_Trans

vwCategoryPerformance

Annual\_Rent

Annual\_sales

Area\_PerSqFT

category

Lease\_From

Lease\_To

lease\_type

Tenant\_ID