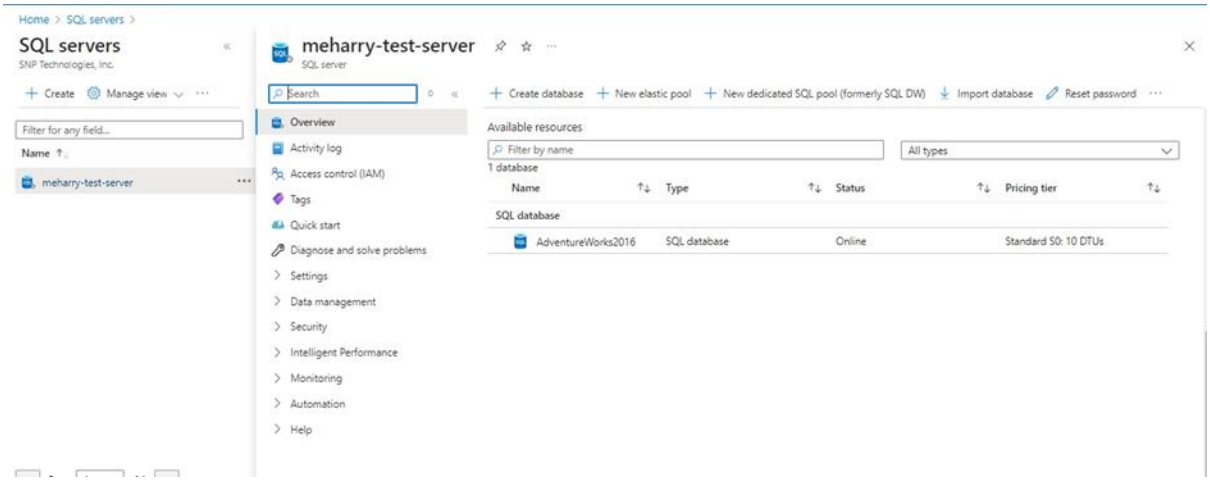
PRCL – 01 Data Warehousing Project Report

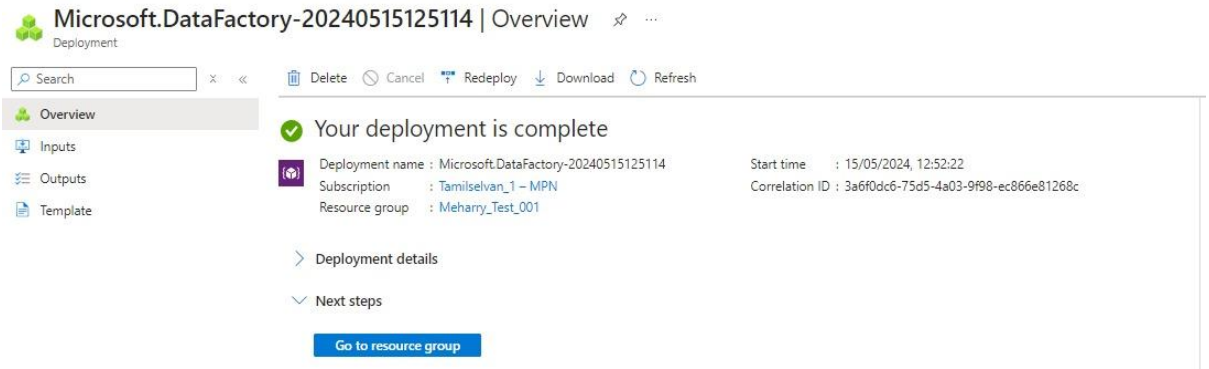
Step1:

In the Azure SQL server, first I created a new SQL database named AdventureWorks2016.



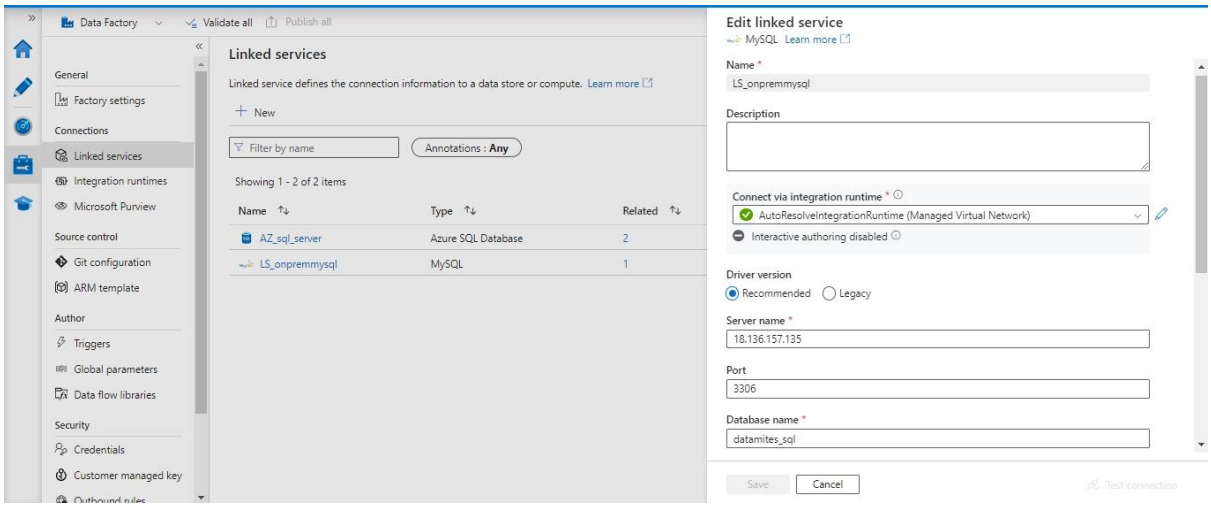
Step 2:

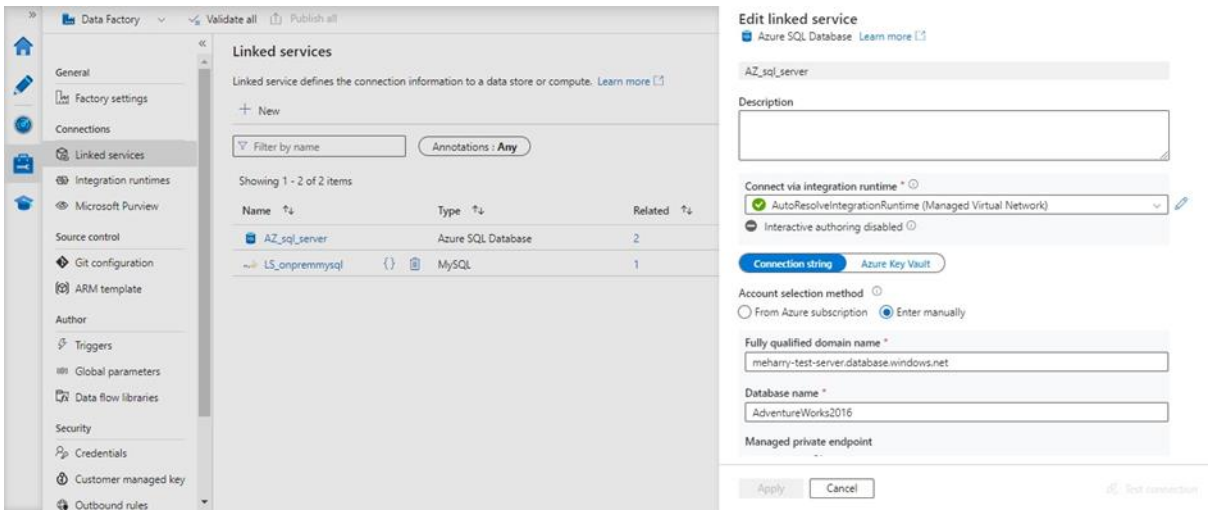
Here I created an Azure data factory named Microsoft_DataFactory-20240515125114.



Step 3:

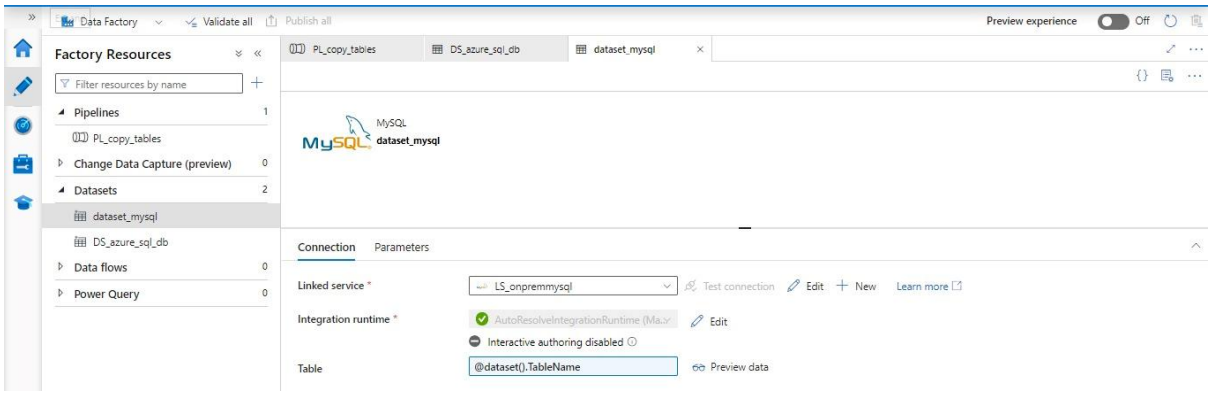
After creating an Azure data factory, I created two linked services of LS_onpremmysql for source and AZ_sql_server for the target.

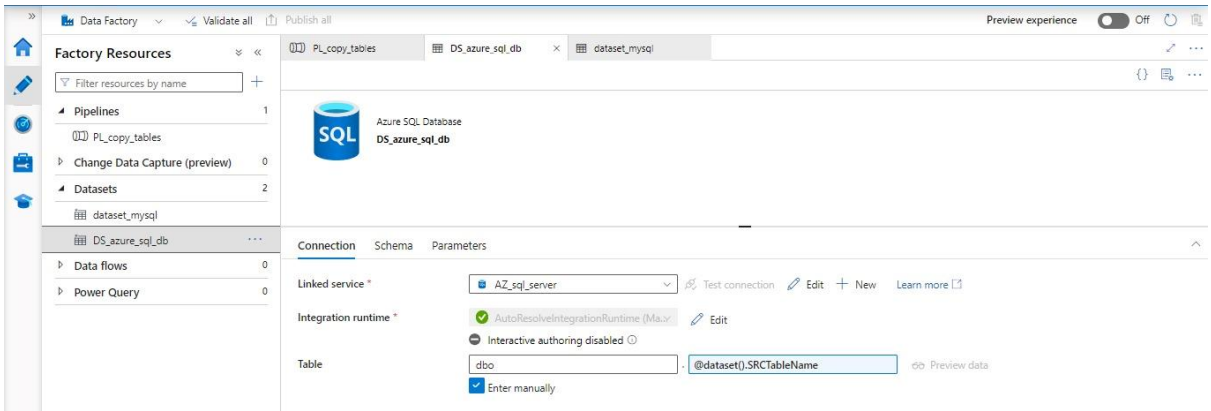




Step 4:

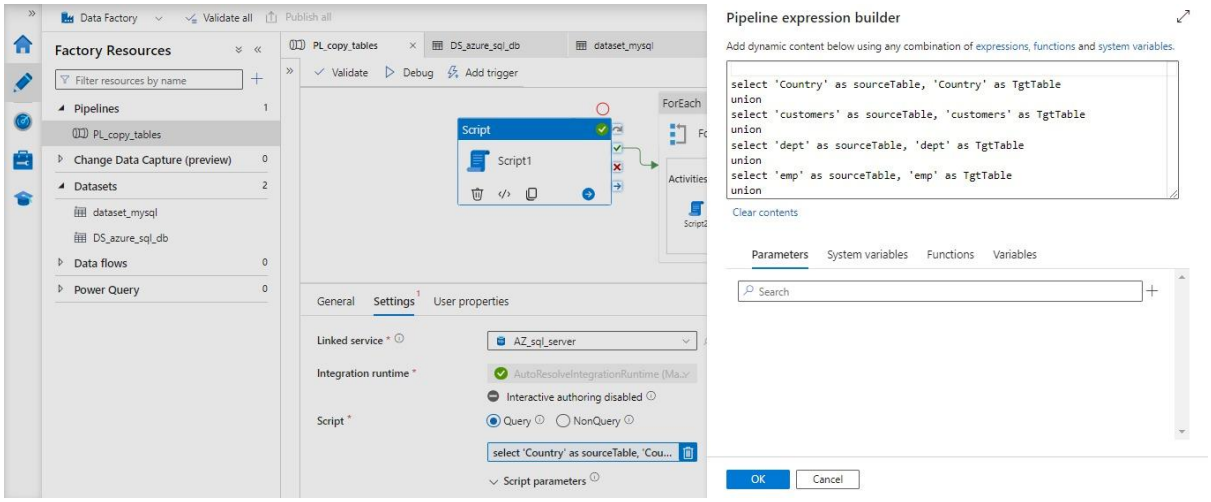
In the data factory, I created a dataset to connect between linked services of the source and target.





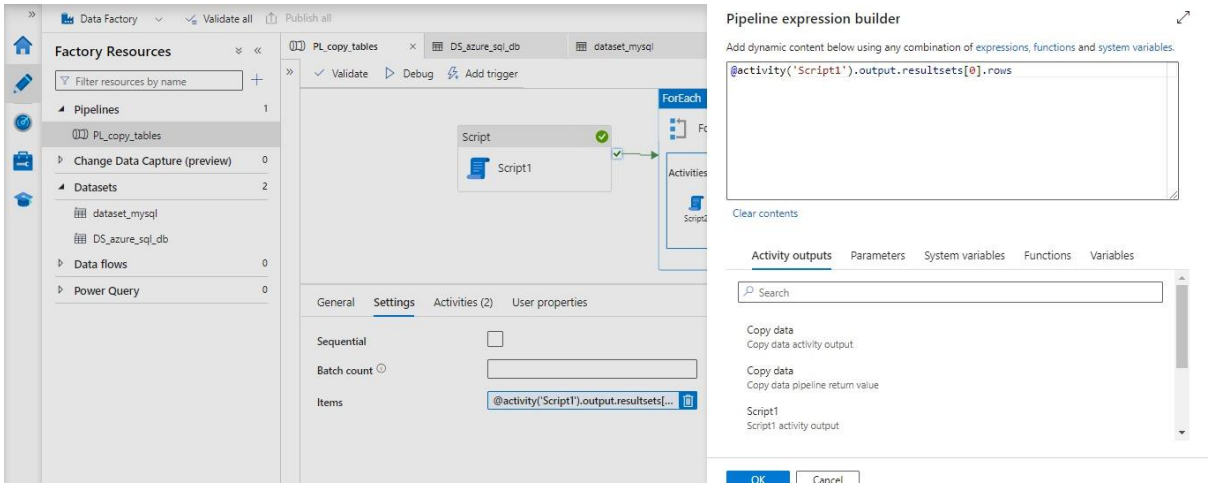
Step 5:

By using the script I created a custom pipeline and used it for loop to logical conditions my source and target tables .



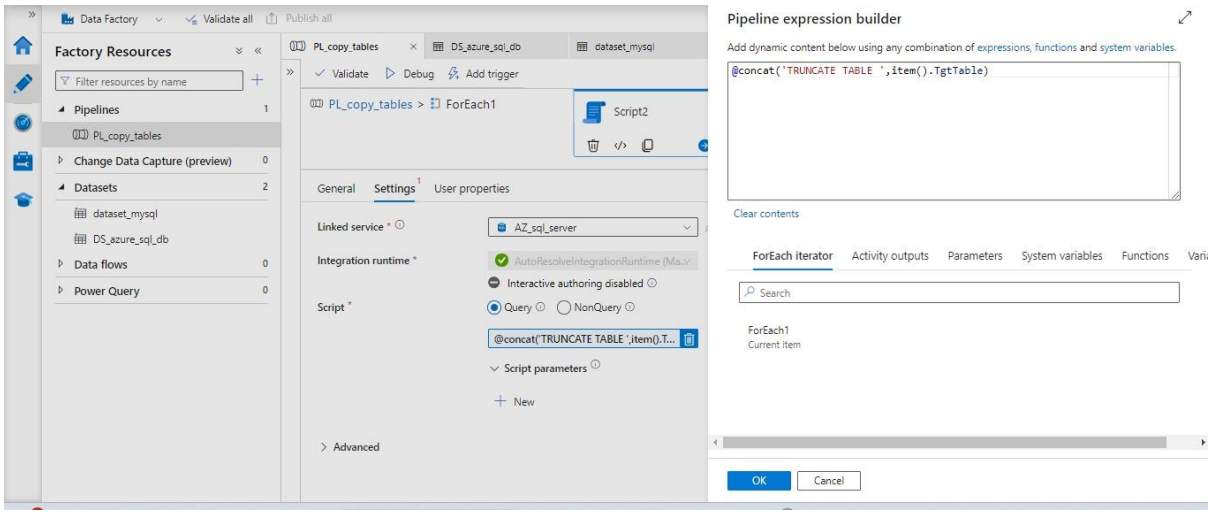
Step 6:

In items, I give my custom condition to retrieve the rows of data returned by specified copy data activity in my pipeline.



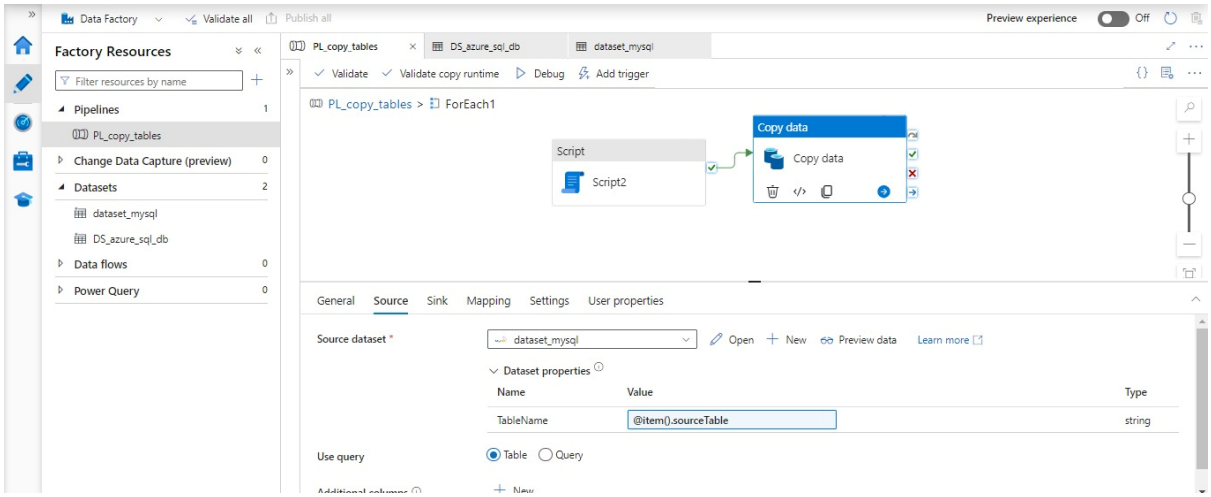
Step 7:

I used full truncate load, to remove the rows from the table to avoid the duplication in target .



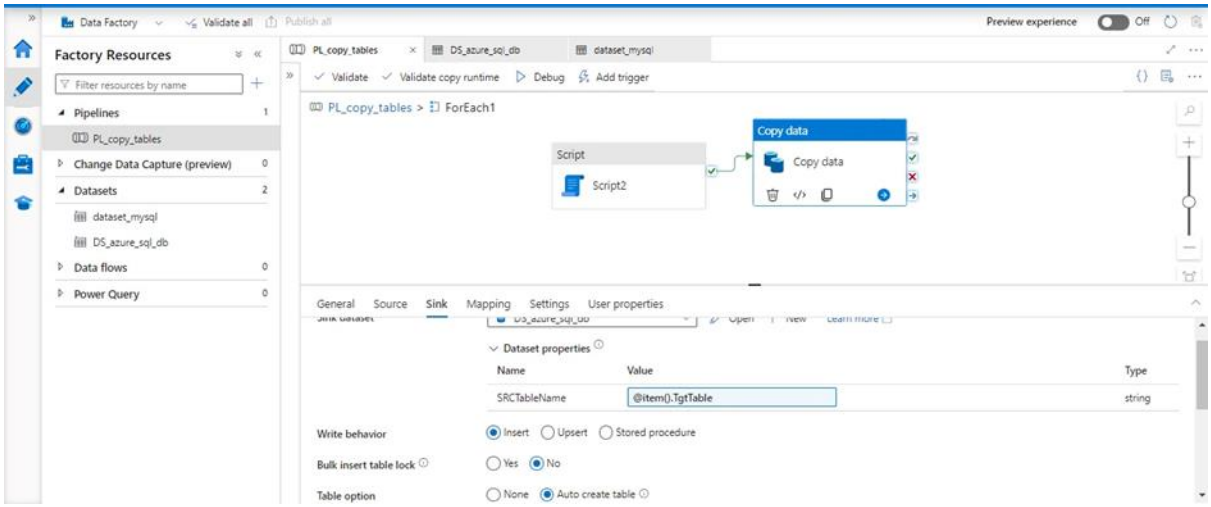
Step 8:

From the data factory, I connect source dataset of dataset_mysql.



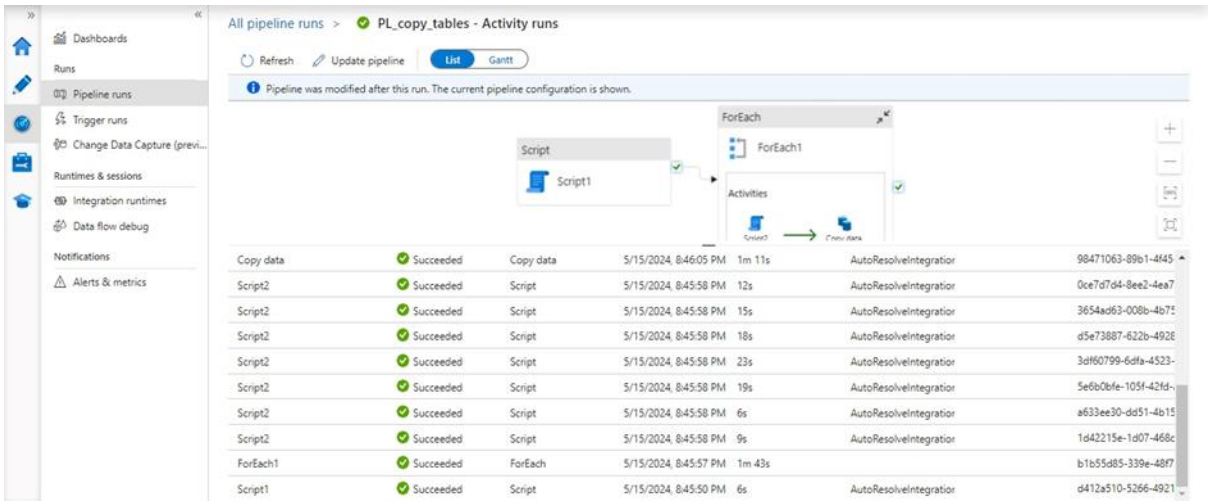
Step 9:

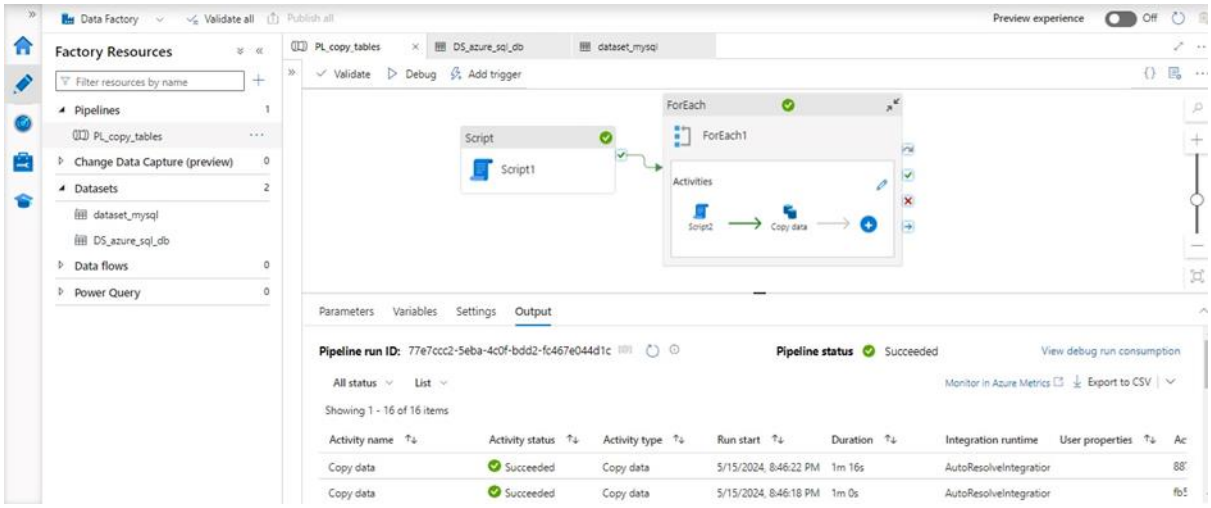
By using a sink I transformed the data into my target.



Step 10:

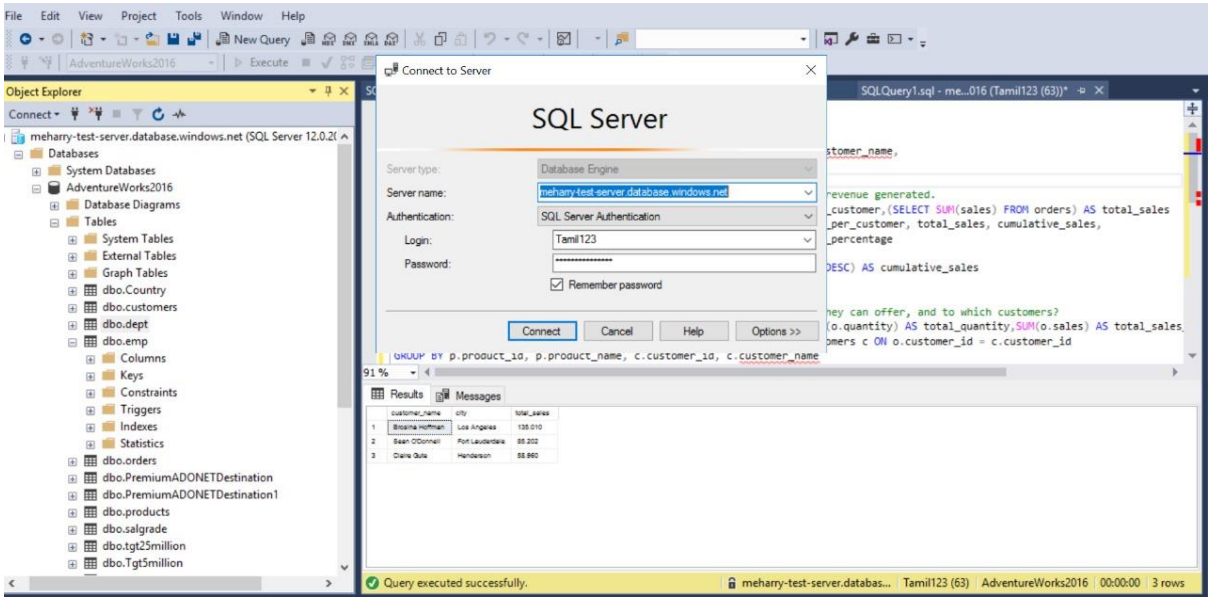
At last, I debug the pipeline it runs.





Step 12:

I connected my SQL server and retrieve the queries .



Queries:

1. Top 3 customers belong to which city.

Select top 3 c.custome_name ,c.city,sum(o.sales) as total_sales from customers c join orders o on c.customer_id =o.customer_id group by c.customer_name,c.city order by total_sales desc;

```
2. What percentage of top customers are responsible for 50% of the revenue generated.
WITH SalesSummary AS (SELECT customer_id,SUM(sales) AS
total_sales_per_customer,(SELECT SUM(sales) FROM orders) AS total_sales
FROM orders GROUP BY  customer_id)SELECT  s.customer_id, s.total_sales_per_customer,
total_sales, cumulative_sales,
 CAST(cumulative_sales * 1.0 / total_sales AS decimal(18, 4)) AS sales_percentage
FROM ( SELECT customer_id,total_sales_per_customer,total_sales,
SUM(total_sales_per_customer) OVER (ORDER BY total_sales_per_customer DESC) AS
cumulative_sales
FROM SalesSummary ) AS s
WHERE cumulative_sales <= 0.5 * total_sales;
```

3. If the organization wants to offer discounts on which products they can offer, and to which customers?

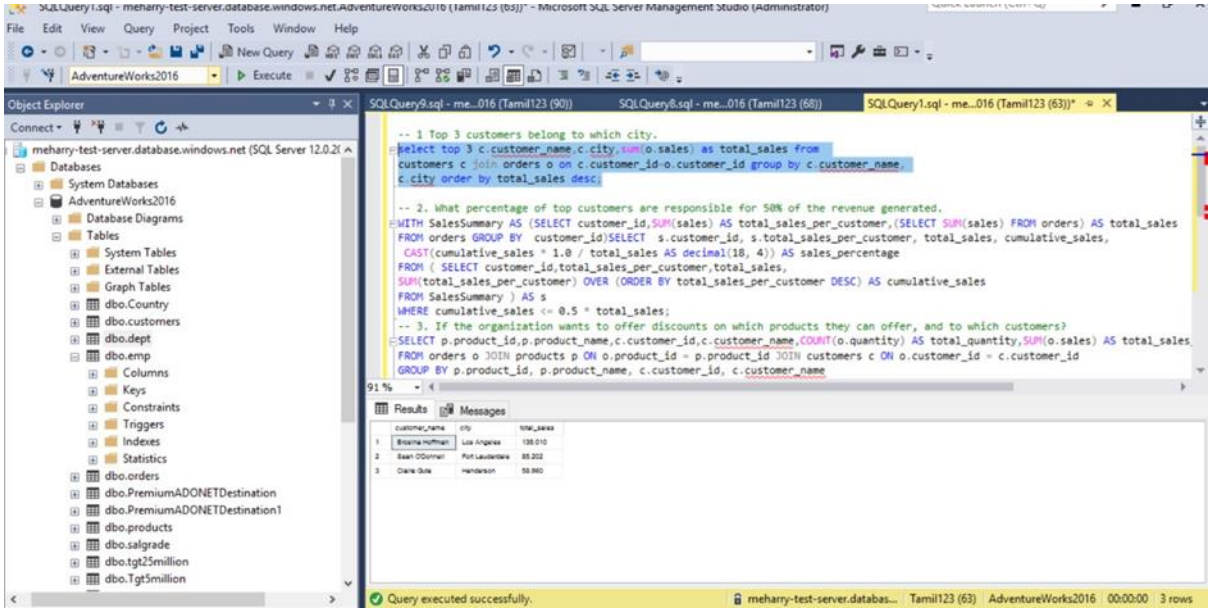
```
SELECT p.product_id,p.product_name,c.customer_id,c.customer_name,COUNT(o.quantity) AS total_quantity,SUM(o.sales) AS total_sales_amount
FROM orders o JOIN products p ON o.product_id = p.product_id JOIN customers c ON o.customer_id = c.customer_id
GROUP BY p.product_id, p.product_name, c.customer_id, c.customer_name
HAVING COUNT(o.quantity) >= 1 AND SUM(o.sales) >= 50
ORDER BY total_quantity DESC, total_sales_amount DESC;
```

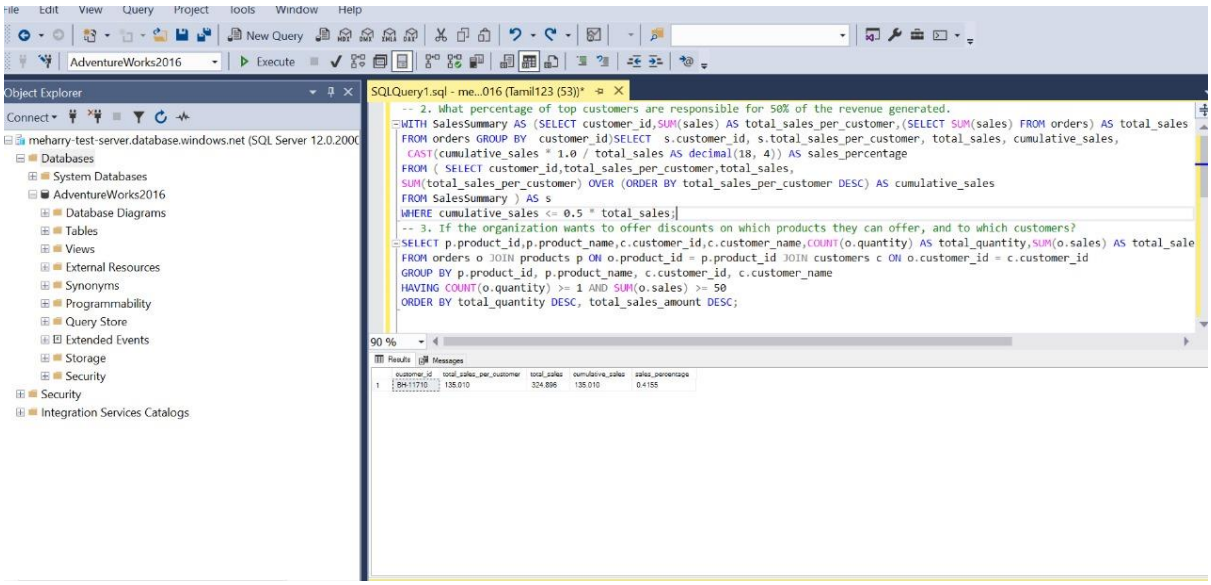
4. Explain the hierarchy of the employee in the emp table using SQL query.

```
SELECT  e1.empno AS employee_id, e1.ename AS employee_name, e1.job AS employee_job, e1.mgr AS manager_id,
CONCAT(e2.empno, ' - ', e2.ename) AS manager_name,0 AS [level]
FROM emp e1 LEFT JOIN emp e2 ON e1.mgr = e2.empno UNION ALL
SELECT e1.empno AS employee_id,e1.ename AS employee_name,e1.job AS employee_job,e1.mgr AS manager_id,
CONCAT(e2.empno, ' - ', e2.ename) AS manager_name,1 AS [level]
FROM emp e1 LEFT JOIN  emp e2 ON e1.mgr = e2.empno
LEFT JOIN emp e3 ON e2.mgr = e3.empno WHERE e3.empno IS NULL
ORDER BY [level], employee_id;
```

5. Who was the first employee to get hired in the organization?

```
select empno,ename,hiredate from emp where hiredate=(select min(hiredate) from emp);
```




File Edit View Query Project Tools Window Help
New Query
AdventureWorks2016
Execute
Object Explorer
Connect
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Databases
System Databases
AdventureWorks2016
Database Diagrams
Tables
Views
External Resources
Synonyms
Programmability
Query Store
Extended Events
Storage
Security
Security
Integration Services Catalogs
SQLQuery1.sql - me...016 (Tamil123 (53))*
-- 2. What percentage of top customers are responsible for 50% of the revenue generated.
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CAST(cumulative_sales * 1.0 / total_sales AS decimal(18, 4)) AS sales_percentage
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FROM SalesSummary) AS s
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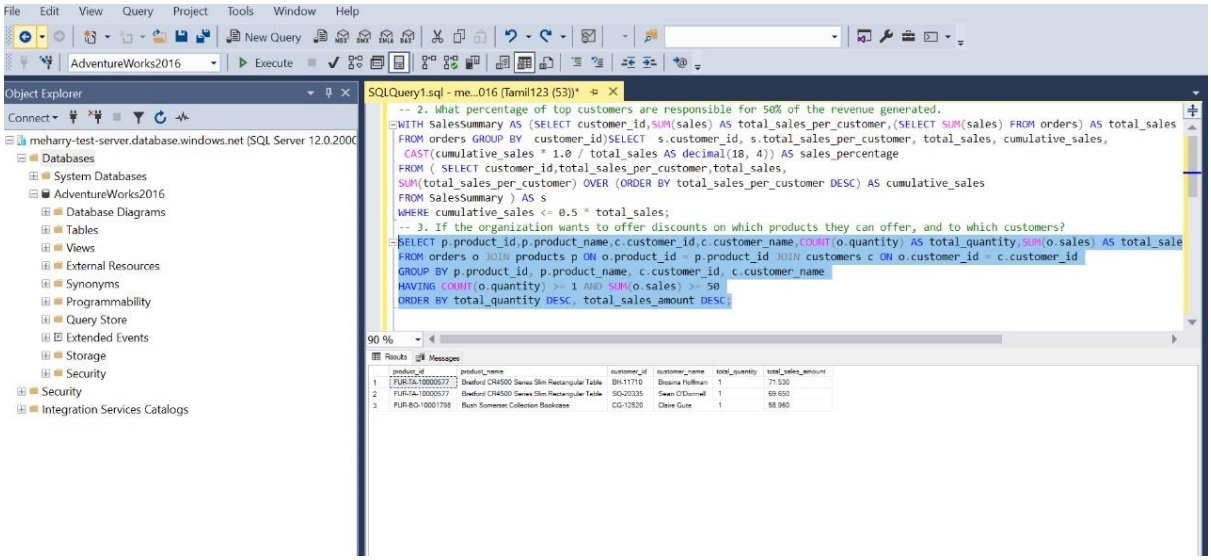
FROM orders o JOIN products p ON o.product_id = p.product_id JOIN customers c ON o.customer_id = c.customer_id
GROUP BY p.product_id, p.product_name, c.customer_id, c.customer_name
HAVING COUNT(o.quantity) >= 1 AND SUM(o.sales) >= 50
ORDER BY total_quantity DESC, total_sales_amount DESC;
90 %
Results
Messages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GROUP BY p.product_id, p.product_name, c.customer_id, c.customer_name
HAVING COUNT(o.quantity) >= 1 AND SUM(o.sales) >= 50
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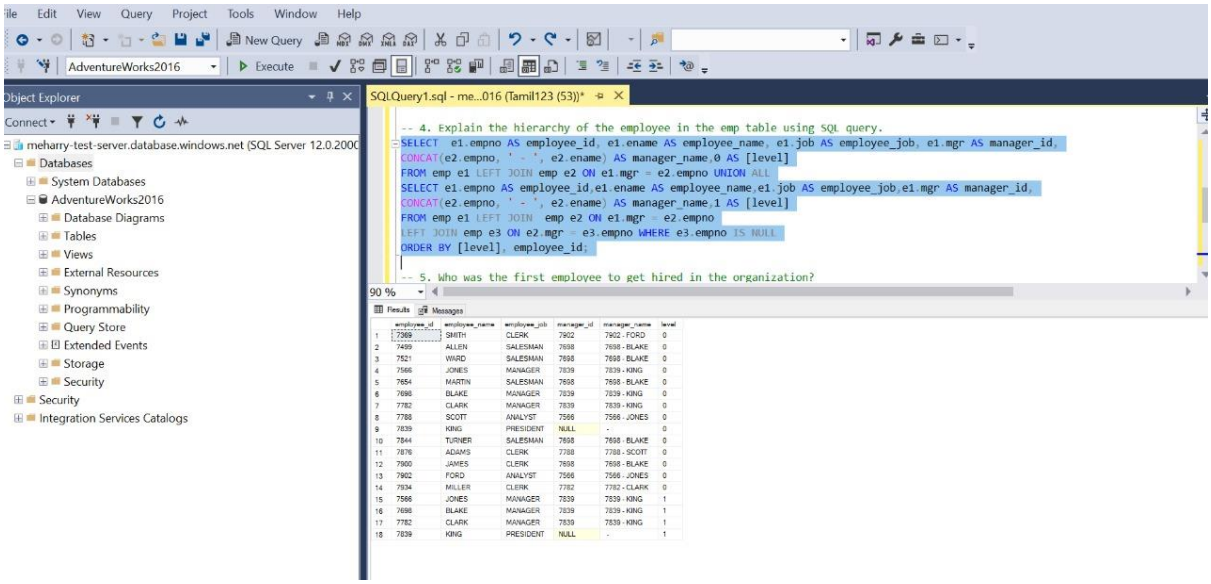
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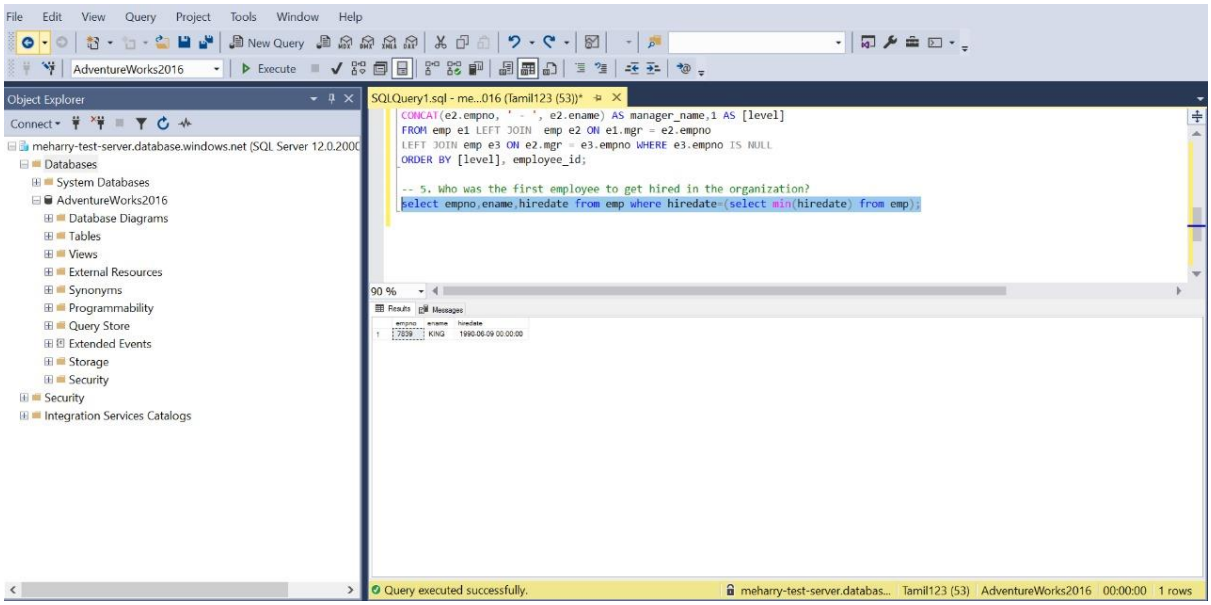
CONCAT(e2.empno, ' - ', e2.ename) AS manager_name,0 AS [level]
FROM emp e1 LEFT JOIN emp e2 ON e1.mgr = e2.empno UNION ALL
SELECT e1.empno AS employee_id,e1.ename AS employee_name,e1.job AS employee_job,e1.mgr AS manager_id,
CONCAT(e2.empno, ' - ', e2.ename) AS manager_name,1 AS [level]
FROM emp e1 LEFT JOIN emp e2 ON e1.mgr = e2.empno
LEFT JOIN emp e3 ON e2.mgr = e3.empno WHERE e3.empno IS NULL
ORDER BY [level], employee_id;
-- 5. Who was the first employee to get hired in the organization?
90 %
Results
Messages
employee_id employee_name employee_job manager_id manager_name level
1 7369 SMITH CLERK 7902 7902 - FORD 0
2 7499 ALLEN SALESMAN 7698 7698 - BLAKE 0
3 7521 WARD SALESMAN 7698 7698 - BLAKE 0
4 7566 JONES MANAGER 7839 7839 - KING 0
5 7654 MARTIN SALESMAN 7698 7698 - BLAKE 0
6 7698 BLAKE MANAGER 7839 7839 - KING 0
7 7782 CLARK MANAGER 7839 7839 - KING 0
8 7788 SCOTT ANALYST 7566 7566 - JONES 0
9 7839 KING PRESIDENT NULL - 0
10 7844 TURNER SALESMAN 7698 7698 - BLAKE 0
11 7876 ADAMS CLERK 7788 7788 - SCOTT 0
12 7900 JAMES CLERK 7698 7698 - BLAKE 0
13 7902 FORD ANALYST 7566 7566 - JONES 0
14 7934 MILLER CLERK 7782 7782 - CLARK 0
15 7566 JONES MANAGER 7839 7839 - KING 1
16 7698 BLAKE MANAGER 7839 7839 - KING 1
17 7782 CLARK MANAGER 7839 7839 - KING 1
18 7839 KING PRESIDENT NULL - 1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SQLQuery1.sql - me...016 (Tamil123 (53))*
CONCAT(e2.empno, ' - ', e2.ename) AS manager_name,1 AS [level]
FROM emp e1 LEFT JOIN emp e2 ON e1.mgr = e2.empno
LEFT JOIN emp e3 ON e2.mgr = e3.empno WHERE e3.empno IS NULL
ORDER BY [level], employee_id;
-- 5. Who was the first employee to get hired in the organization?
select empno,ename,hiredate from emp where hiredate=(select min(hiredate) from emp);
90 %
Results
Messages
empno ename hiredate
1 7839 KING 1980-06-09 00:00:00
Query executed successfully.
meharry-test-server.databas...
Tamil123 (53)
AdventureWorks2016
00:00:00
1 rows