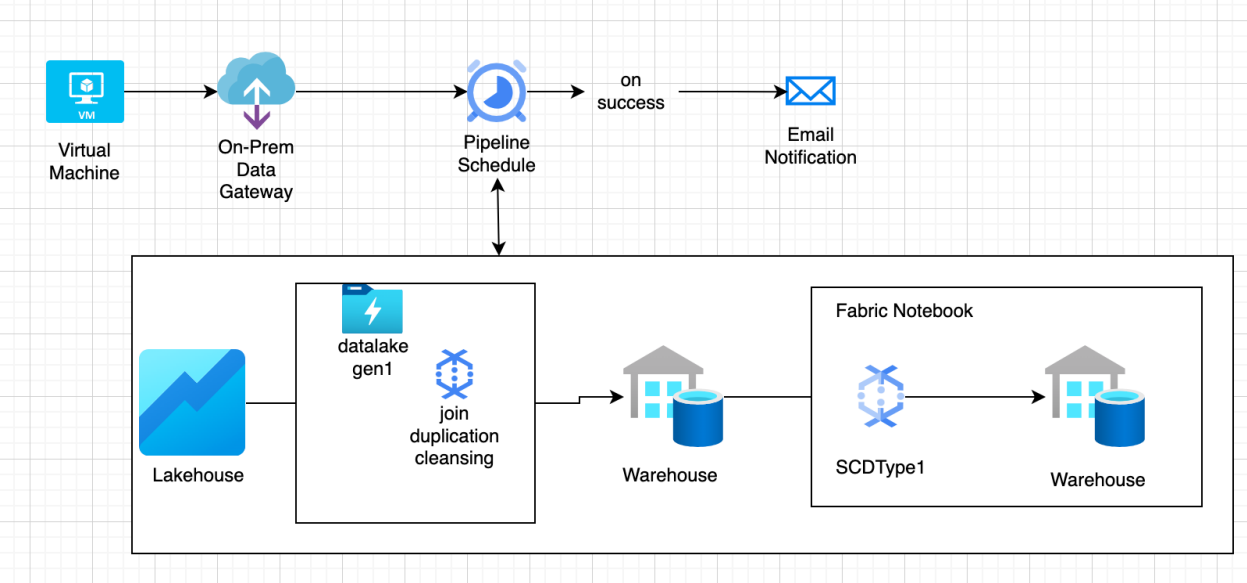
Bootcamp Project 4

Project Title: Incremental Data Loading and Automated Notifications using Microsoft Fabric

Problem Statement: In modern data ecosystems, organizations need to efficiently ingest, transform, and load data from various sources into centralized platforms for analytics, while also ensuring timely monitoring and notification upon successful data refreshes. This project addresses the challenge of incrementally loading data from on-premises sources to Microsoft Fabric Lakehouse, processing it through a structured transformation pipeline, and triggering automated notifications upon successful execution.

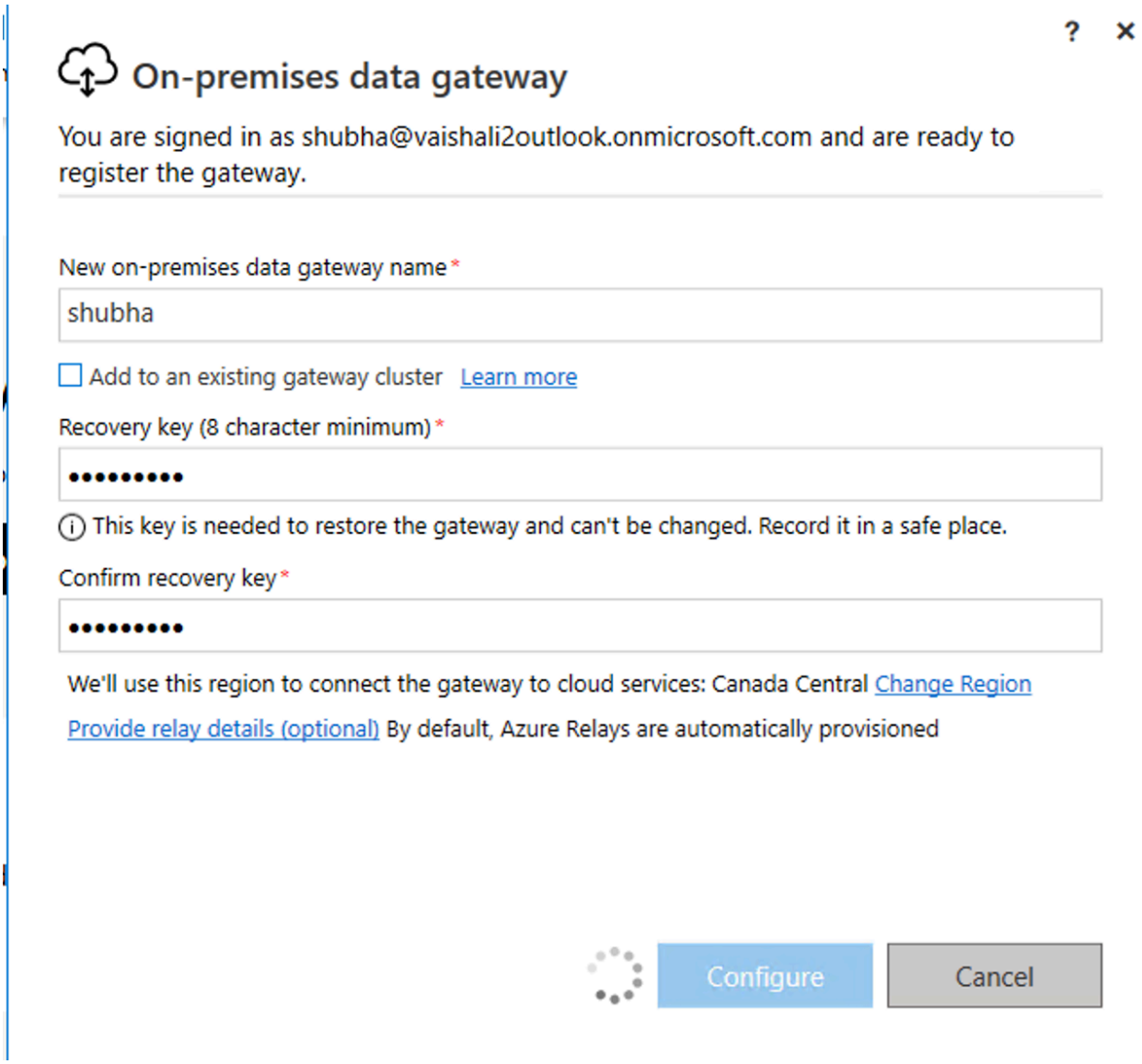
Architecture Diagram:

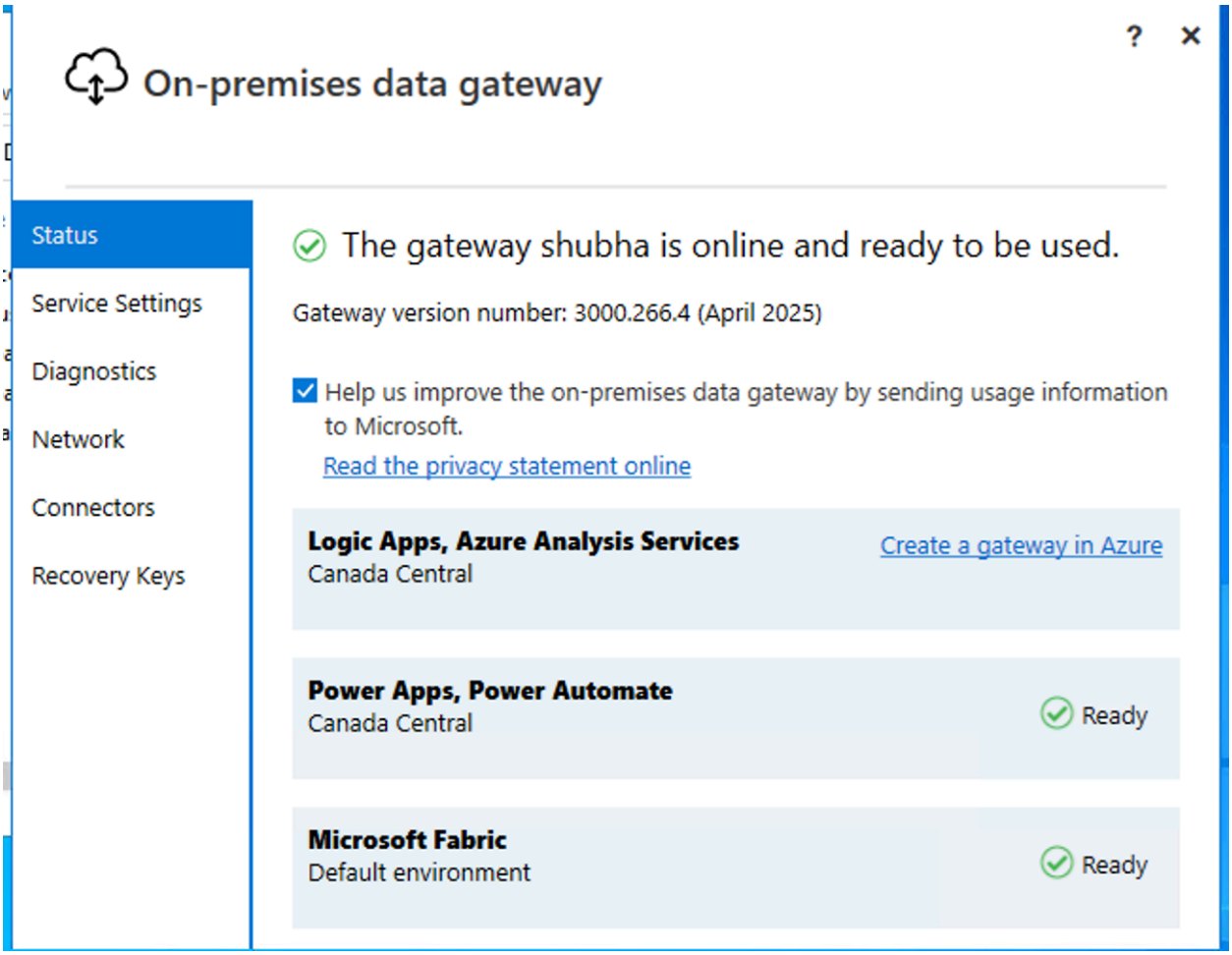


Tools & Technologies:

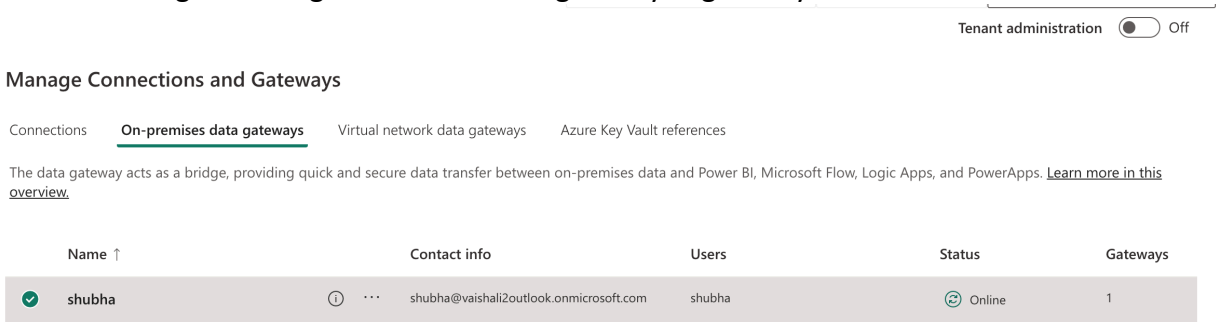
- Microsoft Fabric
- On-Premises Data Gateway
- Fabric Lakehouse and Warehouse
- Fabric Dataflow Gen 1
- Fabric Notebook
- Email Notification Task (in-built)
- Azure Key Vault (optional for secure credential management)

Data Ingestion from virtual Machine to Fabric Lakehouse using On Prem Data Gateway

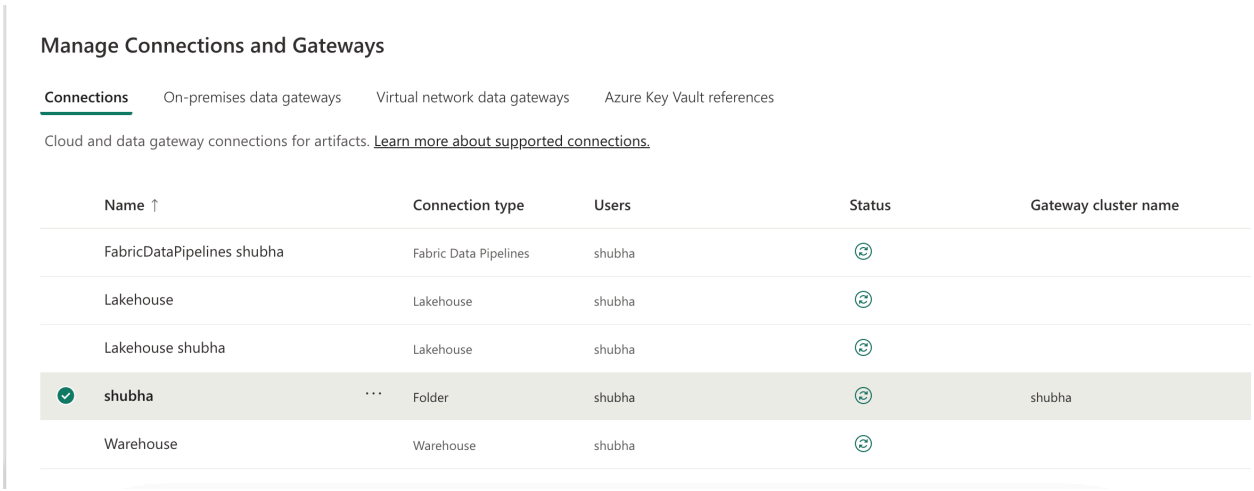

On-premises data gateway
You are signed in as shubha@vaishali2outlook.onmicrosoft.com and are ready to register the gateway.
New on-premises data gateway name *
shubha
Add to an existing gateway cluster Learn more
Recovery key (8 character minimum) *
This key is needed to restore the gateway and can't be changed. Record it in a safe place.
Confirm recovery key *
We'll use this region to connect the gateway to cloud services: Canada Central Change Region
Provide relay details (optional) By default, Azure Relays are automatically provisioned
Configure
Cancel



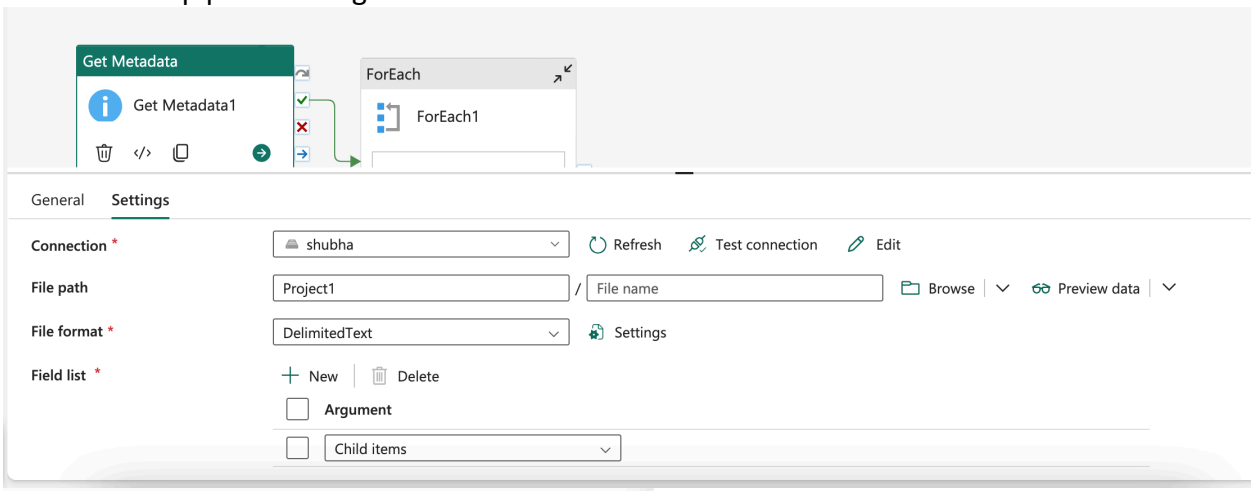
Now check if data gateway status is online in fabric
Fabric → setting → manage connection and gateway →gateways and check if it is online

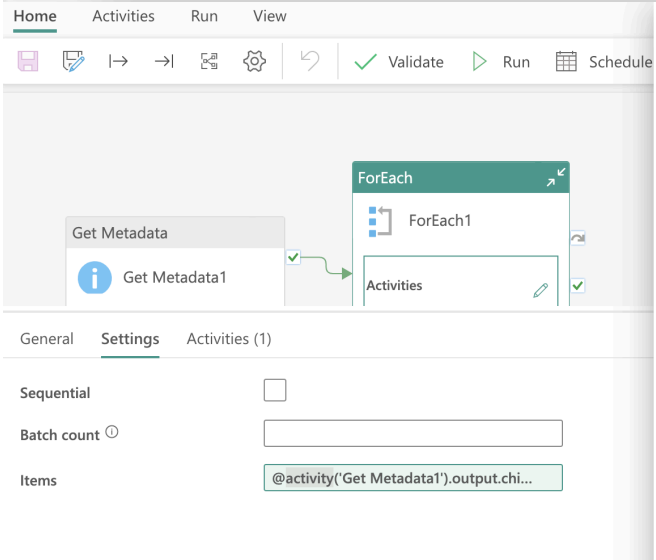


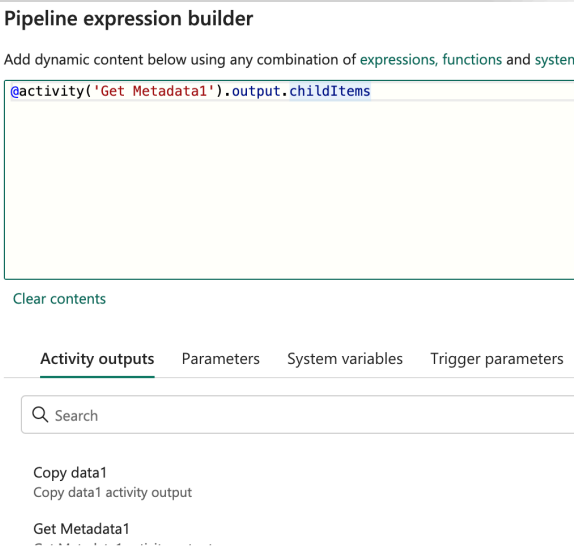
and create a connection(linked service)

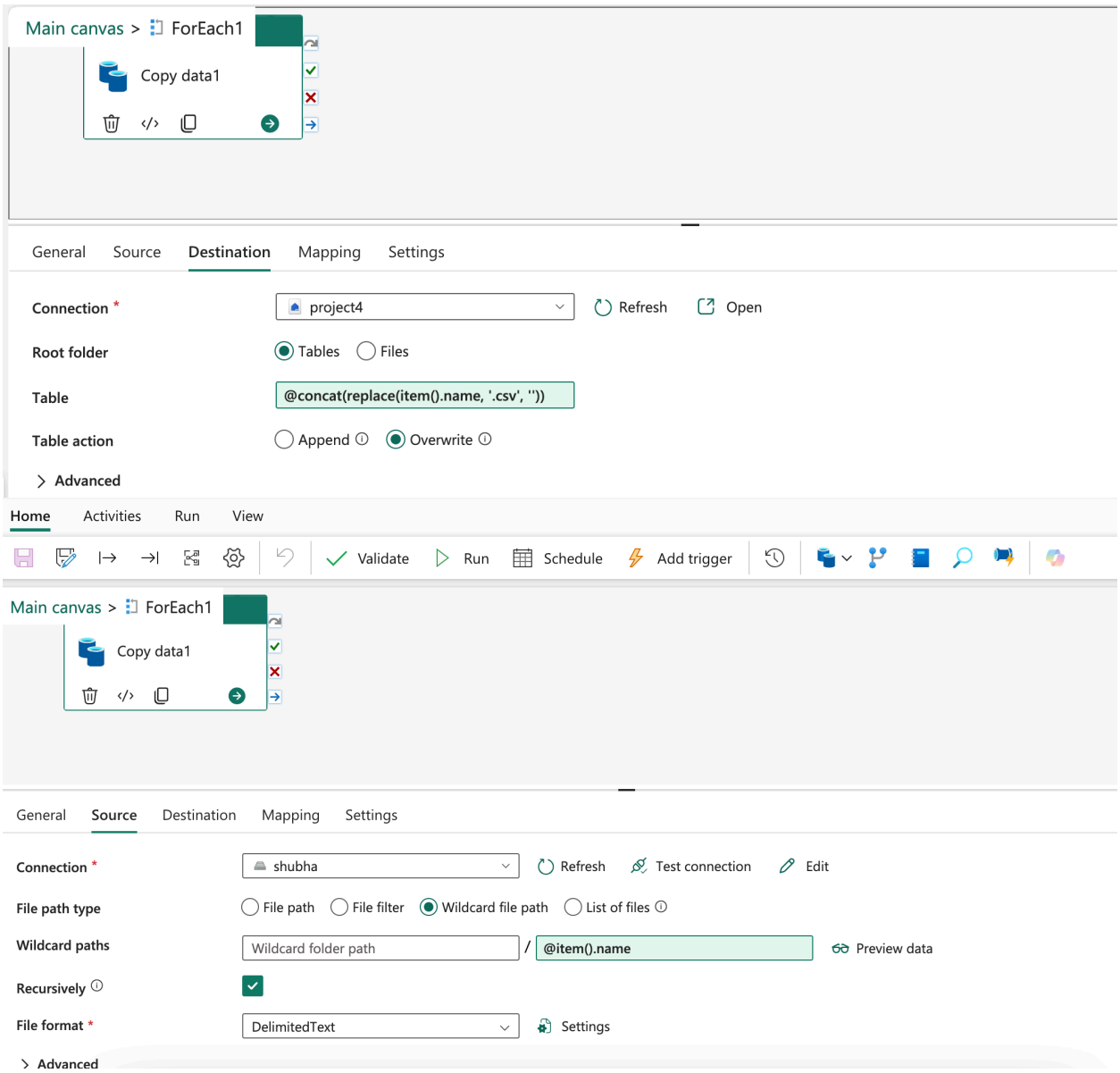


Now create a pipeline to ingest data from Virtual Machine to Lake house

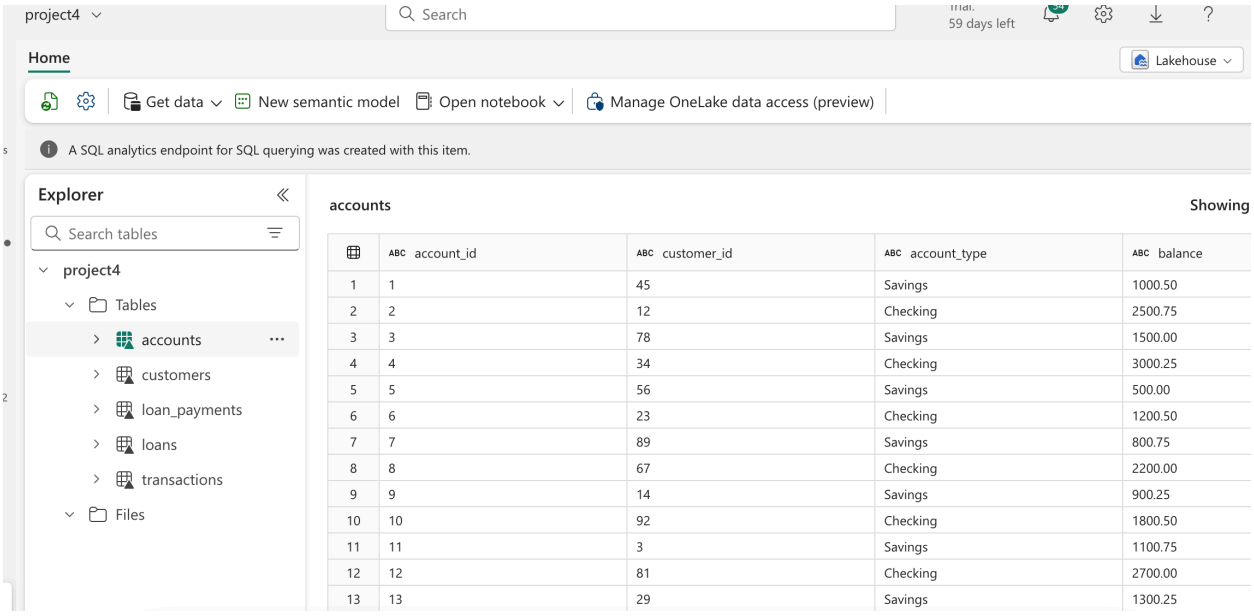




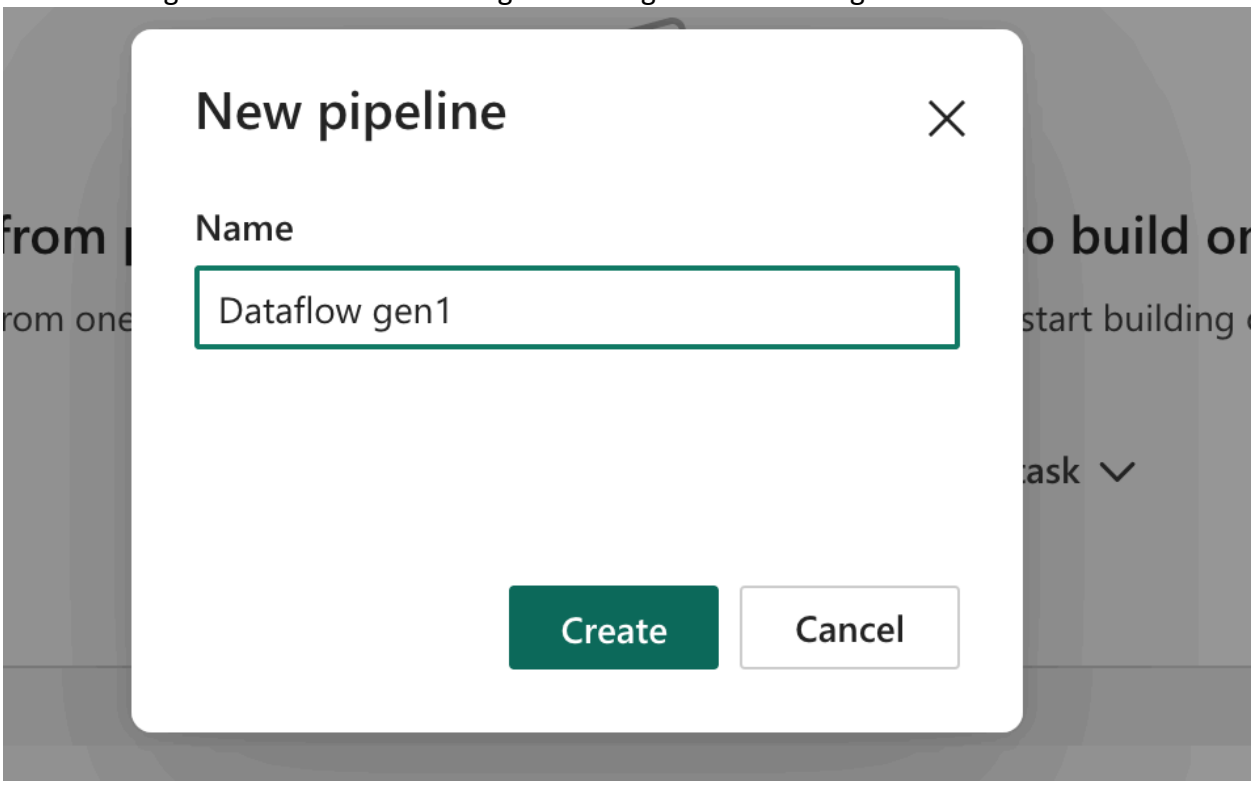


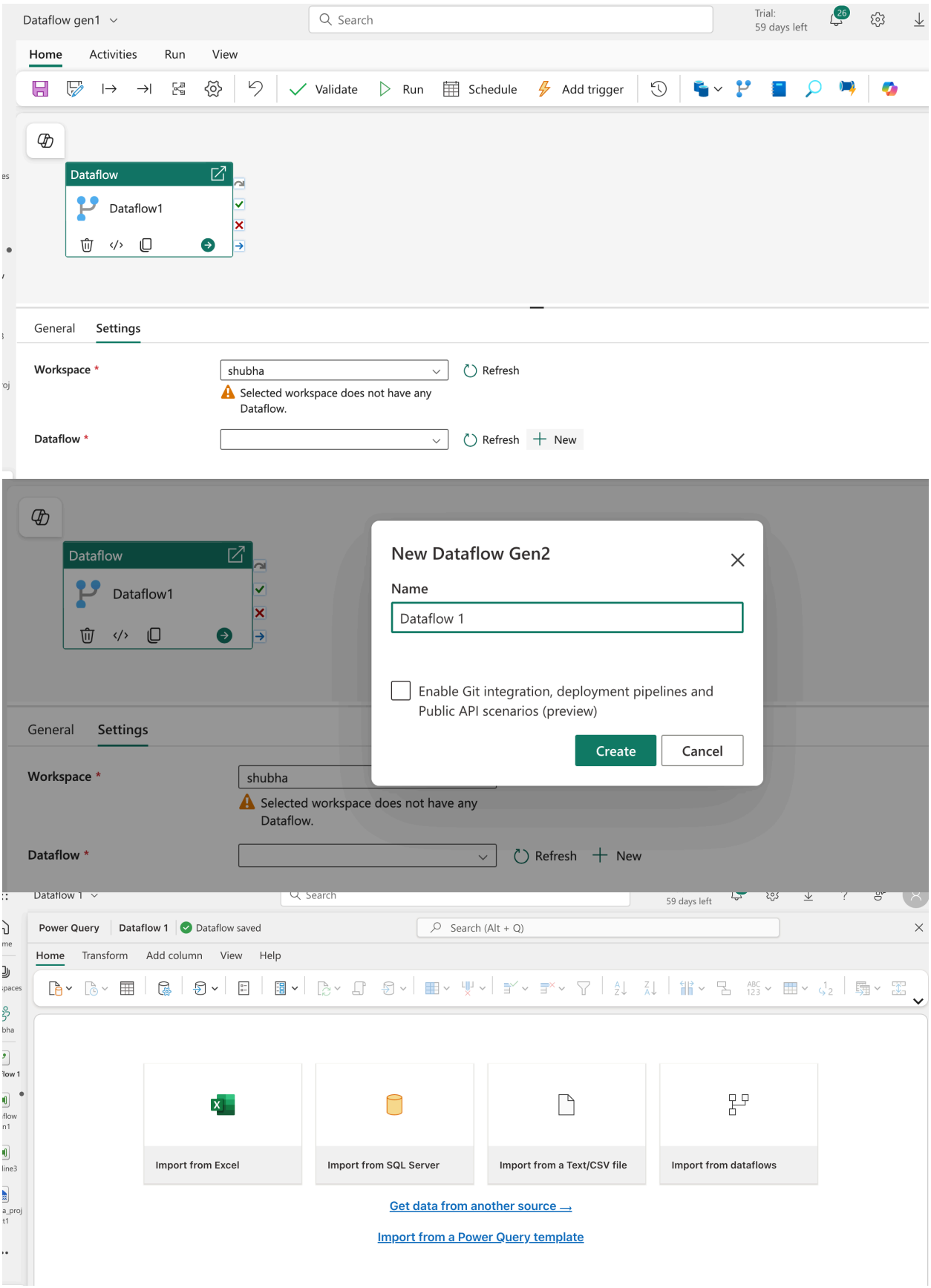


data got successfully loaded in lakehouse

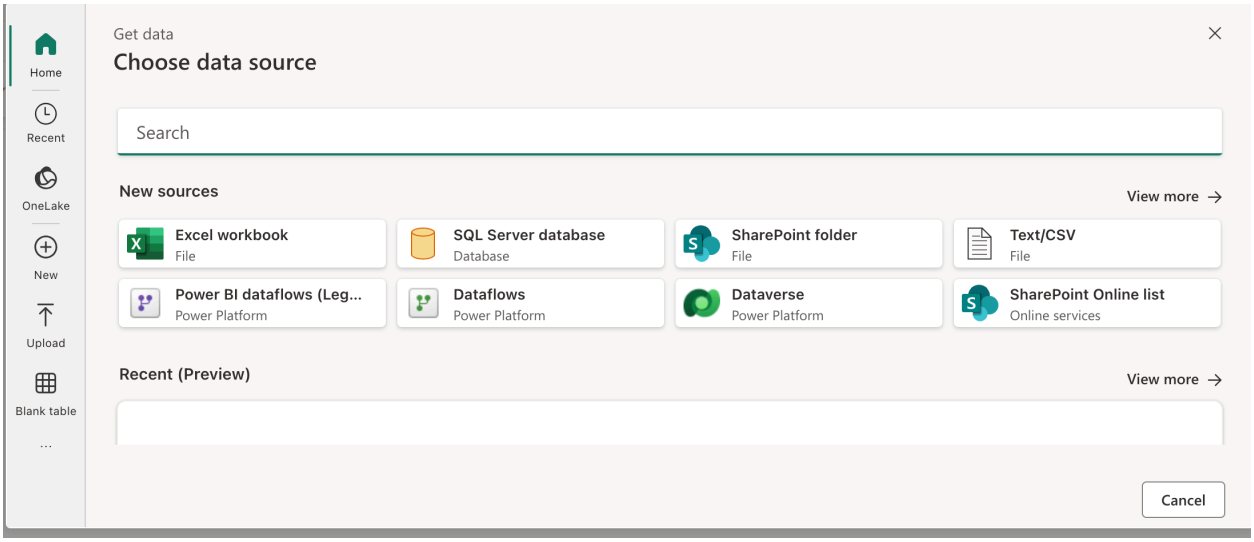


Data cleaning and transformation using dataflow gen1 and storing in warehouse



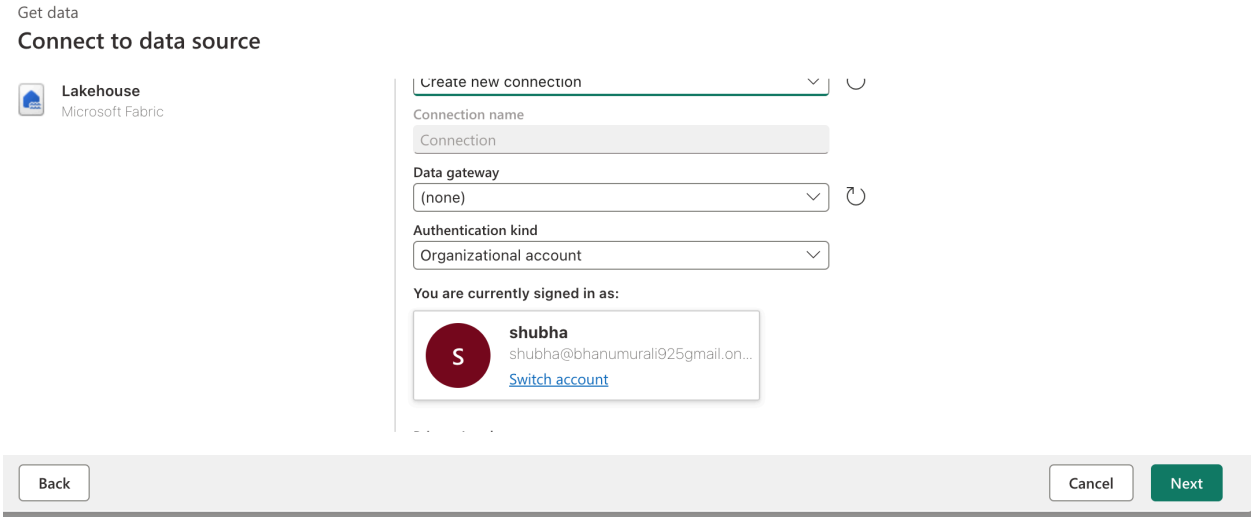

Dataflow gen1
Search
Trial:
59 days left
Home
Activities
Run
View
Validate
Run
Schedule
Add trigger
Dataflow
Dataflow1
General
Settings
Workspace *
shubha
Refresh
Selected workspace does not have any Dataflow.
Dataflow *
Refresh
New
New Dataflow Gen2
Name
Dataflow 1
Enable Git integration, deployment pipelines and Public API scenarios (preview)
Create
Cancel
Power Query
Dataflow 1
Dataflow saved
Search (Alt + Q)
Home
Transform
Add column
View
Help
Import from Excel
Import from SQL Server
Import from a Text/CSV file
Import from dataflows
Get data from another source →
Import from a Power Query template

Now to get the source we need to create a connection , for that click new source → choose source

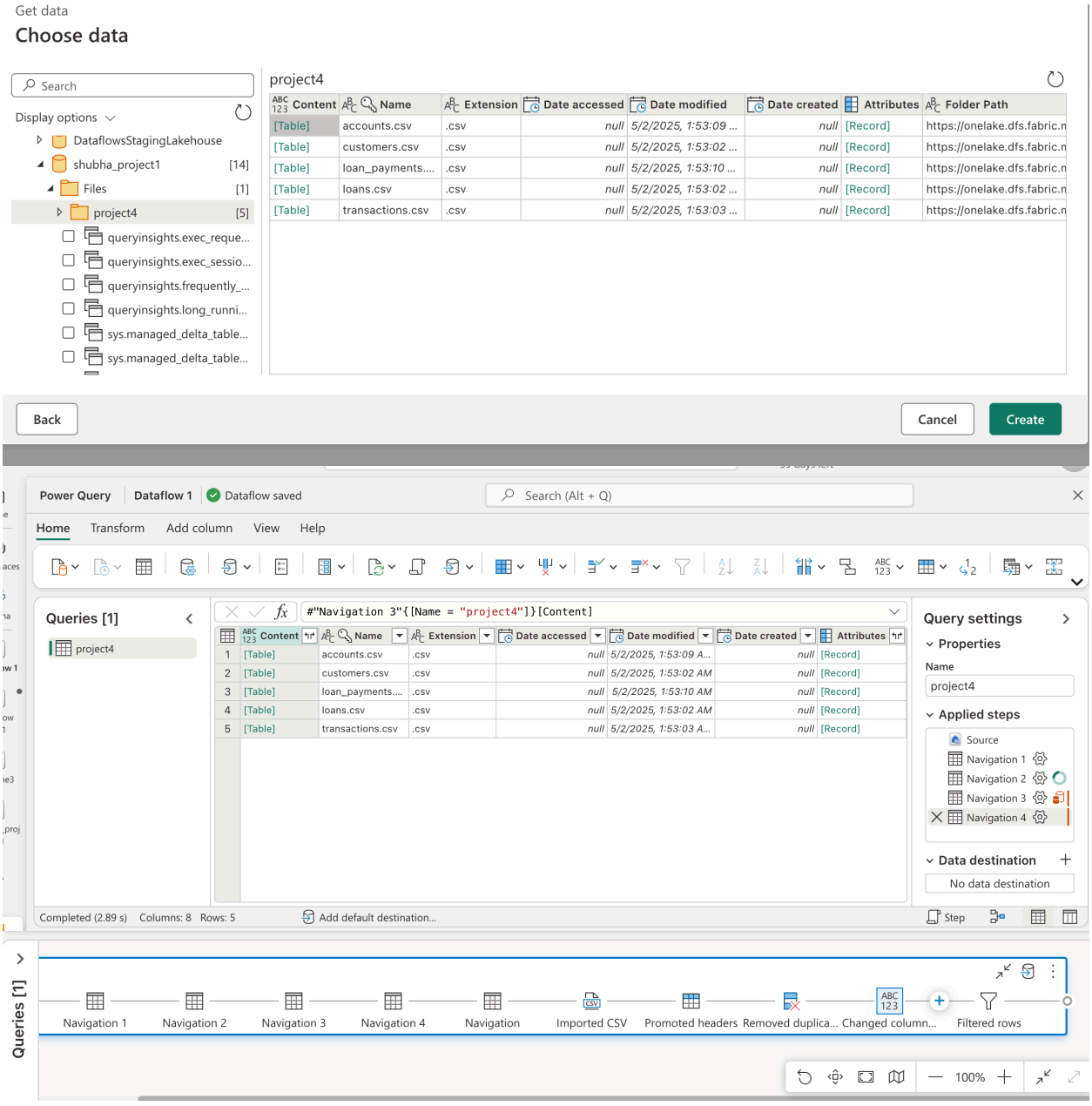


here we can search for any source that we want , I am looking for lakehouse so search it and select it

Once lakehouse is selected , we it create a connection automatically to all the available workspaces

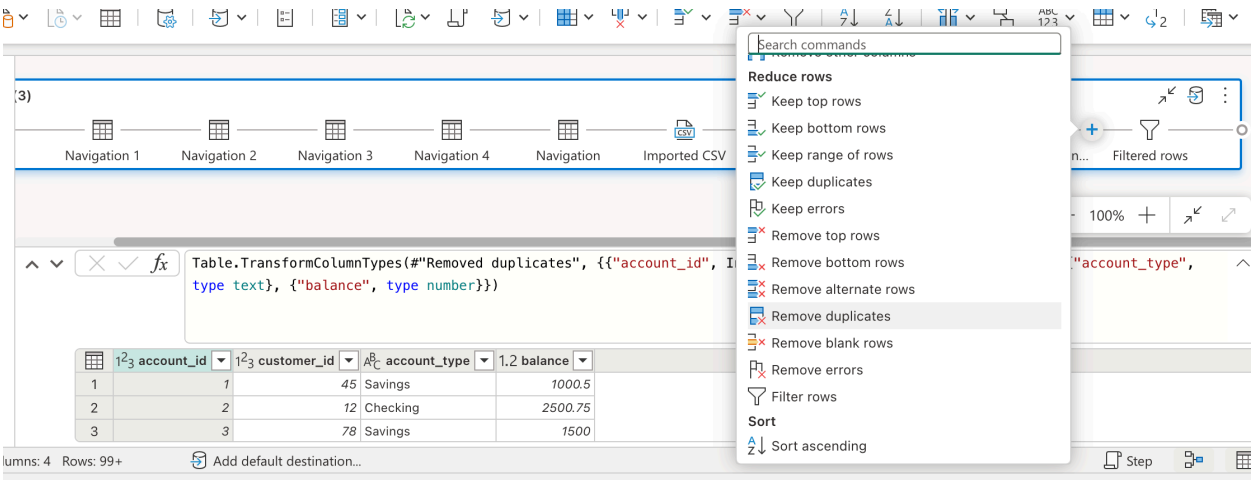


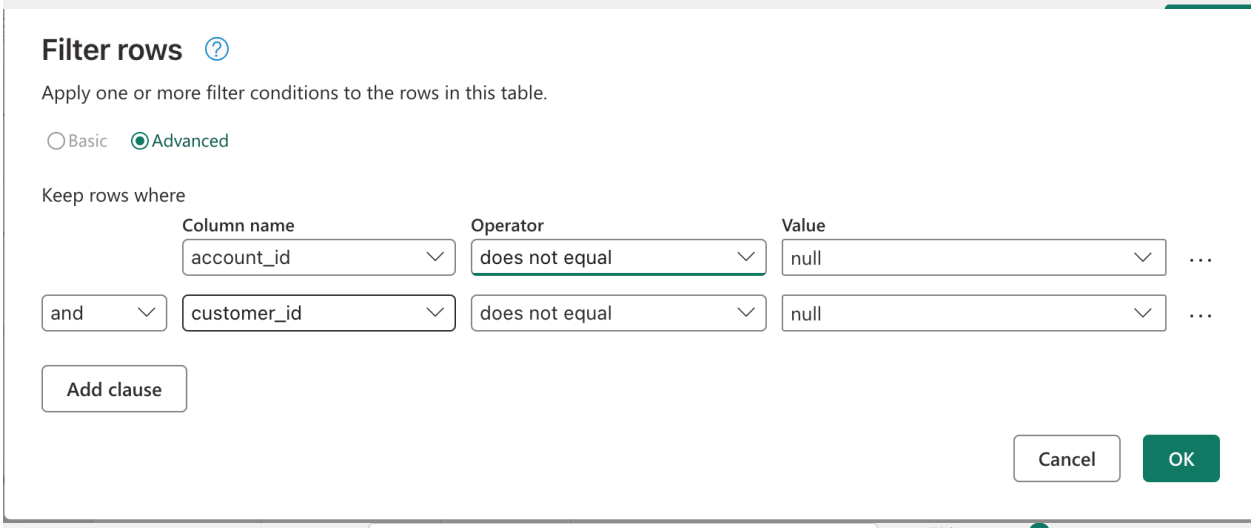
Now we want to select which workspace lakehouse we want and what is the source from the lakehouse file or table

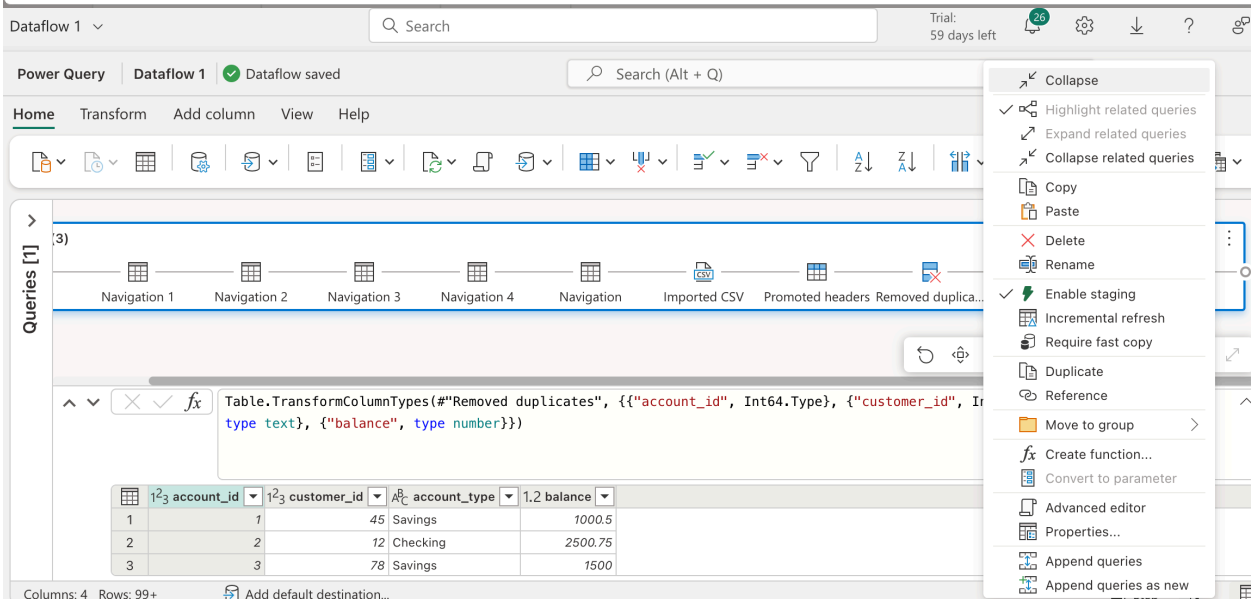

Get data
Choose data
Search
Display options
DataflowsStagingLakehouse
shubha_project1 [14]
Files [1]
project4 [5]
queryinsights.exec_reque...
queryinsights.exec_sessio...
queryinsights.frequently_...
queryinsights.long_runni...
sys.managed_delta_table...
sys.managed_delta_table...
project4
Content | Name | Extension | Date accessed | Date modified | Date created | Attributes | Folder Path
[Table] accounts.csv .csv null 5/2/2025, 1:53:09 ... null [Record] https://onelake.dfs.fabric.n
[Table] customers.csv .csv null 5/2/2025, 1:53:02 ... null [Record] https://onelake.dfs.fabric.n
[Table] loan_payments.... .csv null 5/2/2025, 1:53:10 ... null [Record] https://onelake.dfs.fabric.n
[Table] loans.csv .csv null 5/2/2025, 1:53:02 ... null [Record] https://onelake.dfs.fabric.n
[Table] transactions.csv .csv null 5/2/2025, 1:53:03 ... null [Record] https://onelake.dfs.fabric.n
Back
Cancel
Create

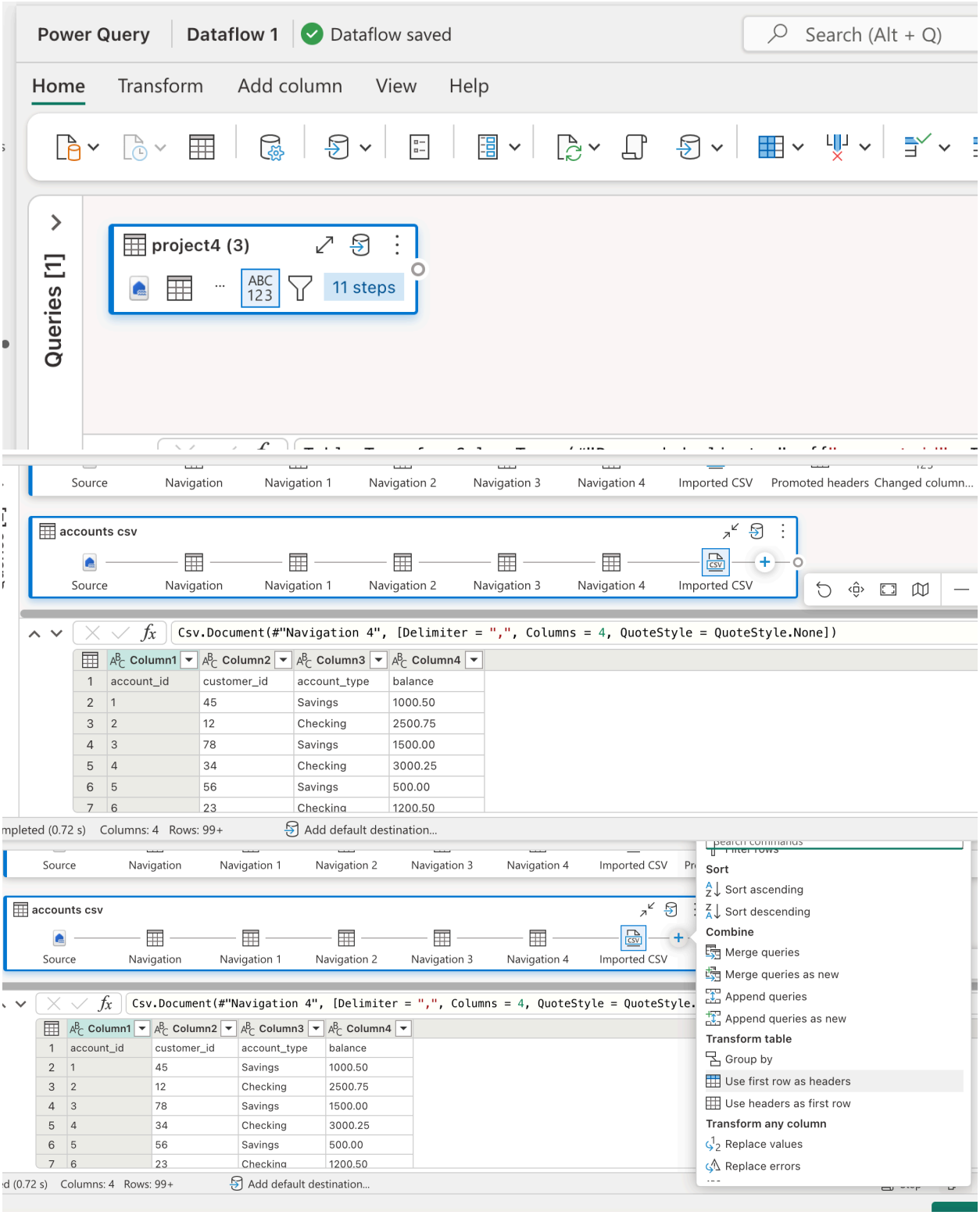
Power Query
Dataflow 1
Dataflow saved
Search (Alt + Q)
Home
Transform
Add column
View
Help
Queries [1]
project4
#"Navigation 3"{[Name = "project4"]}[Content]
Content | Name | Extension | Date accessed | Date modified | Date created | Attributes
1 [Table] accounts.csv .csv null 5/2/2025, 1:53:09 A... null [Record]
2 [Table] customers.csv .csv null 5/2/2025, 1:53:02 AM null [Record]
3 [Table] loan_payments.... .csv null 5/2/2025, 1:53:10 AM null [Record]
4 [Table] loans.csv .csv null 5/2/2025, 1:53:02 AM null [Record]
5 [Table] transactions.csv .csv null 5/2/2025, 1:53:03 A... null [Record]
Query settings
Properties
Name
project4
Applied steps
Source
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Data destination
No data destination
Completed (2.89 s)
Columns: 8
Rows: 5
Add default destination...
Step

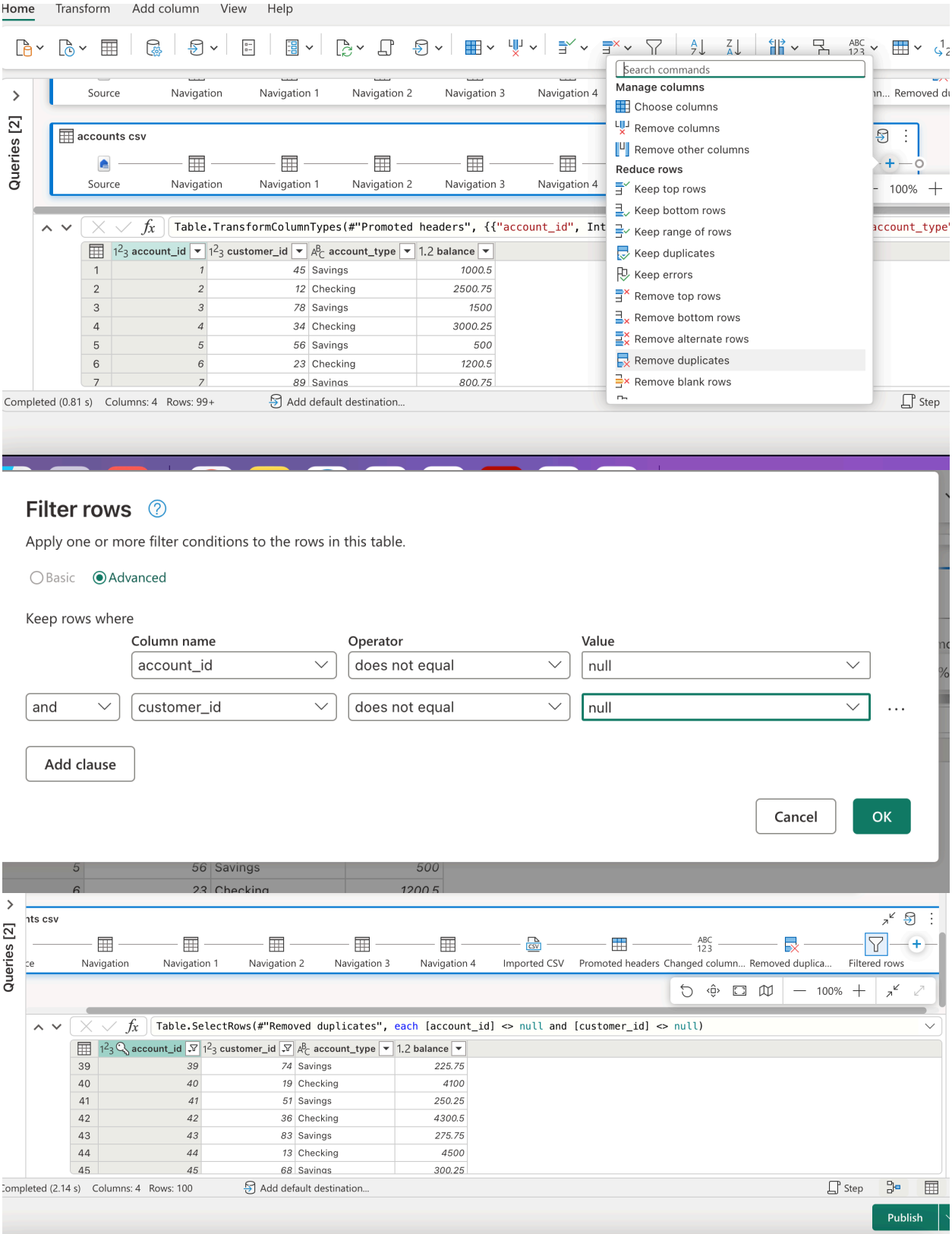
Queries [1]
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Navigation
Imported CSV
Promoted headers
Removed duplica...
Changed column...
Filtered rows
100%

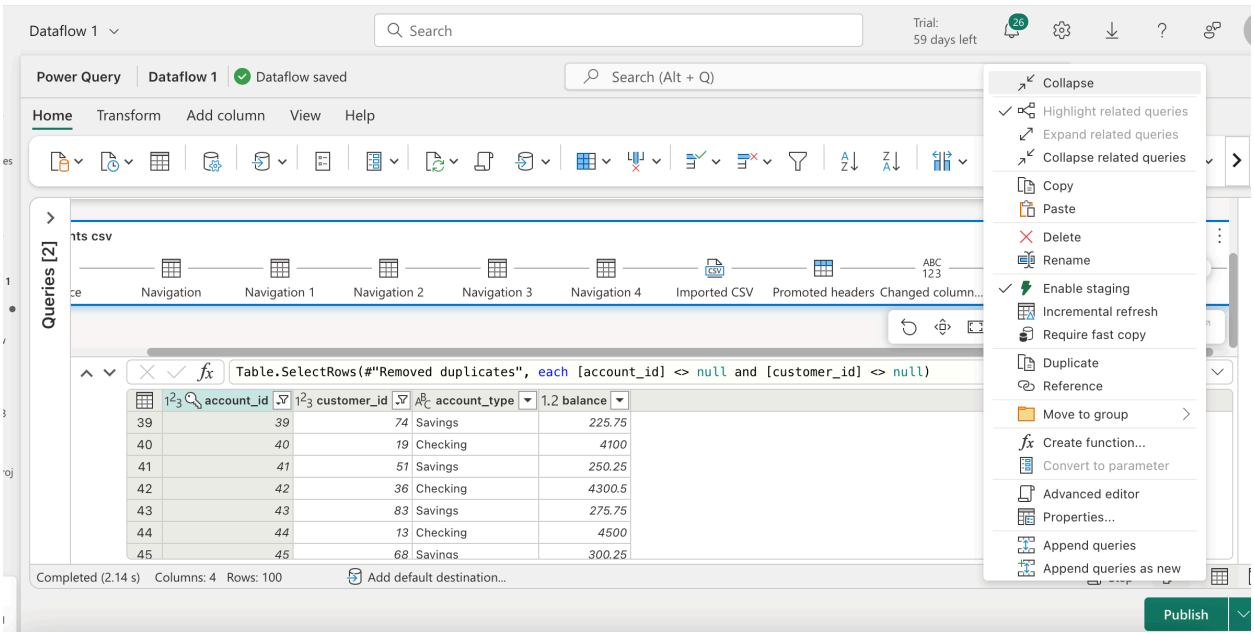

Search commands
Reduce rows
Keep top rows
Keep bottom rows
Keep range of rows
Keep duplicates
Keep errors
Remove top rows
Remove bottom rows
Remove alternate rows
Remove duplicates
Remove blank rows
Remove errors
Filter rows
Sort
Sort ascending
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Navigation
Imported CSV
Filtered rows
100%
Table.TransformColumnTypes(#"Removed duplicates", {{"account_id", I
type text}, {"balance", type number}})
"account_type",
account_id
customer_id
account_type
balance
1 1 45 Savings 1000.5
2 2 12 Checking 2500.75
3 3 78 Savings 1500
Add default destination...
Step


Filter rows
Apply one or more filter conditions to the rows in this table.
Basic
Advanced
Keep rows where
Column name
Operator
Value
account_id
does not equal
null
and
customer_id
does not equal
null
Add clause
Cancel
OK


Dataflow 1
Search
Trial:
59 days left
Power Query
Dataflow 1
Dataflow saved
Search (Alt + Q)
Home
Transform
Add column
View
Help
Queries [1]
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Navigation
Imported CSV
Promoted headers
Removed duplica...
Table.TransformColumnTypes(#"Removed duplicates", {{"account_id", Int64.Type}, {"customer_id", In
type text}, {"balance", type number}})
account_id
customer_id
account_type
balance
1 1 45 Savings 1000.5
2 2 12 Checking 2500.75
3 3 78 Savings 1500
Collapse
Highlight related queries
Expand related queries
Collapse related queries
Copy
Paste
Delete
Rename
Enable staging
Incremental refresh
Require fast copy
Duplicate
Reference
Move to group
Create function...
Convert to parameter
Advanced editor
Properties...
Append queries
Append queries as new
Columns: 4 Rows: 99+
Add default destination...


Power Query
Dataflow 1
Dataflow saved
Search (Alt + Q)
Home
Transform
Add column
View
Help
Queries [1]
project4 (3)
11 steps
Source
Navigation
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Imported CSV
Promoted headers
Changed column...
accounts csv
Csv.Document(#"Navigation 4", [Delimiter = ",", Columns = 4, QuoteStyle = QuoteStyle.None])
Column1
Column2
Column3
Column4
1 account_id customer_id account_type balance
2 1 45 Savings 1000.50
3 2 12 Checking 2500.75
4 3 78 Savings 1500.00
5 4 34 Checking 3000.25
6 5 56 Savings 500.00
7 6 23 Checking 1200.50
Add default destination...
Sort
Sort ascending
Sort descending
Combine
Merge queries
Merge queries as new
Append queries
Append queries as new
Transform table
Group by
Use first row as headers
Use headers as first row
Transform any column
Replace values
Replace errors


Home
Transform
Add column
View
Help
Search commands
Manage columns
Choose columns
Remove columns
Remove other columns
Reduce rows
Keep top rows
Keep bottom rows
Keep range of rows
Keep duplicates
Keep errors
Remove top rows
Remove bottom rows
Remove alternate rows
Remove duplicates
Remove blank rows
Queries [2]
accounts csv
Source
Navigation
Navigation 1
Navigation 2
Navigation 3
Navigation 4
Table.TransformColumnTypes(#"Promoted headers", {{"account_id", Int
account_id
customer_id
account_type
balance
1 1 45 Savings 1000.5
2 2 12 Checking 2500.75
3 3 78 Savings 1500
4 4 34 Checking 3000.25
5 5 56 Savings 500
6 6 23 Checking 1200.5
7 7 89 Savings 800.75
Completed (0.81 s)
Columns: 4
Rows: 99+
Add default destination...
Step
Filter rows
Apply one or more filter conditions to the rows in this table.
Basic
Advanced
Keep rows where
Column name
Operator
Value
account_id
does not equal
null
and
customer_id
does not equal
null
Add clause
Cancel
OK
Imported CSV
Promoted headers
Changed column...
Removed duplica...
Filtered rows
Table.SelectRows(#"Removed duplicates", each [account_id] <> null and [customer_id] <> null)
39 39 74 Savings 225.75
40 40 19 Checking 4100
41 41 51 Savings 250.25
42 42 36 Checking 4300.5
43 43 83 Savings 275.75
44 44 13 Checking 4500
45 45 68 Savings 300.25
Completed (2.14 s)
Columns: 4
Rows: 100
Publish



add a destination for warehouse

Merge

Select a table and matching columns to create a merged table.

accounts csv

account_id	customer_id	account_type	balance
2	12	Checking	2500.75
3	78	Savings	1500
4	34	Checking	3000.25
5	56	Savings	500

Right table for merge *

customers csv

customer_id	first_name	last_name	address	city	state	
1	John	Doe	123 Elm St	Toronto	ON	M4

The selection matches 88 of 100 rows from the first table

Cancel OK

Merge

Select a table and matching columns to create a merged table.

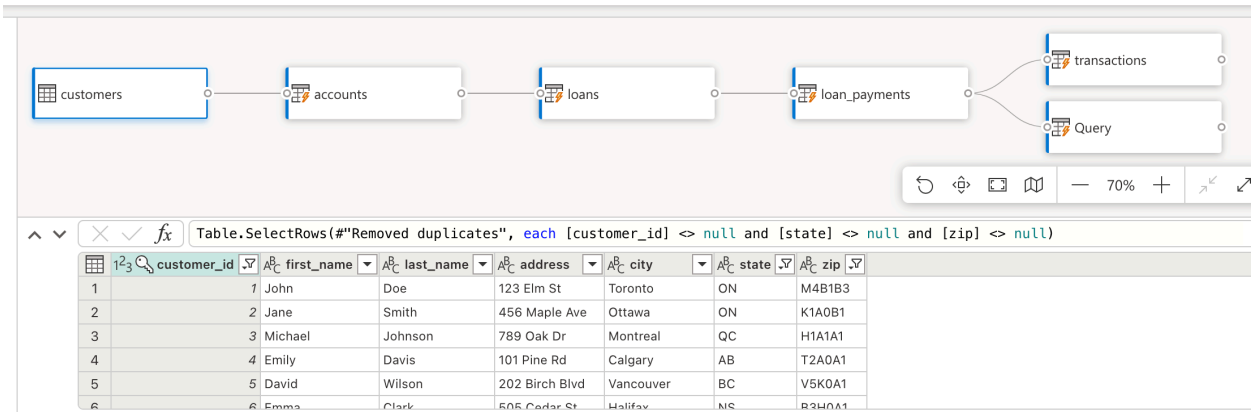
customer_id	first_name	last_name	address	city	state	
1	John	Doe	123 Elm St	Toronto	ON	M4
2	Jane	Smith	456 Maple Ave	Ottawa	ON	K1A
3	Michael	Johnson	789 Oak Dr	Montreal	QC	H1A
4	Emily	Davis	101 Pine Rd	Calgary	AB	T2A
5	David	Wilson	202 Birch Blvd	Vancouver	BC	V5K

Join kind

Left outer | Right outer | Full outer | Inner | Left anti | Right anti

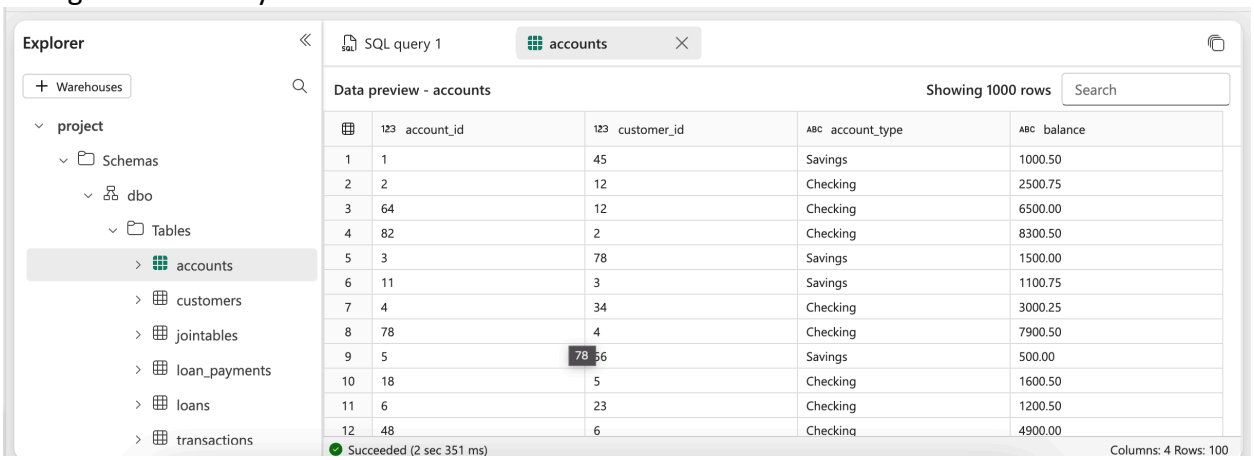
The selection matches 88 of 100 rows from the first table

Cancel OK



	customer_id	first_name	last_name	address	city	state	zip
1	1	John	Doe	123 Elm St	Toronto	ON	M4B1B3
2	2	Jane	Smith	456 Maple Ave	Ottawa	ON	K1A0B1
3	3	Michael	Johnson	789 Oak Dr	Montreal	QC	H1A1A1
4	4	Emily	Davis	101 Pine Rd	Calgary	AB	T2A0A1
5	5	David	Wilson	202 Birch Blvd	Vancouver	BC	V5K0A1

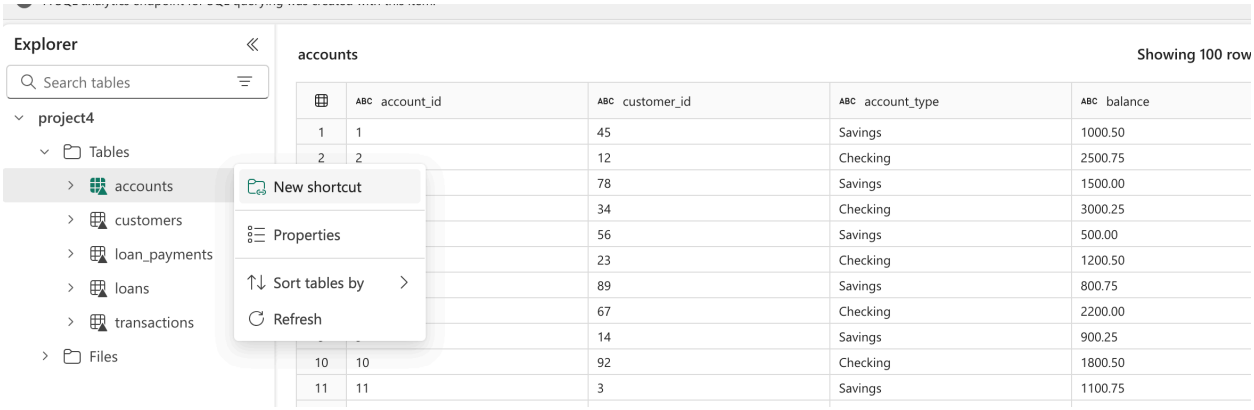
data got successfully loaded in data warehouse



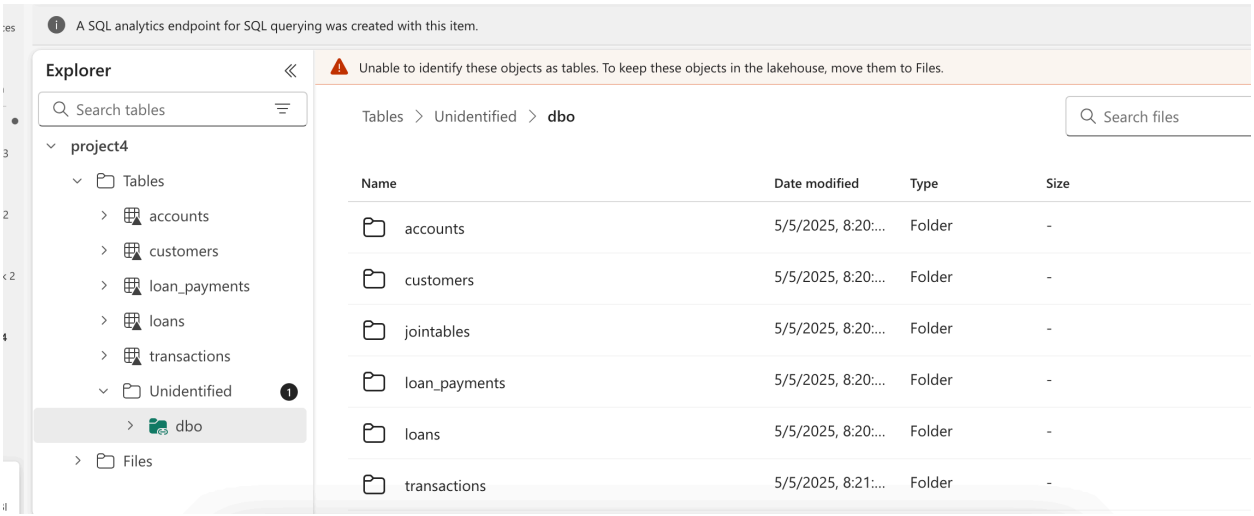
	account_id	customer_id	account_type	balance
1	1	45	Savings	1000.50
2	2	12	Checking	2500.75
3	64	12	Checking	6500.00
4	82	2	Checking	8300.50
5	3	78	Savings	1500.00
6	11	3	Savings	1100.75
7	4	34	Checking	3000.25
8	78	4	Checking	7900.50
9	5	56	Savings	500.00
10	18	5	Checking	1600.50
11	6	23	Checking	1200.50
12	48	6	Checking	4900.00

Transforming data into SCD type 1 logic

To access the tables from warehouse create shortcut in lake house



	account_id	customer_id	account_type	balance
1	1	45	Savings	1000.50
2	2	12	Checking	2500.75
		78	Savings	1500.00
		34	Checking	3000.25
		56	Savings	500.00
		23	Checking	1200.50
		89	Savings	800.75
		67	Checking	2200.00
		14	Savings	900.25
10	10	92	Checking	1800.50
11	11	3	Savings	1100.75



SCDTYPE 1 logic using Fabric Notebook

Read Source Delta Table

Register it as a temporary view (source_view) for optional SQL querying.

```
1  df_source = spark.read.format("delta").load("Tables/dbo/accounts")
2  df_source.createOrReplaceTempView("source_view")
3  bo/accounts"
```

Spark jobs (1 of 1 succeeded)

[1] ✓ 1 sec - Comma executed in 3 sec 927 ms by shubha on 12:07:10 AM, 5/06/25 PySpark (Python)

Spark jobs (1 of 1 succeeded) Resources Log

Create Target SCD Table (If Not Exists)

```
1  create_table_query = """
2  CREATE TABLE Account_SCD (
3      account_id int,
4      customer_id int,
5      account_type string,
6      balance float,
7      hash_key BIGINT,
8      created_by STRING,
9      created_date TIMESTAMP,
10     updated_by STRING,
11     updated_date TIMESTAMP
12 )
13 USING DELTA
14 LOCATION 'Tables/Gold_layer/Account_SCD'
15 """
16 # Execute the query to create the table
17 spark.sql(create_table_query)
```

[2] ✓ 20 sec - Command executed in 20 sec 613 ms by shubha on 12:08:38 AM, 5/06/25 PySpark (Python)

Spark jobs (1 of 1 succeeded) Resources Log

Load the Target Delta Table

```
from delta.tables import DeltaTable

target_path = "Tables/Gold_layer/Account_SCD"
delta_target = DeltaTable.forPath(spark, target_path)
```

[3] ✓ <1 sec - Command executed in 922 ms by shubha on 12:09:16 AM, 5/06/25 PySpark (Python)

Generate Hash Key for Source Data

Markdown preview

```
from pyspark.sql.functions import *
df_src1= df_source.withColumn("hash_key",crc32(concat(*df_source.columns)))
```

[4] ✓ <1 sec - Command executed in 356 ms by shubha on 12:09:43 AM, 5/06/25 PySpark (Python)

Log

Find Changed or New Records

```
df_src1=df_src1.alias("src").join(delta_target.toDF().alias("tgt"),
((col("src.account_id")==col("tgt.account_id"))&
(col("src.hash_key")==col("tgt.hash_key"))),"anti").select(col("src.*"))

```

[5] ✓ <1 sec - Command executed in 357 ms by shubha on 12:10:21 AM, 5/06/25 PySpark (Python)

```
from pyspark.sql.functions import col

delta_target.alias("tgt").merge(df_src1.alias("src"),
"tgt.account_id = src.account_id")\
    .whenMatchedUpdate(set={"tgt.account_id":"src.account_id",
    "tgt.customer_id":"src.customer_id","tgt.account_type":"src.account_type",
    "tgt.balance":"src.balance","tgt.hash_key":"src.hash_key",
    "tgt.updated_date":current_timestamp(),"tgt.updated_by":lit("databricks_Updated")})\
        .whenNotMatchedInsert(values={"tgt.account_id":"src.account_id",
        "tgt.customer_id":"src.customer_id","tgt.account_type":"src.account_type",
        "tgt.balance":"src.balance","tgt.hash_key":"src.hash_key",
        "tgt.created_date":current_timestamp(),
        "tgt.created_by":lit("databricks"),"tgt.updated_date":current_timestamp(),
        "tgt.updated_by":lit("databricks")}).execute()
display(spark.read.format("delta").option("header","true").load(target_path))
```

[6] ✓ 14 sec - Command executed in 14 sec 100 ms by shubha on 12:12:35 AM, 5/06/25 PySpark (Python)

Spark jobs (20 of 20 succeeded) Resources Log

```
16  display(spark.read.format("delta").option("header","true").load(target_path))
```

[6] ✓ 14 sec - Command executed in 14 sec 100 ms by shubha on 12:12:35 AM, 5/06/25 PySpark (Python)

Spark jobs (20 of 20 succeeded) Resources Log

Table New chart 9 columns, 100 rows

Table view Download Search

account_id	customer_id	account_type	balance	hash_key	created_by	created_date	updated_by	updated
1	45	Savings	1000.5	4261402674	databricks	2025-05-06 07:1...	databricks	2025-05-06
2	12	Checking	2500.75	796571617	databricks	2025-05-06 07:1...	databricks	2025-05-06
64	12	Checking	6500.0	4285205776	databricks	2025-05-06 07:1...	databricks	2025-05-06
82	2	Checking	8300.5	1578107828	databricks	2025-05-06 07:1...	databricks	2025-05-06
3	78	Savings	1500.0	3519015933	databricks	2025-05-06 07:1...	databricks	2025-05-06
11	3	Savings	1100.75	744264830	databricks	2025-05-06 07:1...	databricks	2025-05-06
4	34	Checking	3000.25	761699333	databricks	2025-05-06 07:1...	databricks	2025-05-06
78	4	Checking	7900.5	2650882798	databricks	2025-05-06 07:1...	databricks	2025-05-06
5	56	Savings	500.0	2866974084	databricks	2025-05-06 07:1...	databricks	2025-05-06
18	5	Checking	1600.5	2895374357	databricks	2025-05-06 07:1...	databricks	2025-05-06

Inspect

```
1   create_table_query = """
2   CREATE TABLE Customer_SCD1 (
3       customer_id int,
4       first_name string,
5       last_name string,
6       address string,
7       city string,
8       state string,
9       zip string,
10      hash_key BIGINT,
11      created_by STRING,
12      created_date TIMESTAMP,
13      updated_by STRING,
14      updated_date TIMESTAMP
15  )
16  USING DELTA
17  LOCATION 'Tables/Gold_layer/Customer_SCD1'
18  """
19  # Execute the query to create the table
20  spark.sql(create_table_query)
```

[1] ✓ - Session ready in 12 sec 234 ms. Command executed in 24 sec 586 ms by shubha on 5:46:56 PM, 5/05/25 PySpark (Python)

```
DataFrame[]
```

```python
create_table_query = """
CREATE TABLE Customer_SCD1 (
    customer_id int,
    first_name string,
    last_name string,
    address string,
    city string,
    state string,
    zip string,
    hash_key BIGINT,
    created_by STRING,
    created_date TIMESTAMP,
    updated_by STRING,
    updated_date TIMESTAMP
)
USING DELTA
LOCATION 'Tables/Gold_layer/Customer_SCD1'
"""
# Execute the query to create the table
spark.sql(create_table_query)
```

[8] ✓ 6 sec - Command executed in 6 sec 213 ms by shubha on 12:15:42 AM, 5/06/25 PySpark (Pyth

```python
from pyspark.sql.functions import *
df_source = spark.read.format("delta").load("Tables/dbo/customers")
df_source.createOrReplaceTempView("source_view")
src_path="Tables/dbo/customers"
print(src_path)
```

[2] ✓ - Command executed in 1 sec 520 ms by shubha on 5:47:06 PM, 5/05/25 PySpark (Python)

```python

df_src1=df_source.withColumn("hash_key",crc32(concat(*df_source.columns)))

```

3] ✓ <1 sec - Command executed in 348 ms by shubha on 12:16:23 AM, 5/06/25 PySpark (Python)

..

```python

from delta.tables import DeltaTable
tgt_path = "Tables/Gold_layer/Customer_SCD1"
dbtable = DeltaTable.forPath(spark, tgt_path)
dbtable.toDF().show()

```

[4] ✓ - Command executed in 3 sec 509 ms by shubha on 5:47:58 PM, 5/05/25 PySpark (Python)

```
+-----------+----------+---------+-------+----+-----+---+--------+----------+-----------+-----
-----+------------+
|customer_id|first_name|last_name|address|city|state|zip|hash_key|created_by|created_date|updat
ed_by|updated_date|
+-----------+----------+---------+-------+----+-----+---+--------+----------+-----------+-----
-----+------------+
+-----------+----------+---------+-------+----+-----+---+--------+----------+-----------+-----
-----+------------+
```

```
1
2  df_src1=df_src1.alias("src").join(dbtable.toDF().alias("tgt"),
3  ((col("src.customer_id") == col("tgt.customer_id")) & (col("src.hash_key") == col("tgt.has
4  "anti").select(col("src.*"))
5
```

<1 sec - Command executed in 367 ms by shubha on 12:29:32 AM, 5/06/25 PySpark (Python)

```
1  dbtable.alias("tgt").merge(df_src1.alias("src"),"tgt.customer_id = src.customer_id")\
2      .whenMatchedUpdate(set={"tgt.customer_id":"src.customer_id","tgt.first_name":"src.firs
3          .whenNotMatchedInsert(values={"tgt.customer_id":"src.customer_id","tgt.first_name"
4
5
```

[34] 2 sec - Command executed in 2 sec 462 ms by shubha on 12:30:34 AM, 5/06/25 PySpark (Python)

Spark jobs (9 of 9 succeeded) Resources Log

```
1  display(spark.read.format("delta").option("header","true").load(tgt_path))
```

[7] - Command executed in 3 sec 541 ms by shubha on 5:50:14 PM, 5/05/25 PySpark (Python)

Table New chart 12 columns, 86 rows

Table view Download Search

customer_id	first_name	last_name	address	city	state	zip	hash_key	created_by	created_date
	John	Doe	123 Elm St	Toronto	ON	M4B1B3	2373314683	databricks	2025-05-06 00:4...
	Jane	Smith	456 Maple A...	Ottawa	ON	K1A0B1	3911254336	databricks	2025-05-06 00:4...
	Michael	Johnson	789 Oak Dr	Montreal	QC	H1A1A1	4114944968	databricks	2025-05-06 00:4...
	Emily	Davis	101 Pine Rd	Calgary	AB	T2A0A1	165372536	databricks	2025-05-06 00:4...
	David	Wilson	202 Birch Blvd	Vancouver	BC	V5K0A1	3284019540	databricks	2025-05-06 00:4...
	Emma	Clark	505 Cedar St	Halifax	NS	B3H0A1	4268191859	databricks	2025-05-06 00:4...
	James	Martinez	606 Spruce Ln	Winnipeg	MB	R3C0A1	4278935663	databricks	2025-05-06 00:4...
	Olivia	Garcia	707 Fir St	Edmonton	AB	T5A0A1	443479193	databricks	2025-05-06 00:4...
	William	Lopez	808 Redwoo...	Victoria	BC	V8W0A1	4188371369	databricks	2025-05-06 00:4...

Inspect

A SQL analytics endpoint for SQL querying was created with this item.

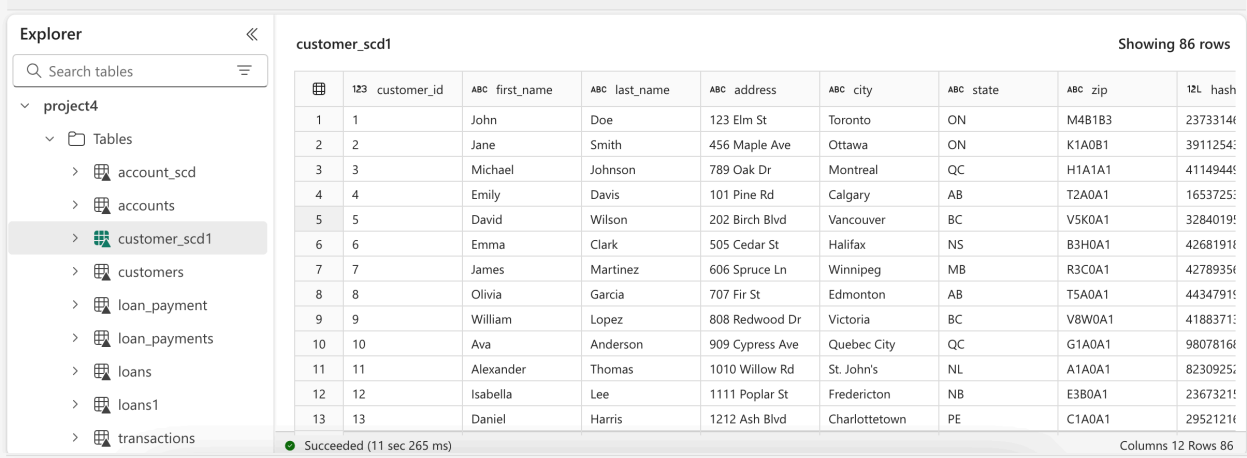
Explorer

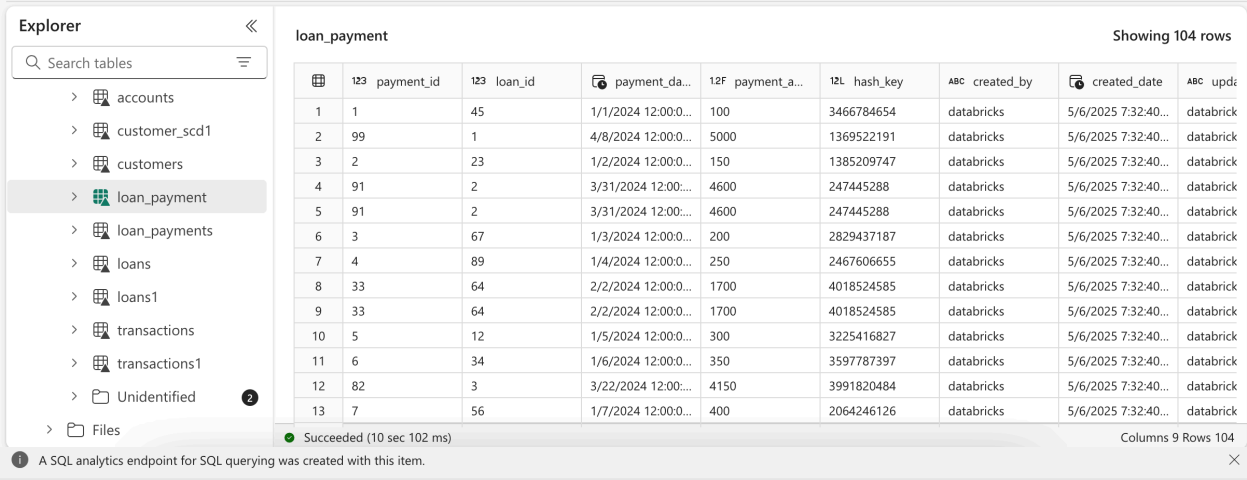
Search tables

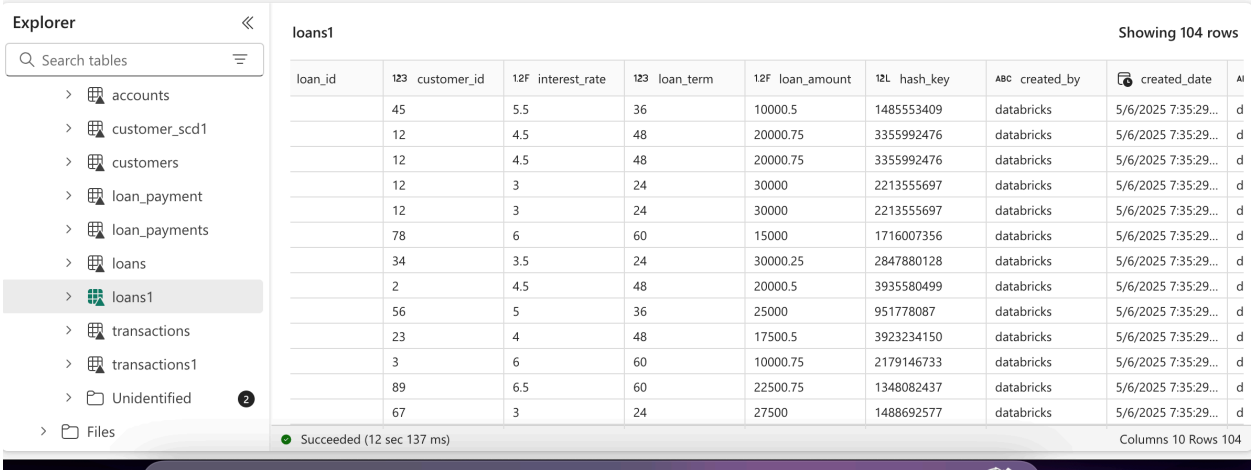
- project4
  - Tables
    - account_scd
    - accounts
    - customer_scd1
    - customers
    - loan_payment
    - loan_payments
    - loans
    - loans1
    - transactions

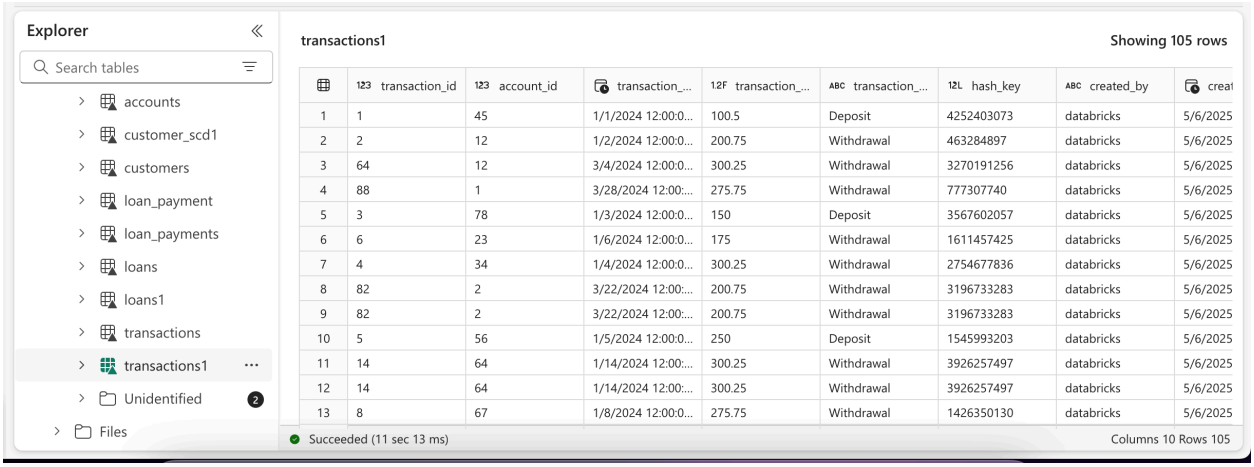
account_scd Showing 100 rows

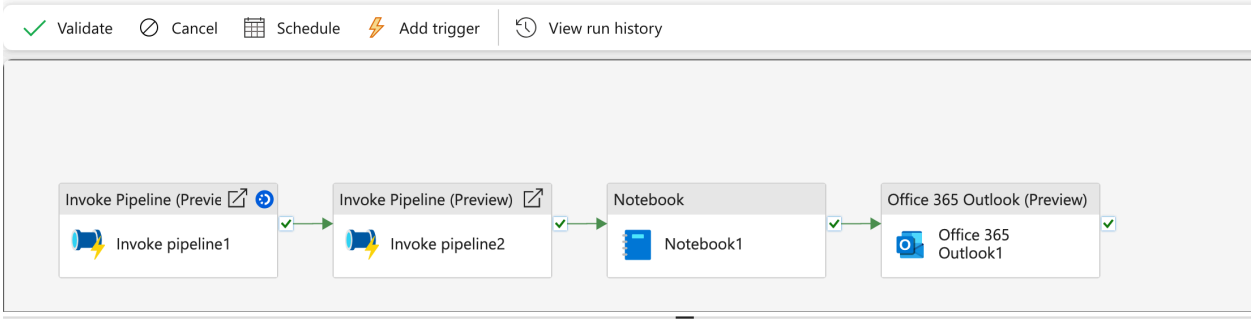
	account_id	customer_id	account_type	balance	hash_key	created_by	created_date	upda
1	1	45	Savings	1000.5	4261402674	databricks	5/6/2025 7:12:21...	databrick
2	2	12	Checking	2500.75	796571617	databricks	5/6/2025 7:12:21...	databrick
3	64	12	Checking	6500	4285205776	databricks	5/6/2025 7:12:21...	databrick
4	82	2	Checking	8300.5	1578107828	databricks	5/6/2025 7:12:21...	databrick
5	3	78	Savings	1500	3519015933	databricks	5/6/2025 7:12:21...	databrick
6	11	3	Savings	1100.75	744264830	databricks	5/6/2025 7:12:21...	databrick
7	4	34	Checking	3000.25	744264830	databricks	5/6/2025 7:12:21...	databrick
8	78	4	Checking	7900.5	2650882798	databricks	5/6/2025 7:12:21...	databrick
9	5	56	Savings	500	2866974084	databricks	5/6/2025 7:12:21...	databrick
10	18	5	Checking	1600.5	2895374357	databricks	5/6/2025 7:12:21...	databrick
11	6	23	Checking	1200.5	3079739098	databricks	5/6/2025 7:12:21...	databrick
12	48	6	Checking	4900	3216528439	databricks	5/6/2025 7:12:21...	databrick
13	7	89	Savings	800.75	74260363	databricks	5/6/2025 7:12:21...	databrick

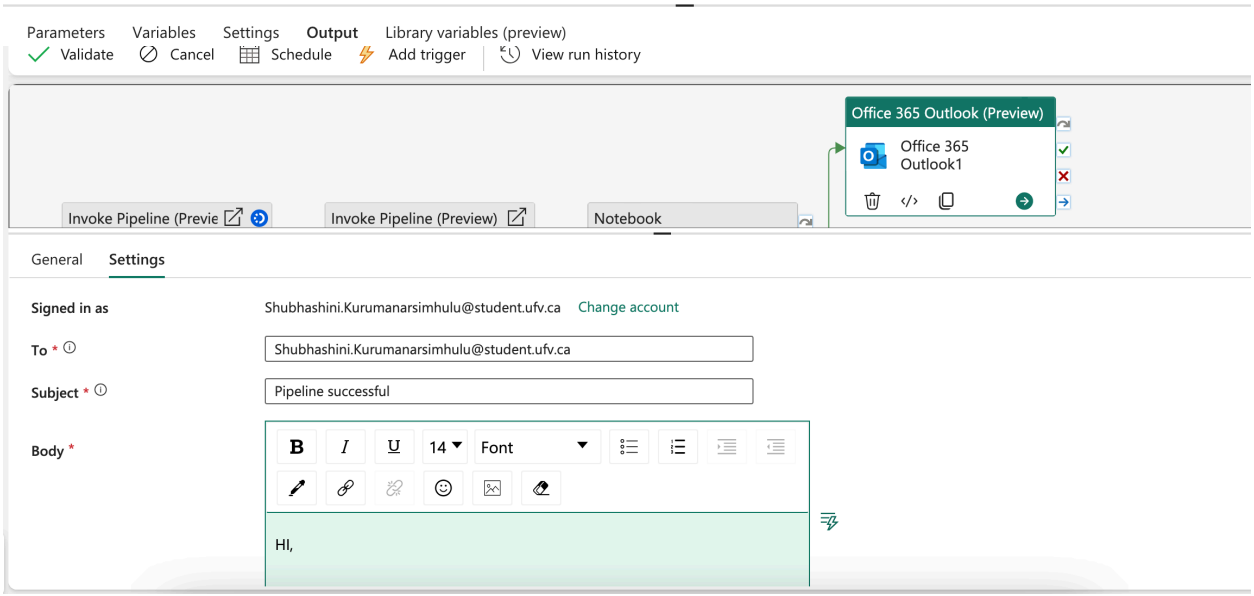

Explorer
Search tables
project4
Tables
account_scd
accounts
customer_scd1
customers
loan_payment
loan_payments
loans
loans1
transactions
customer_scd1
Showing 86 rows
customer_id
first_name
last_name
address
city
state
zip
hash
1 1 John Doe 123 Elm St Toronto ON M4B1B3
2 2 Jane Smith 456 Maple Ave Ottawa ON K1A0B1
3 3 Michael Johnson 789 Oak Dr Montreal QC H1A1A1
4 4 Emily Davis 101 Pine Rd Calgary AB T2A0A1
5 5 David Wilson 202 Birch Blvd Vancouver BC V5K0A1
6 6 Emma Clark 505 Cedar St Halifax NS B3H0A1
7 7 James Martinez 606 Spruce Ln Winnipeg MB R3C0A1
8 8 Olivia Garcia 707 Fir St Edmonton AB T5A0A1
9 9 William Lopez 808 Redwood Dr Victoria BC V8W0A1
10 10 Ava Anderson 909 Cypress Ave Quebec City QC G1A0A1
11 11 Alexander Thomas 1010 Willow Rd St. John's NL A1A0A1
12 12 Isabella Lee 1111 Poplar St Fredericton NB E3B0A1
13 13 Daniel Harris 1212 Ash Blvd Charlottetown PE C1A0A1
Succeeded (11 sec 265 ms)
Columns 12 Rows 86


Explorer
Search tables
accounts
customer_scd1
customers
loan_payment
loan_payments
loans
loans1
transactions
transactions1
Unidentified
Files
loan_payment
Showing 104 rows
payment_id
loan_id
payment_da...
payment_a...
hash_key
created_by
created_date
upda
1 1 45 1/1/2024 12:00:0... 100 3466784654 databricks 5/6/2025 7:32:40... databrick
2 99 1 4/8/2024 12:00:0... 5000 1369522191 databricks 5/6/2025 7:32:40... databrick
3 2 23 1/2/2024 12:00:0... 150 1385209747 databricks 5/6/2025 7:32:40... databrick
4 91 2 3/31/2024 12:00:... 4600 247445288 databricks 5/6/2025 7:32:40... databrick
5 91 2 3/31/2024 12:00:... 4600 247445288 databricks 5/6/2025 7:32:40... databrick
6 3 67 1/3/2024 12:00:0... 200 2829437187 databricks 5/6/2025 7:32:40... databrick
7 4 89 1/4/2024 12:00:0... 250 2467606655 databricks 5/6/2025 7:32:40... databrick
8 33 64 2/2/2024 12:00:0... 1700 4018524585 databricks 5/6/2025 7:32:40... databrick
9 33 64 2/2/2024 12:00:0... 1700 4018524585 databricks 5/6/2025 7:32:40... databrick
10 5 12 1/5/2024 12:00:0... 300 3225416827 databricks 5/6/2025 7:32:40... databrick
11 6 34 1/6/2024 12:00:0... 350 3597787397 databricks 5/6/2025 7:32:40... databrick
12 82 3 3/22/2024 12:00:... 4150 3991820484 databricks 5/6/2025 7:32:40... databrick
13 7 56 1/7/2024 12:00:0... 400 2064246126 databricks 5/6/2025 7:32:40... databrick
Succeeded (10 sec 102 ms)
Columns 9 Rows 104
A SQL analytics endpoint for SQL querying was created with this item.


Explorer
Search tables
accounts
customer_scd1
customers
loan_payment
loan_payments
loans
loans1
transactions
transactions1
Unidentified
Files
loans1
Showing 104 rows
loan_id
customer_id
interest_rate
loan_term
loan_amount
hash_key
created_by
created_date
45 5.5 36 10000.5 1485553409 databricks 5/6/2025 7:35:29...
12 4.5 48 20000.75 3355992476 databricks 5/6/2025 7:35:29...
12 4.5 48 20000.75 3355992476 databricks 5/6/2025 7:35:29...
12 3 24 30000 2213555697 databricks 5/6/2025 7:35:29...
12 3 24 30000 2213555697 databricks 5/6/2025 7:35:29...
78 6 60 15000 1716007356 databricks 5/6/2025 7:35:29...
34 3.5 24 30000.25 2847880128 databricks 5/6/2025 7:35:29...
2 4.5 48 20000.5 3935580499 databricks 5/6/2025 7:35:29...
56 5 36 25000 951778087 databricks 5/6/2025 7:35:29...
23 4 48 17500.5 3923234150 databricks 5/6/2025 7:35:29...
3 6 60 10000.75 2179146733 databricks 5/6/2025 7:35:29...
89 6.5 60 22500.75 1348082437 databricks 5/6/2025 7:35:29...
67 3 24 27500 1488692577 databricks 5/6/2025 7:35:29...
Succeeded (12 sec 137 ms)
Columns 10 Rows 104


Explorer
Search tables
accounts
customer_scd1
customers
loan_payment
loan_payments
loans
loans1
transactions
transactions1
Unidentified
Files
transactions1
Showing 105 rows
transaction_id
account_id
transaction_...
transaction_...
transaction_...
hash_key
created_by
1 1 45 1/1/2024 12:00:0... 100.5 Deposit 4252403073 databricks 5/6/2025
2 2 12 1/2/2024 12:00:0... 200.75 Withdrawal 463284897 databricks 5/6/2025
3 64 12 3/4/2024 12:00:0... 300.25 Withdrawal 3270191256 databricks 5/6/2025
4 88 1 3/28/2024 12:00:... 275.75 Withdrawal 777307740 databricks 5/6/2025
5 3 78 1/3/2024 12:00:0... 150 Deposit 3567602057 databricks 5/6/2025
6 6 23 1/6/2024 12:00:0... 175 Withdrawal 1611457425 databricks 5/6/2025
7 4 34 1/4/2024 12:00:0... 300.25 Withdrawal 2754677836 databricks 5/6/2025
8 82 2 3/22/2024 12:00:... 200.75 Withdrawal 3196733283 databricks 5/6/2025
9 82 2 3/22/2024 12:00:... 200.75 Withdrawal 3196733283 databricks 5/6/2025
10 5 56 1/5/2024 12:00:0... 250 Deposit 1545993203 databricks 5/6/2025
11 14 64 1/14/2024 12:00:... 300.25 Withdrawal 3926257497 databricks 5/6/2025
12 14 64 1/14/2024 12:00:... 300.25 Withdrawal 3926257497 databricks 5/6/2025
13 8 67 1/8/2024 12:00:0... 275.75 Withdrawal 1426350130 databricks 5/6/2025
Succeeded (11 sec 13 ms)
Columns 10 Rows 105


Validate
Cancel
Schedule
Add trigger
View run history
Invoke Pipeline (Previe
Invoke pipeline1
Invoke Pipeline (Preview)
Invoke pipeline2
Notebook
Notebook1
Office 365 Outlook (Preview)
Office 365 Outlook1


Parameters
Variables
Settings
Output
Library variables (preview)
Validate
Cancel
Schedule
Add trigger
View run history
Invoke Pipeline (Previe
Invoke Pipeline (Preview)
Notebook
Office 365 Outlook (Preview)
Office 365 Outlook1
General
Settings
Signed in as
Shubhashini.Kurumanarsimhulu@student.ufv.ca
Change account
To *
Shubhashini.Kurumanarsimhulu@student.ufv.ca
Subject *
Pipeline successful
Body *
14
Font
HI,