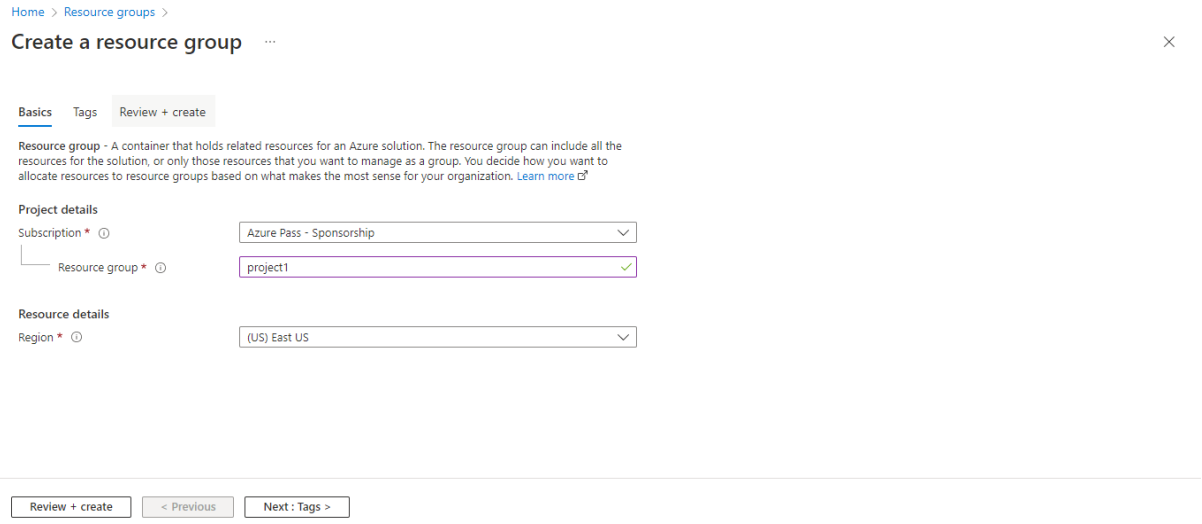
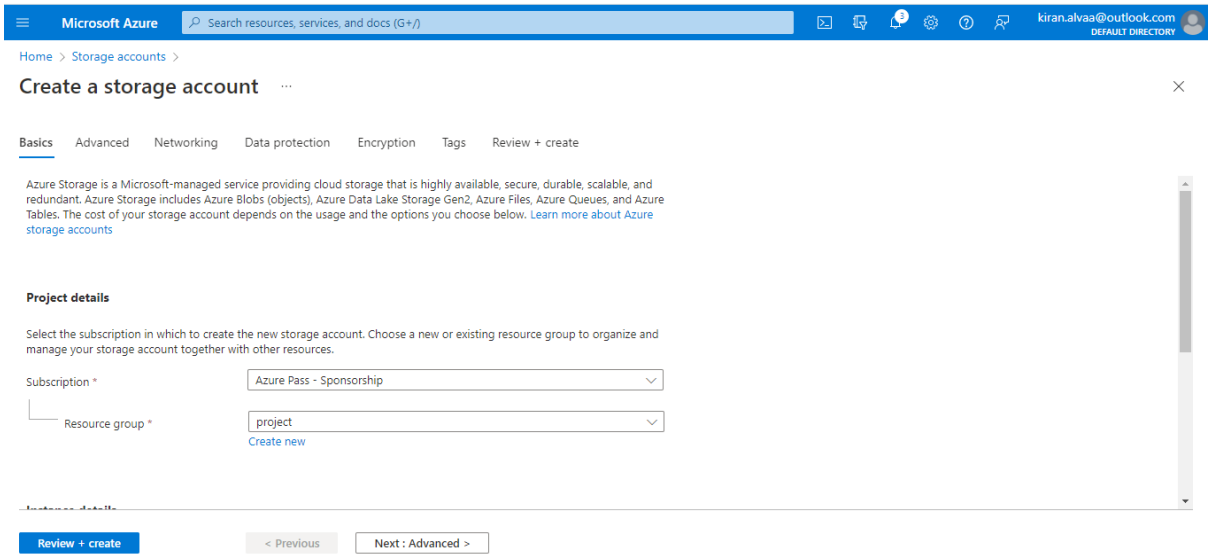
Kiran Shridhar Alva -Building an ETL Pipeline using Azure Data Services

DESCRIPTION Use the data analytics stack to build a data pipeline using Data Factory, Databricks and Synapse. Problem Statement: As a Data Engineer, you've been asked to access the services that can help with ETL of data in the cloud data storage to enable analytics through Synapse. In this POC, we will be collecting the data from SQL Database using ADF and the transformed data will be the source for databricks to run complex transformations and once data is analysed using Databricks, it is synced into synapse analytics data warehouse as historical dataset for enabling various analytics. Domain: Analytics

● Create a Resource Group. ● Create a Storage account. ● Create an Azure SQL Database. ● Create a data factory. ● Configure Databricks cluster ● Create Synapse analytics Data Warehouse





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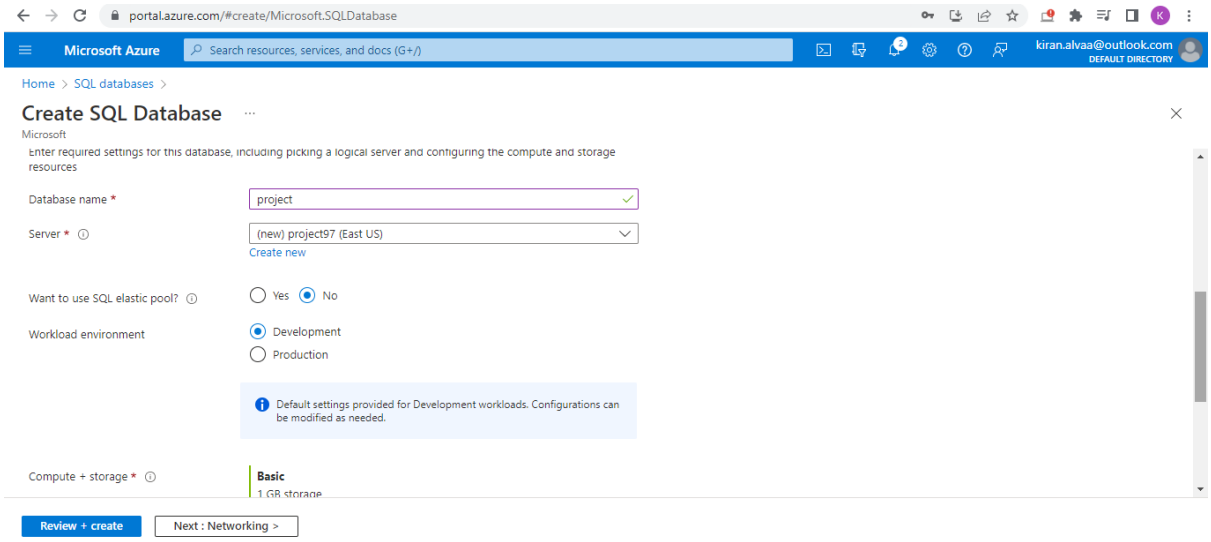

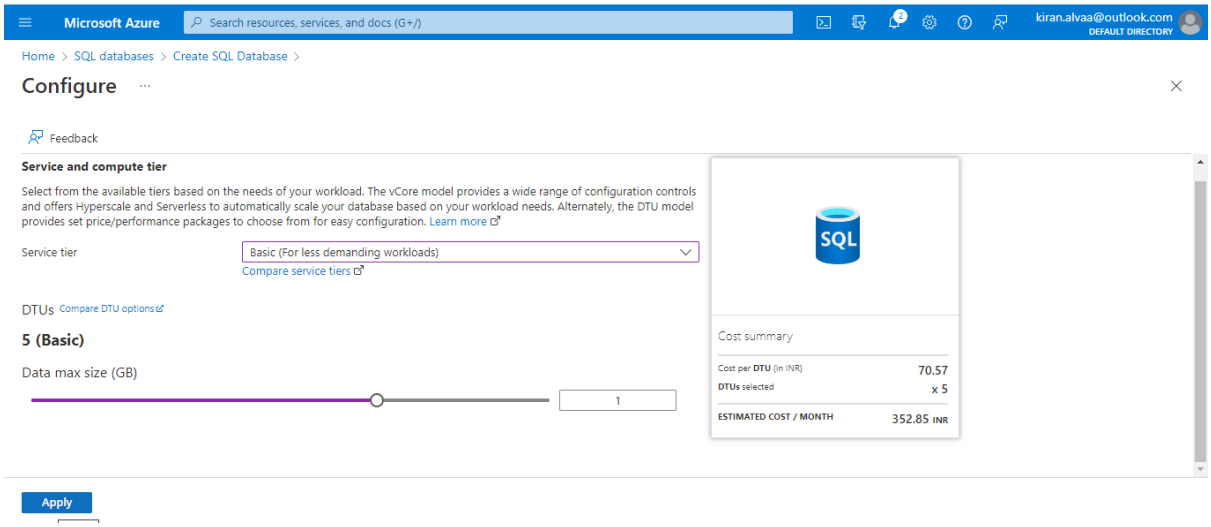

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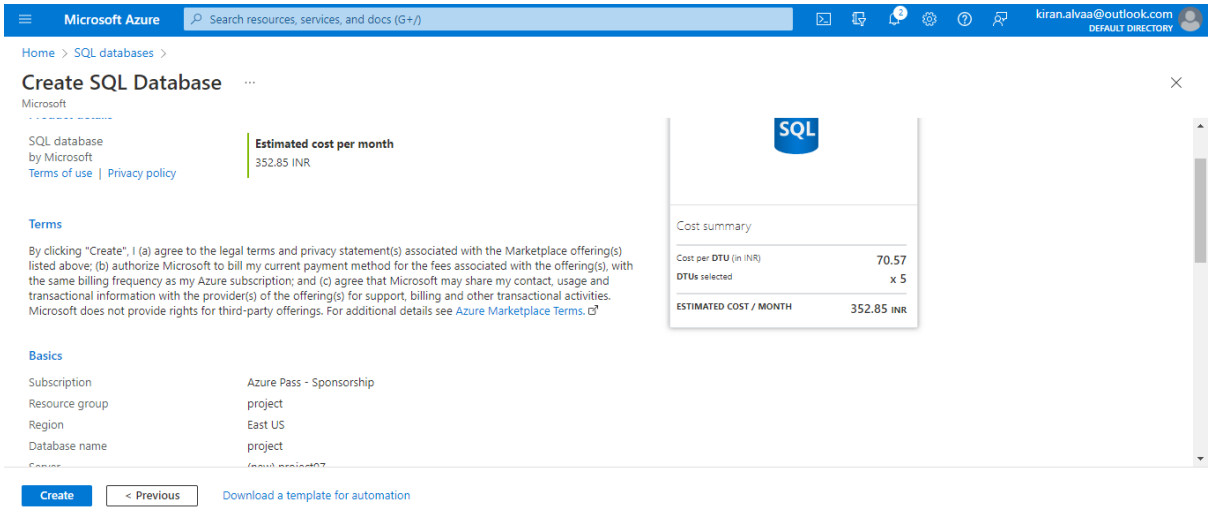

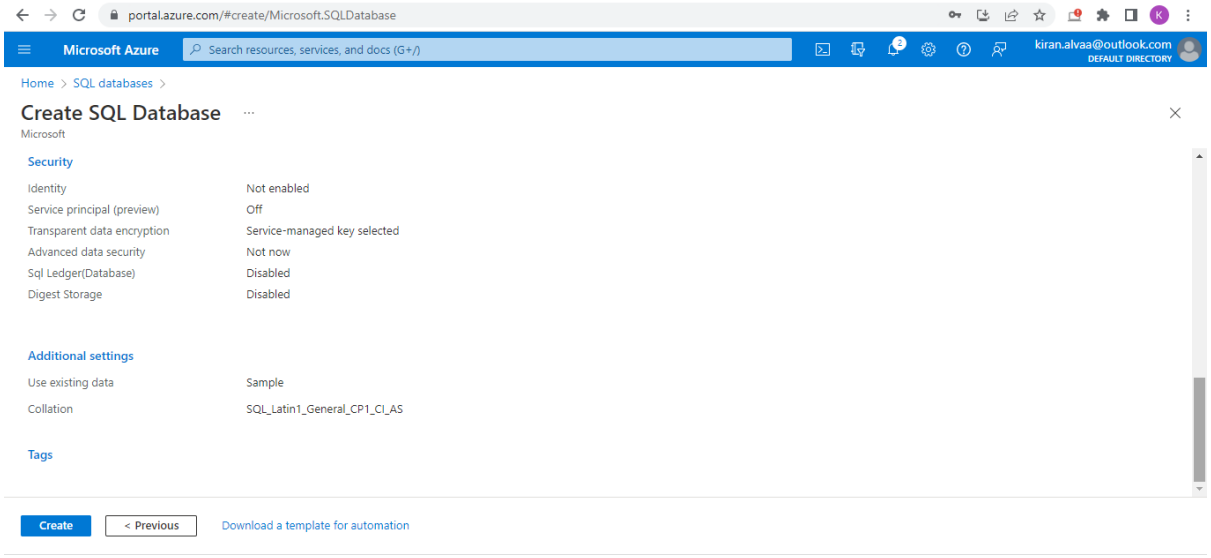

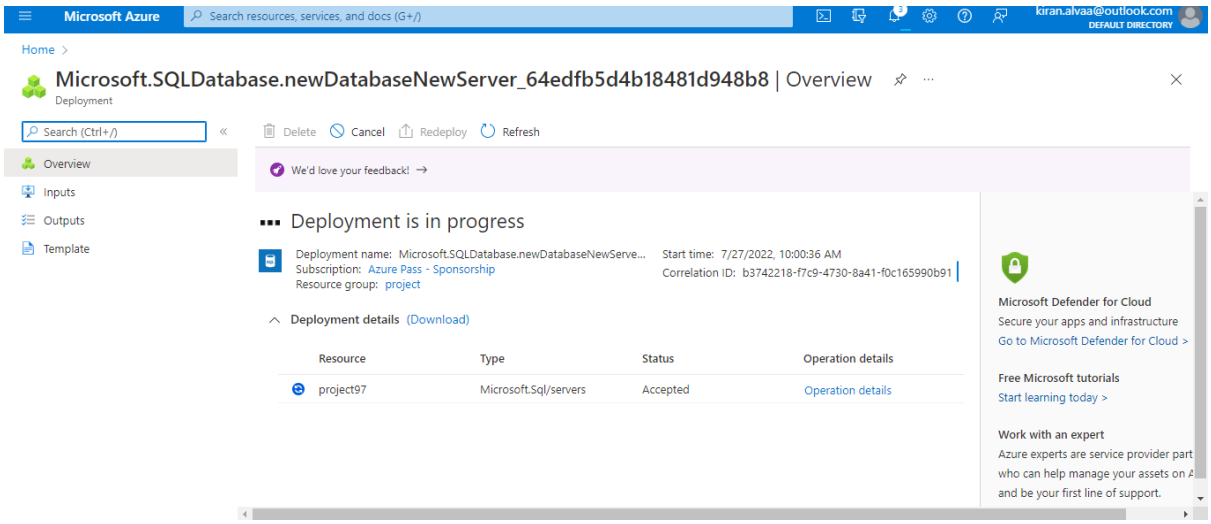

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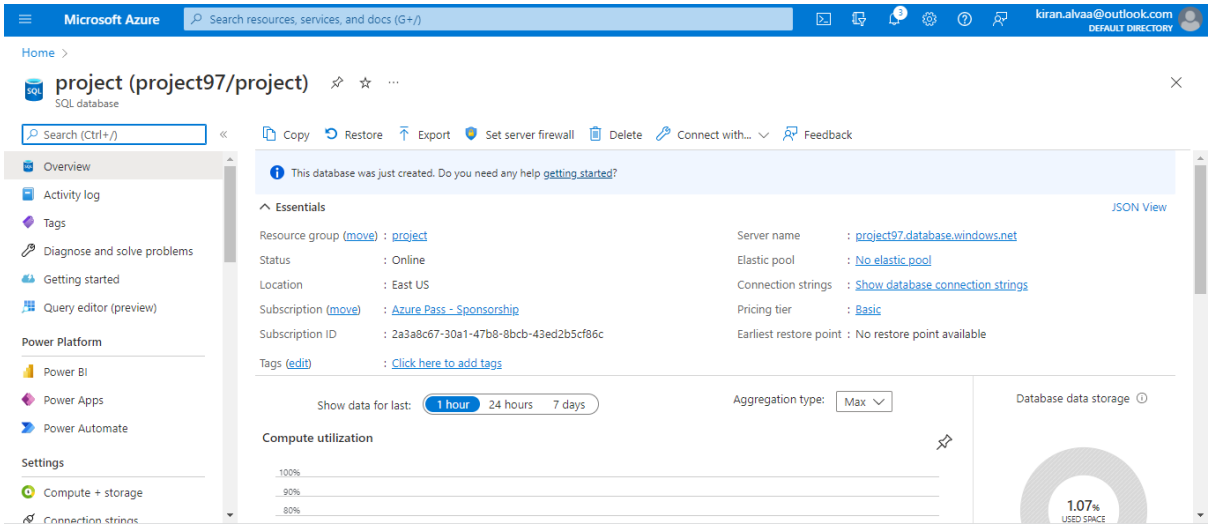

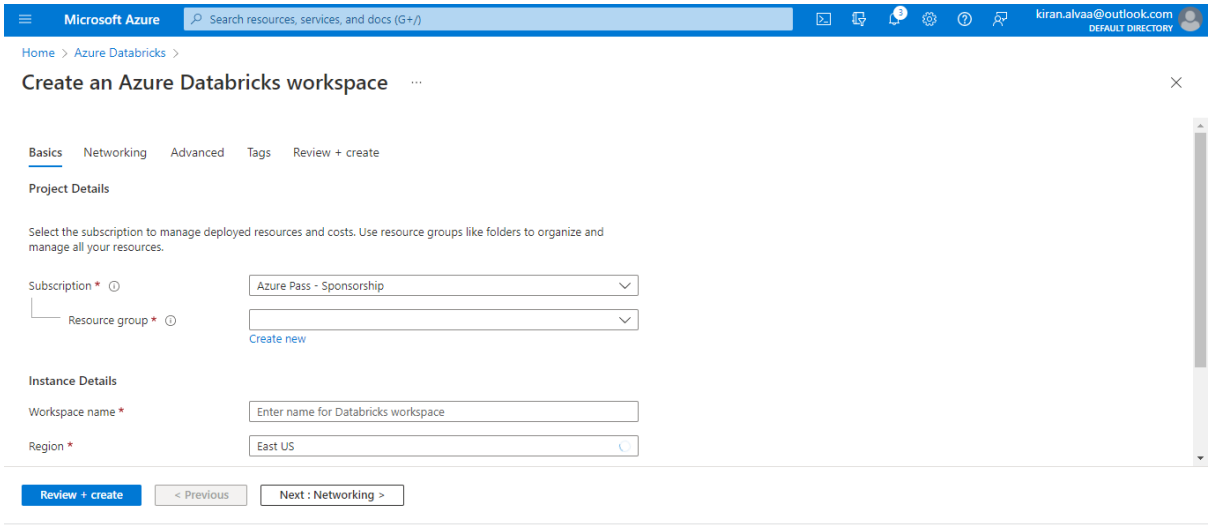

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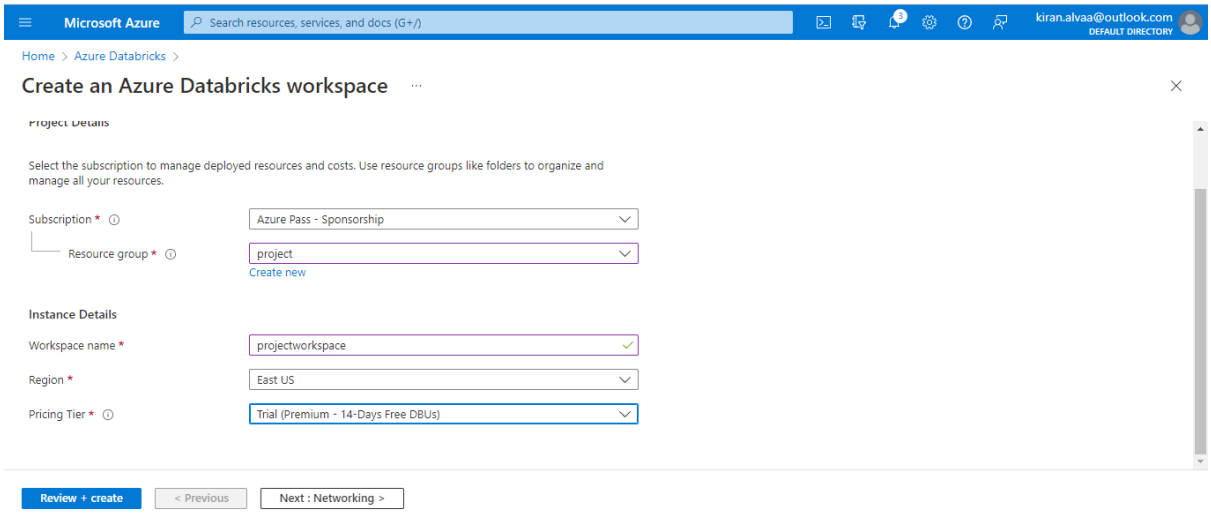

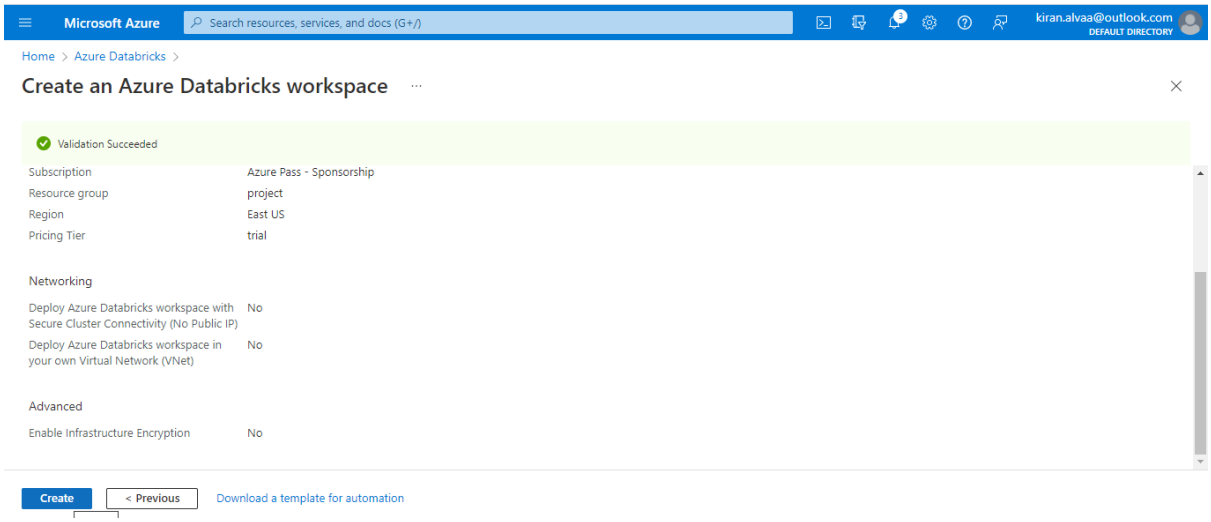

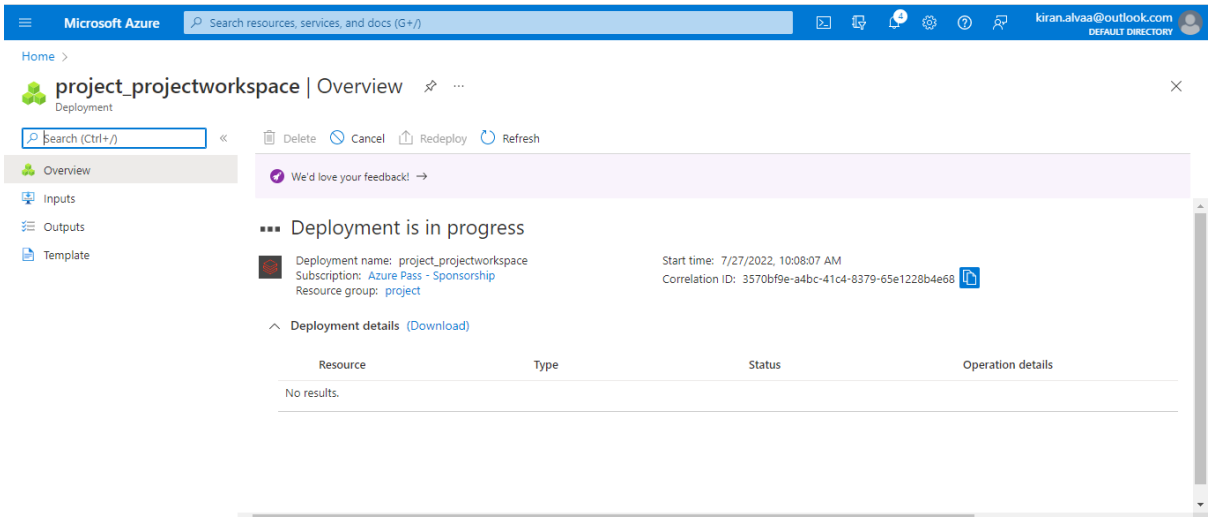

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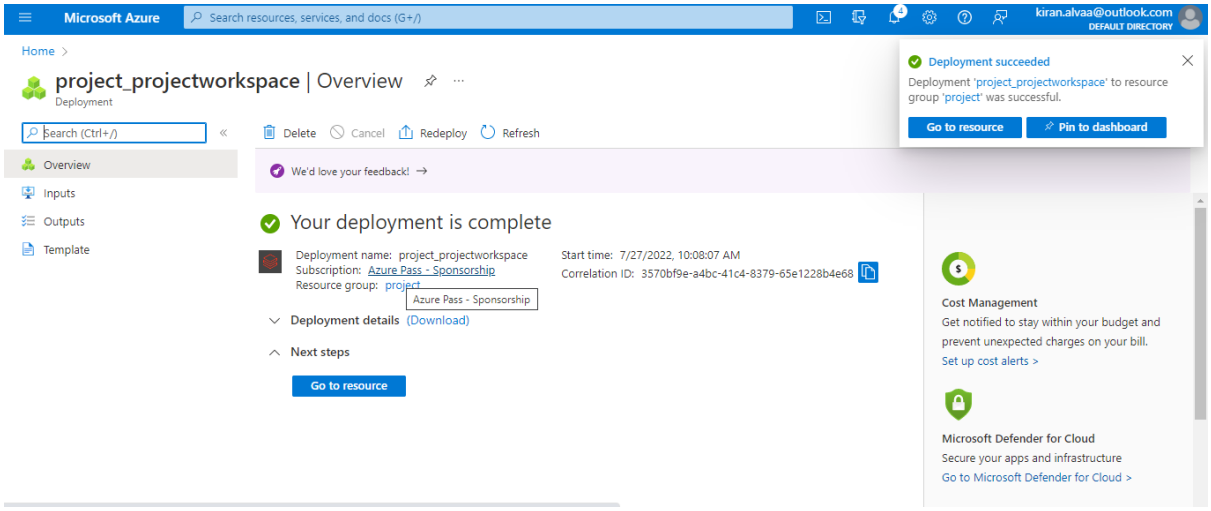

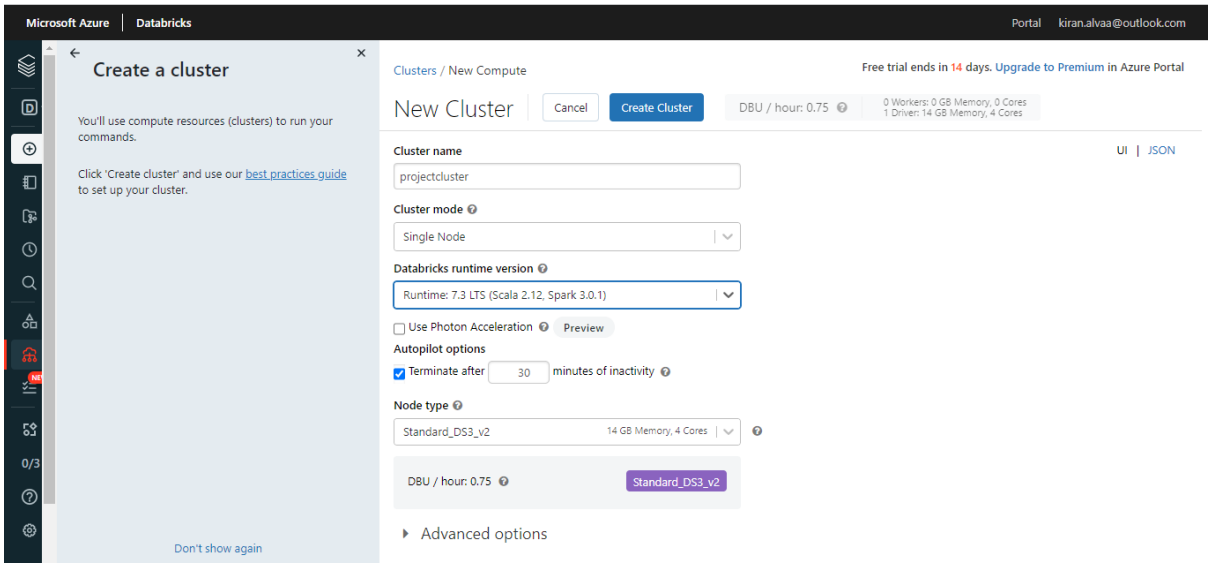

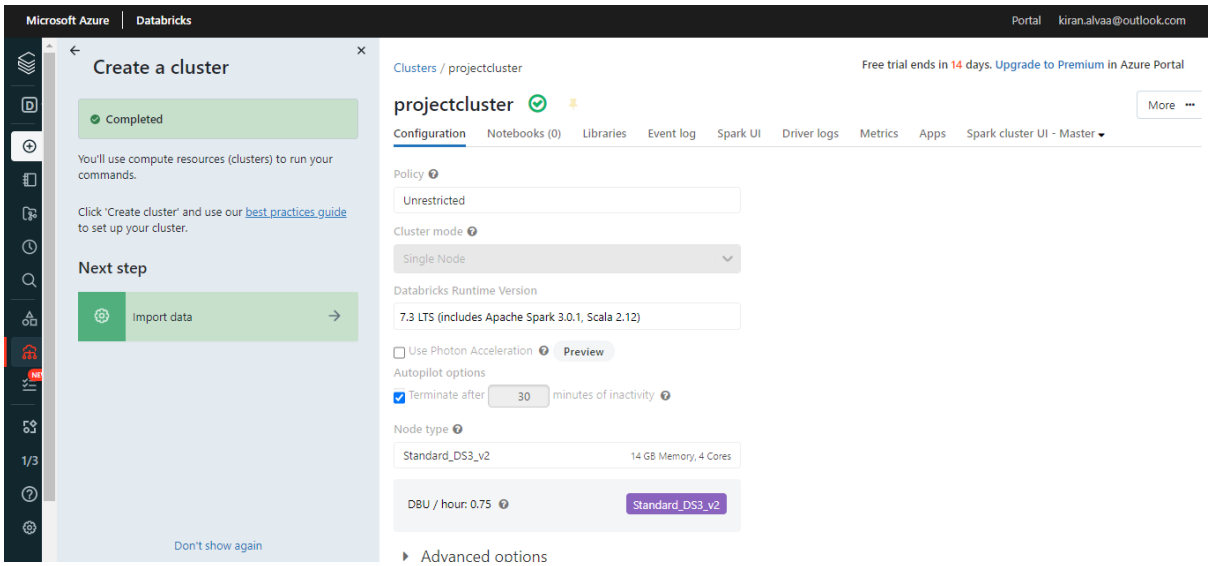

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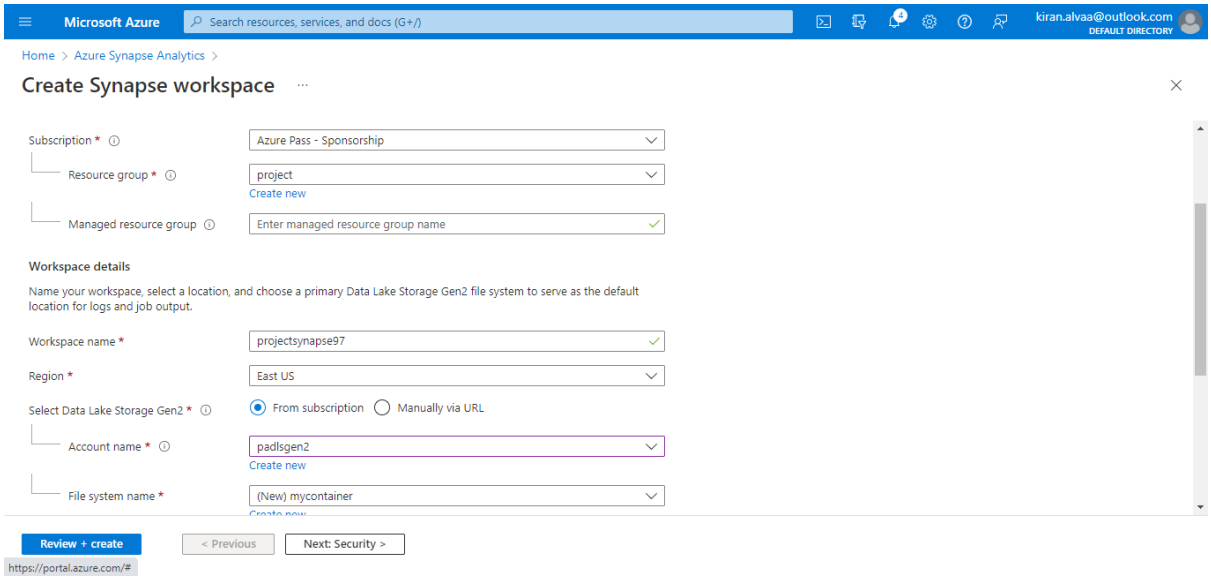

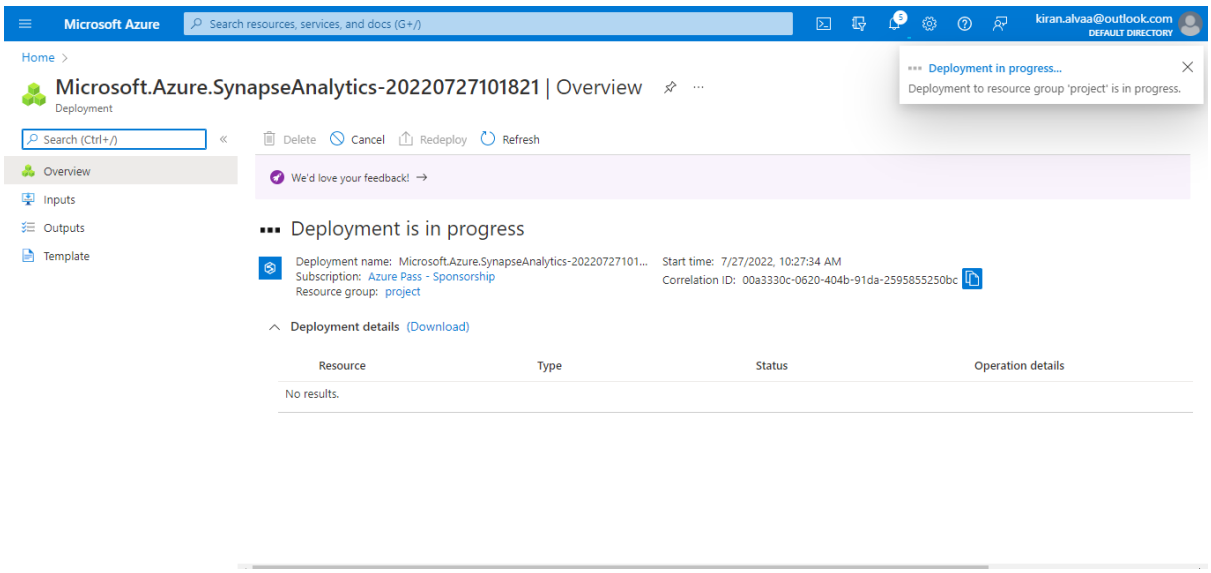

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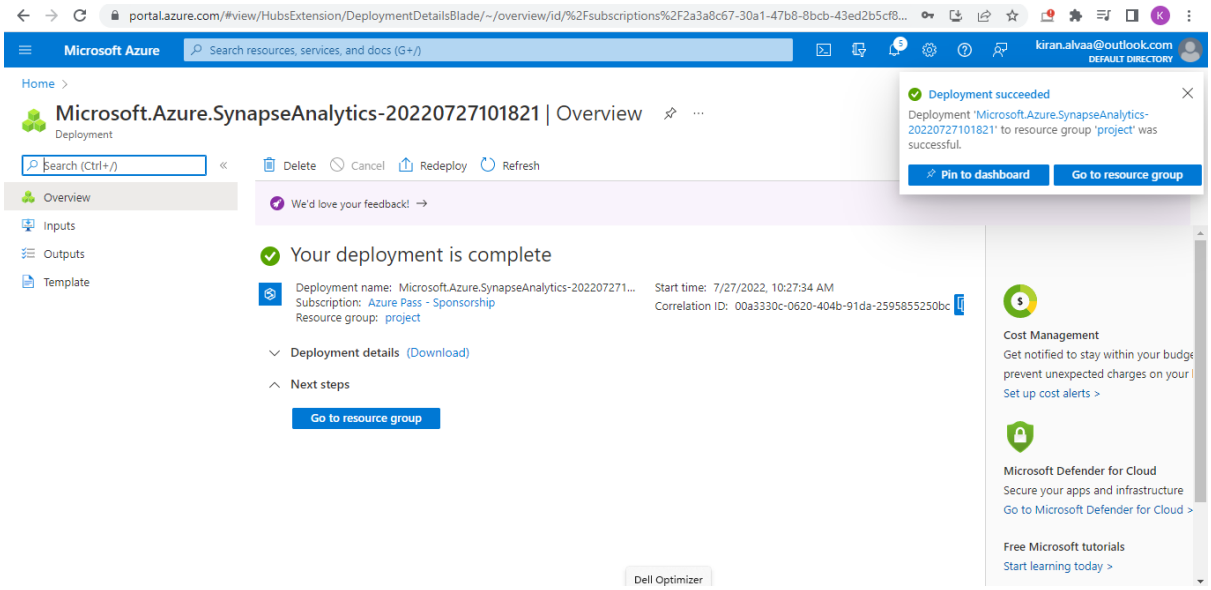

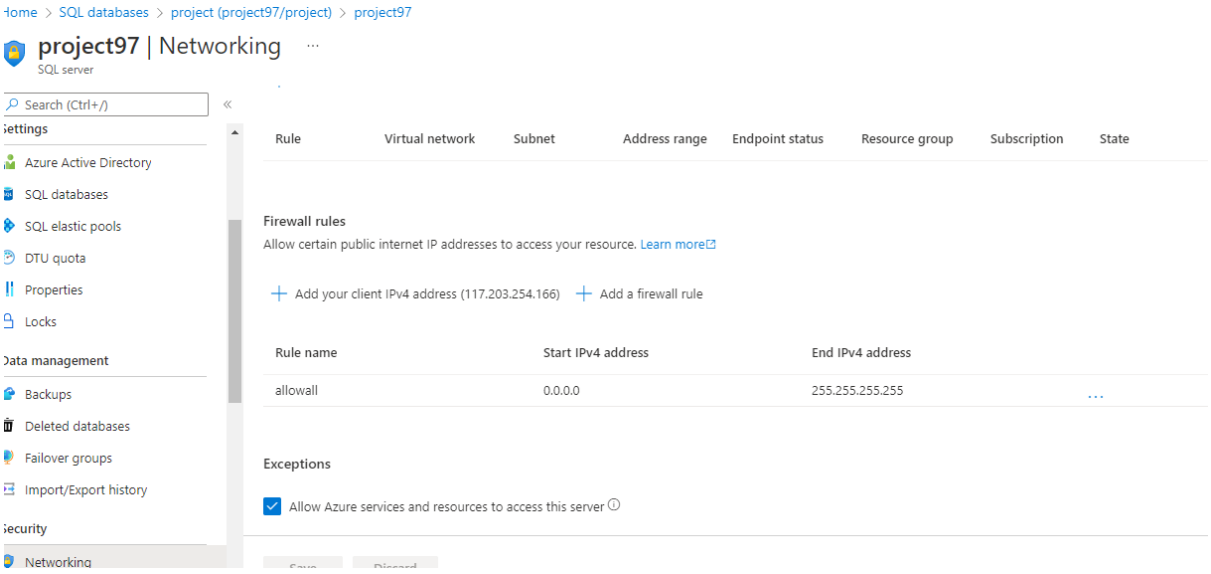

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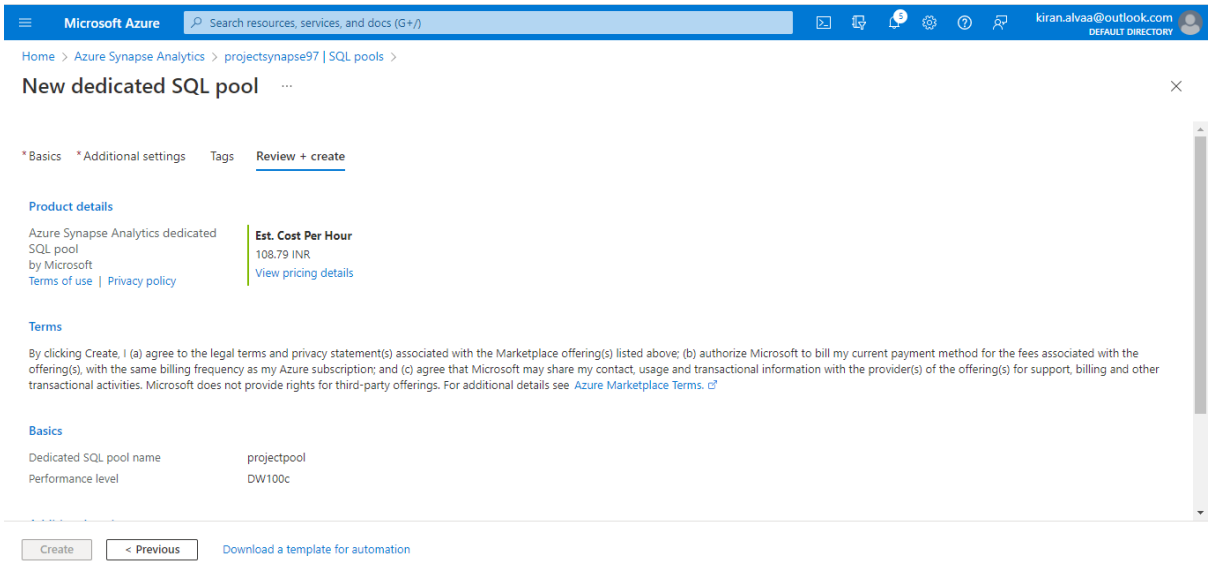

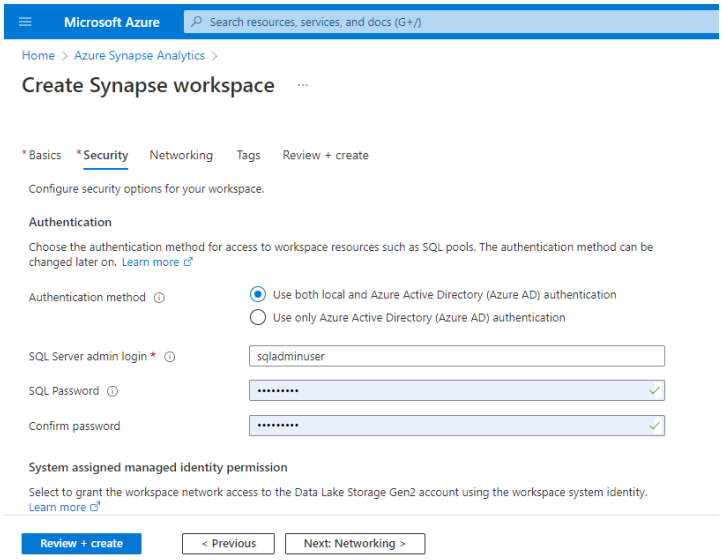

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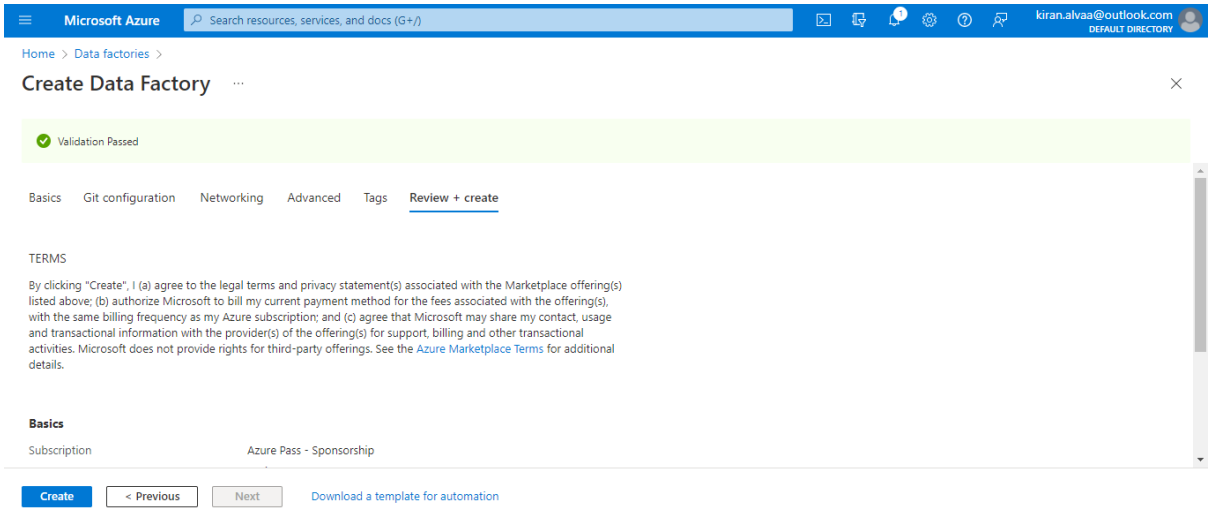
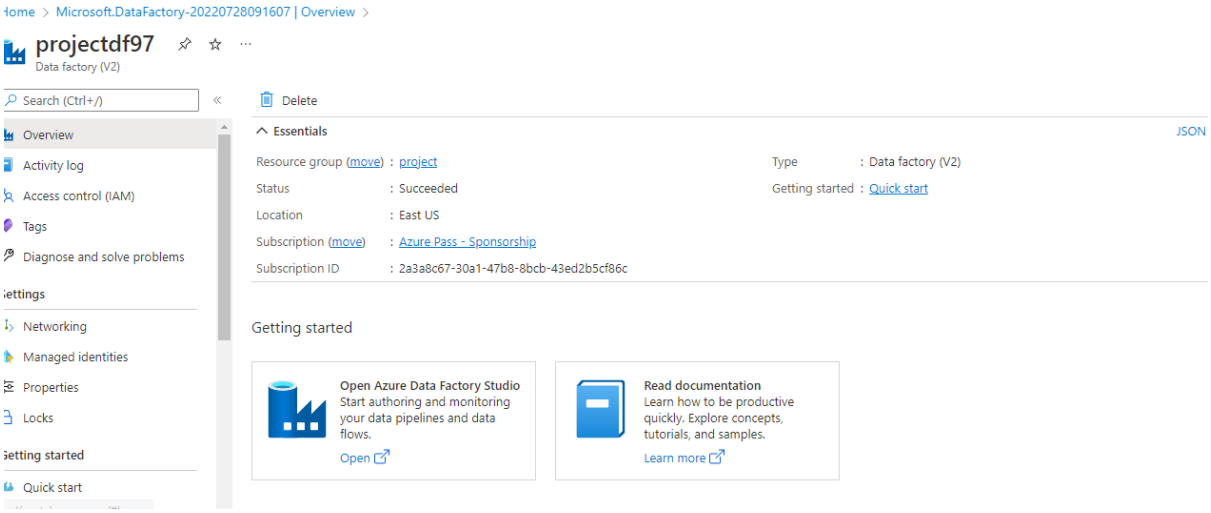
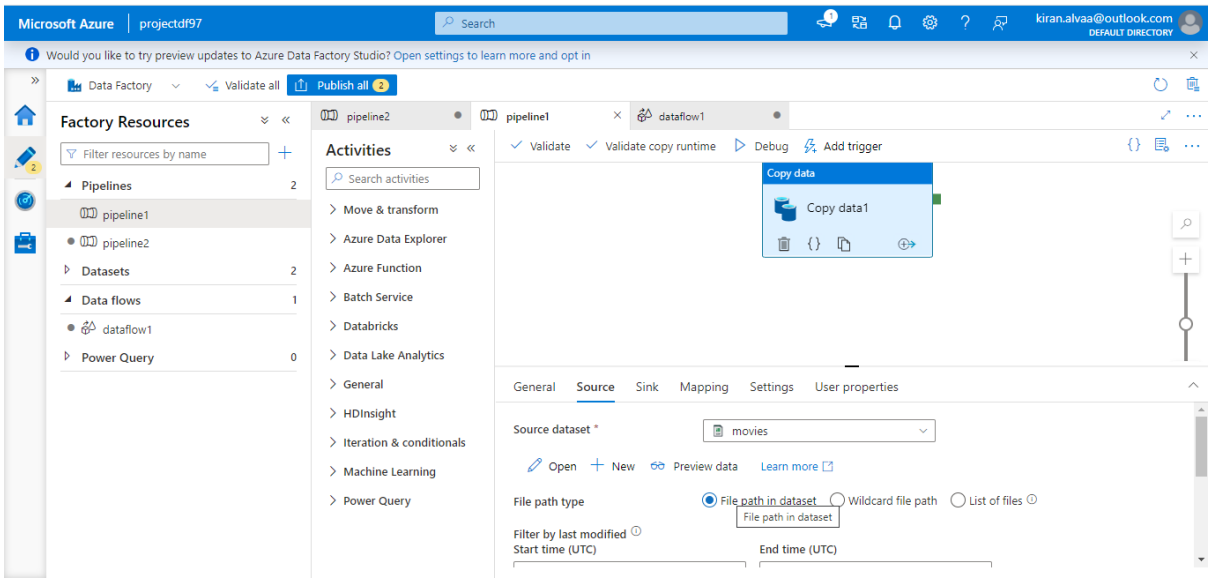
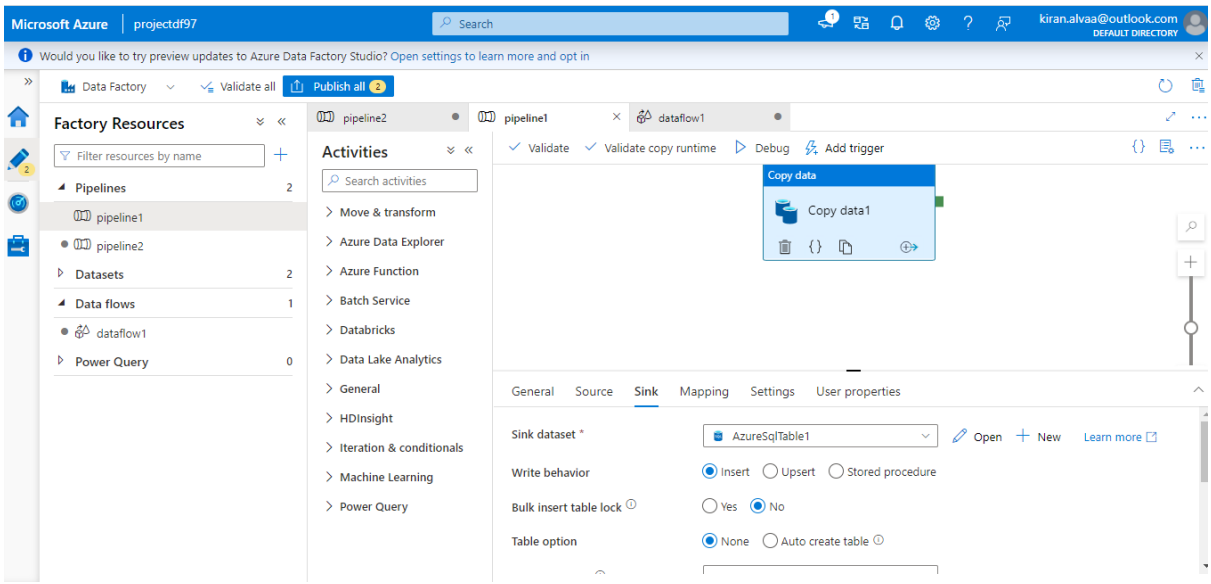




PIPELINE 1 – COPY MOVIES.CSV FROM ADLS TO SQL TABLE





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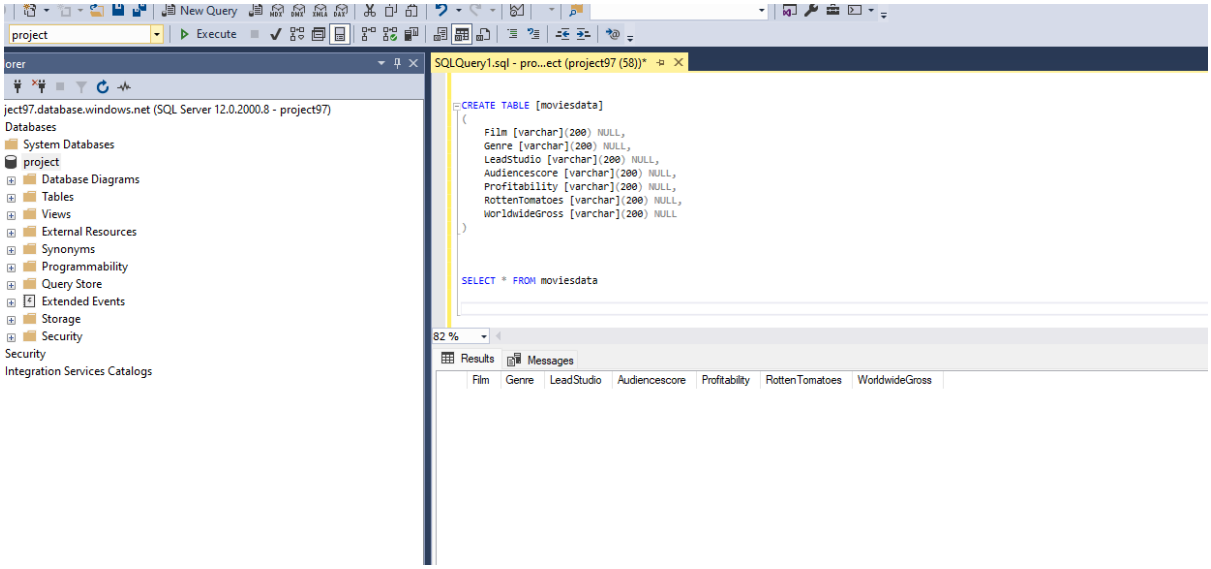

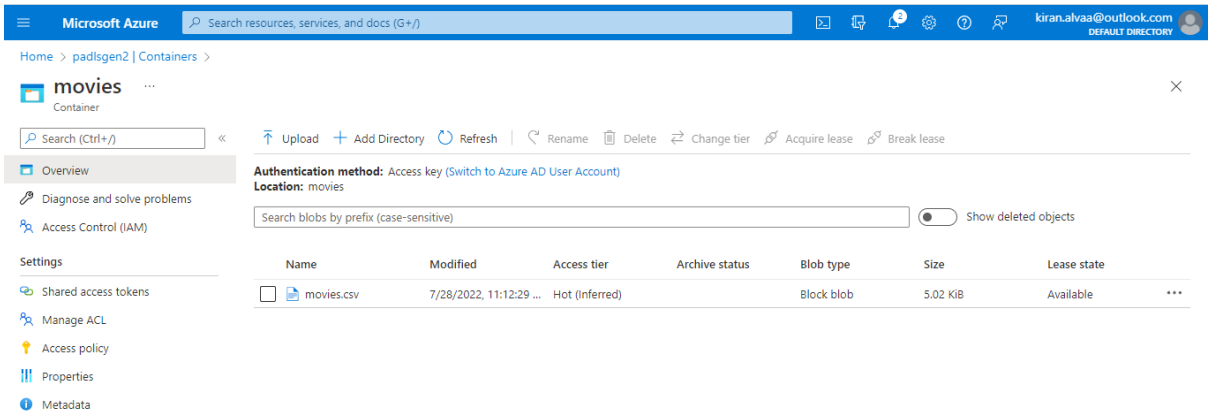

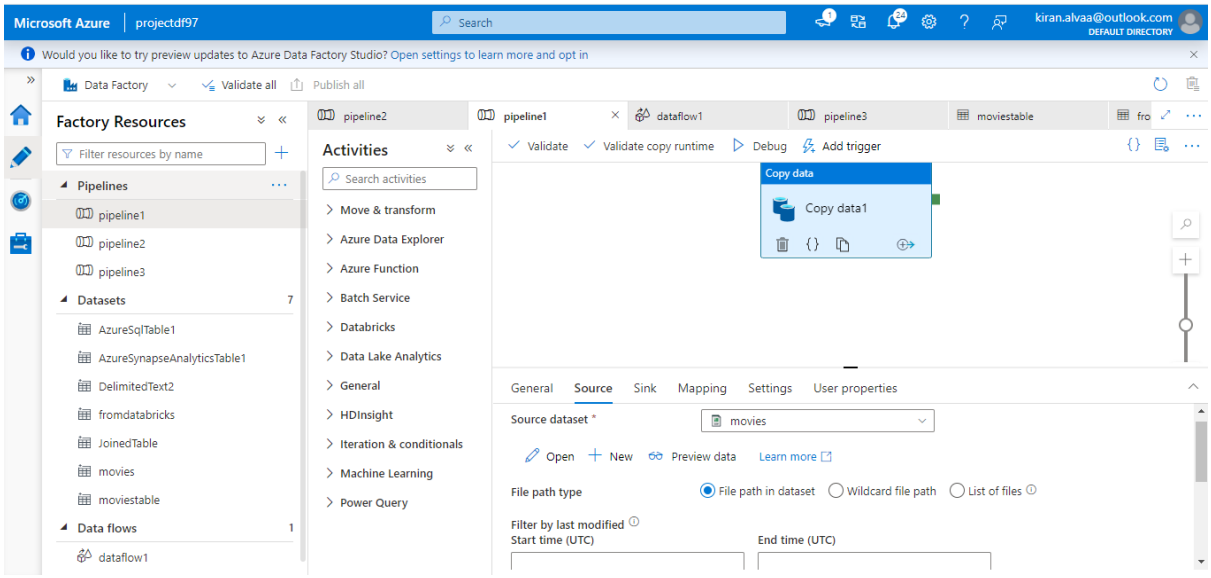

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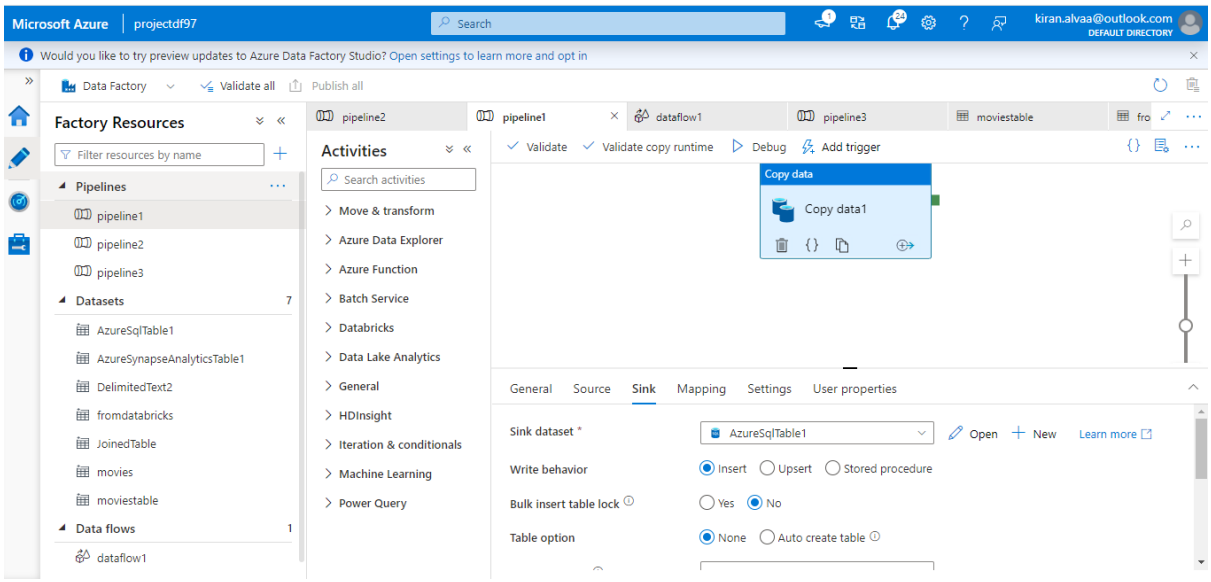

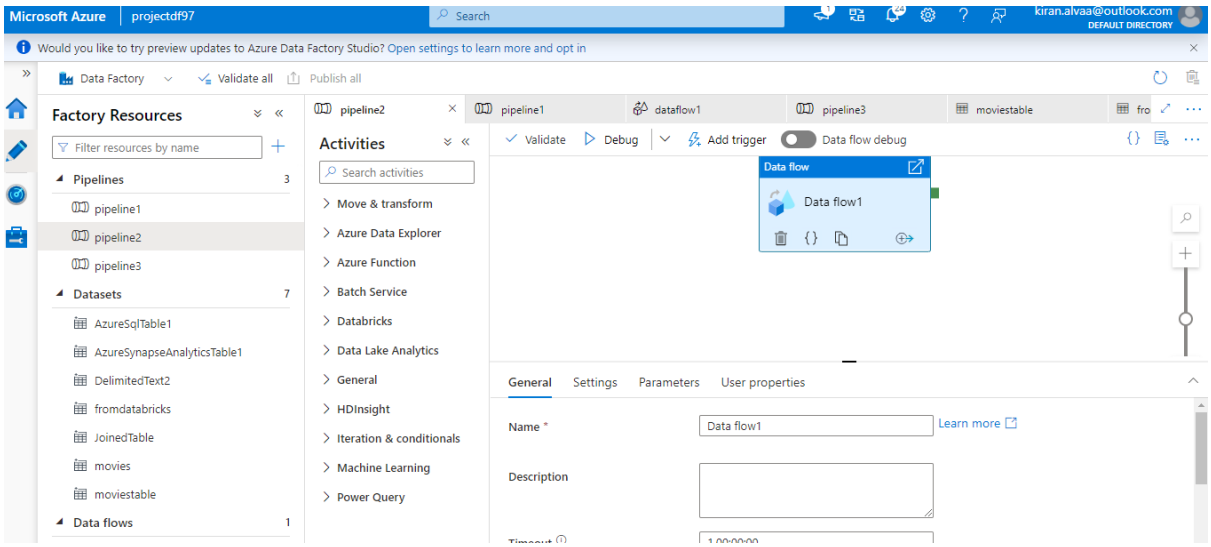

1. Create a data stream named CleaningGenreRomance and perform data cleansing on the Genre column using Derived Column and case expression. (While collecting data it was observed that some genres have spelling mistakes like romance, Romence for Romance, comedy, Comdy for Comedy.)

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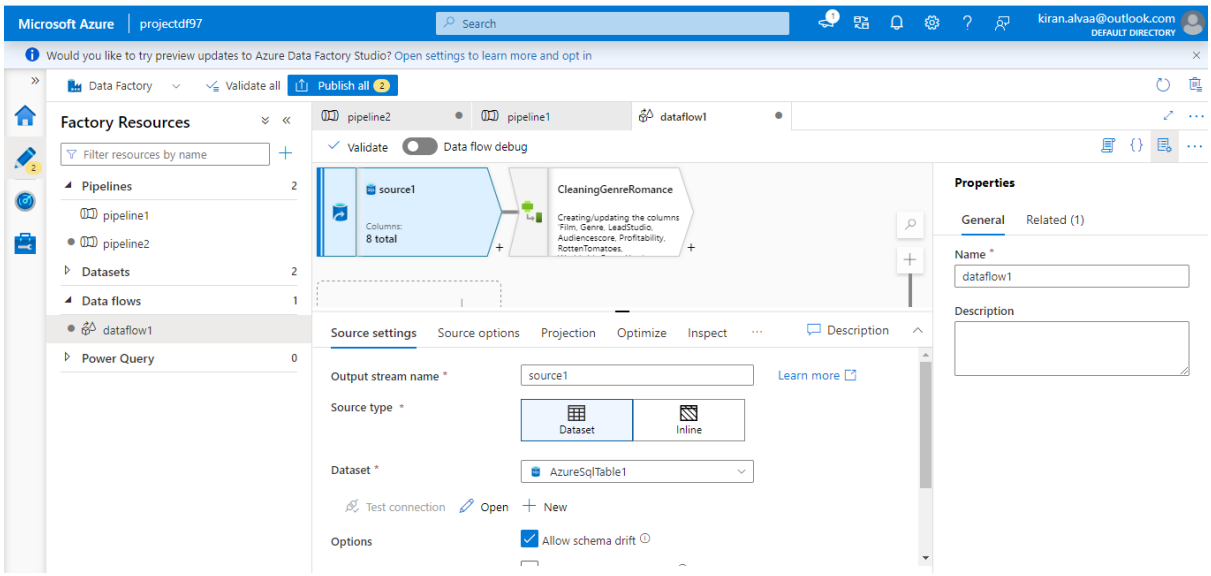
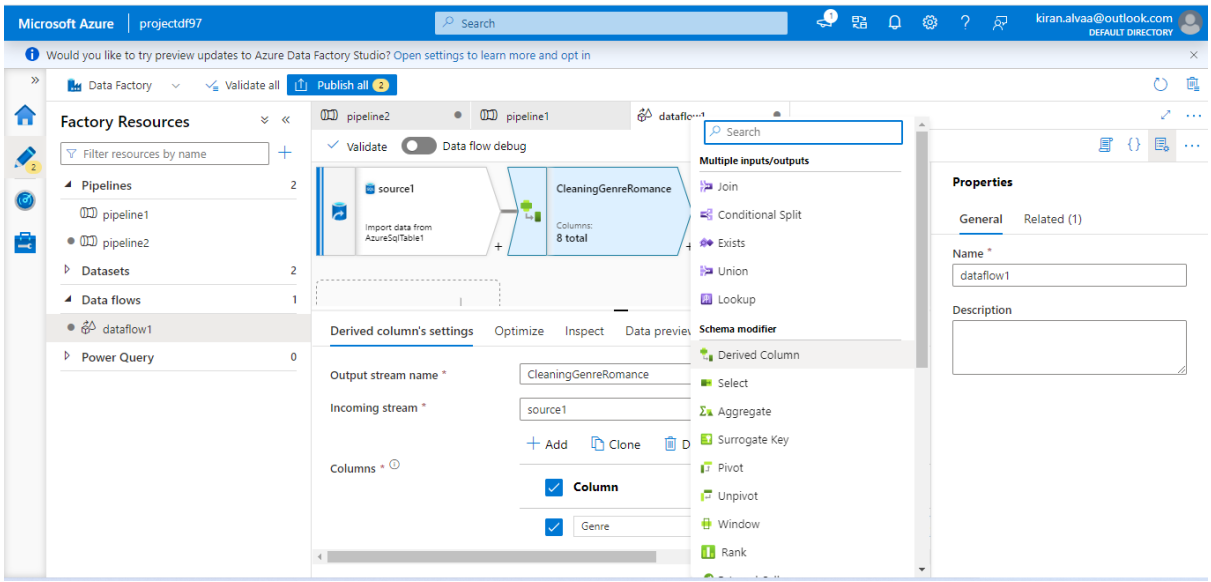
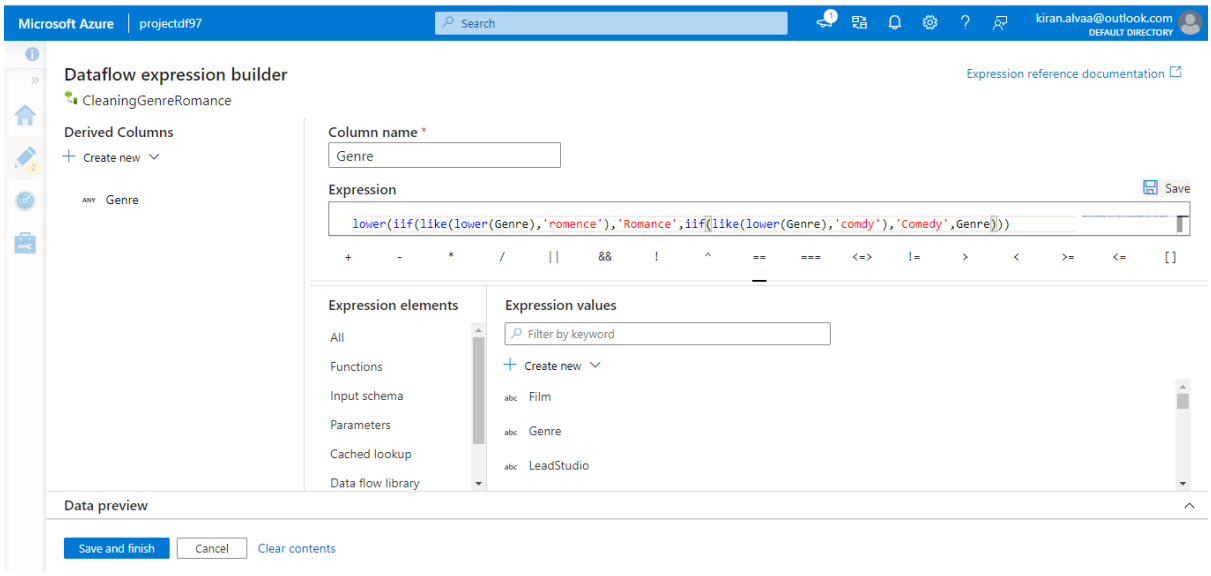
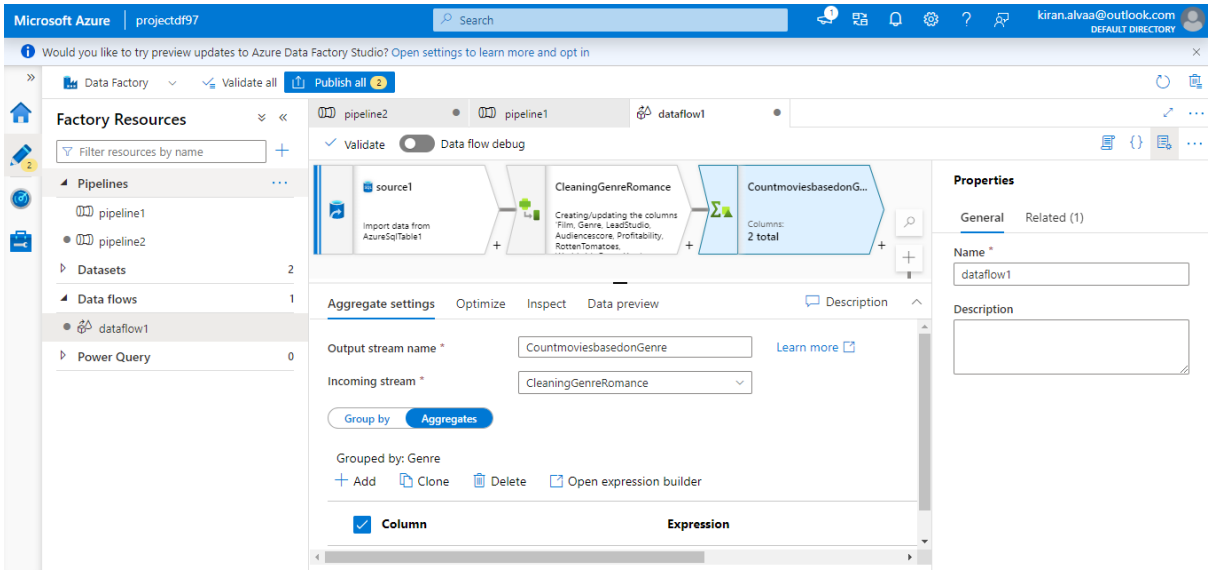






2. Create a data stream named CountMoviesBasedOnGenre that can calculate number of films for each genre and store it as a separate dataset in ADLS under folder name “solution/genreCount”



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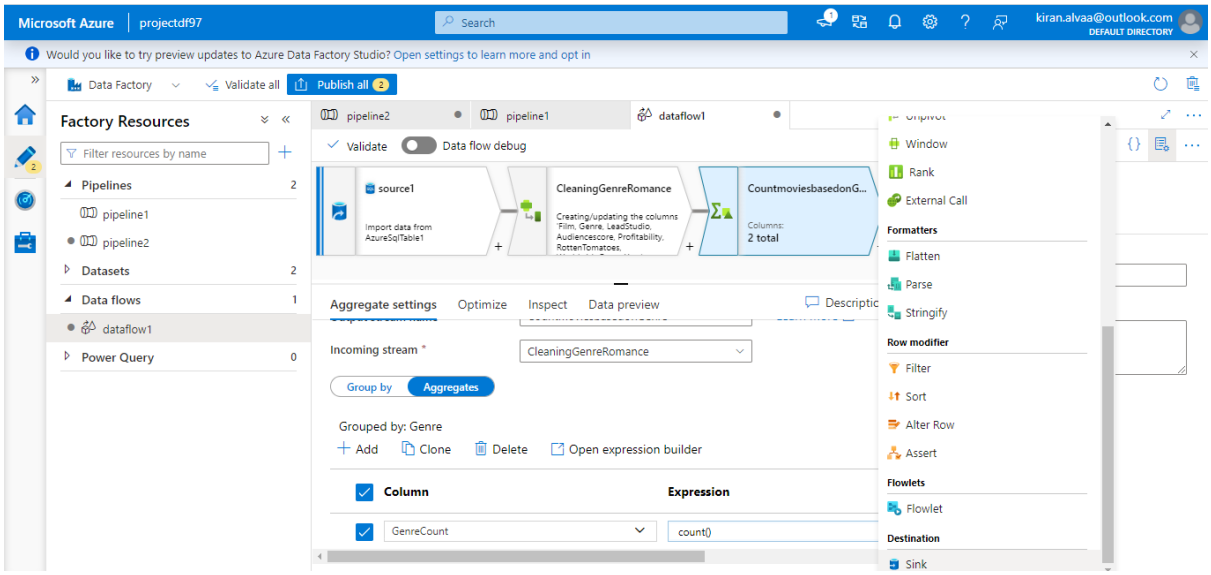

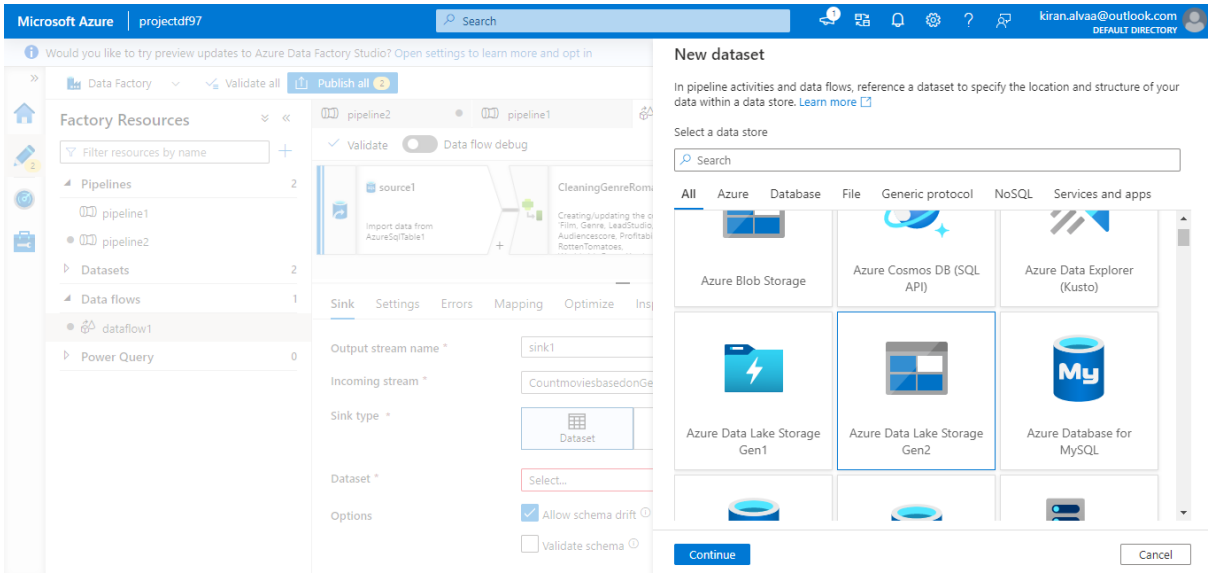

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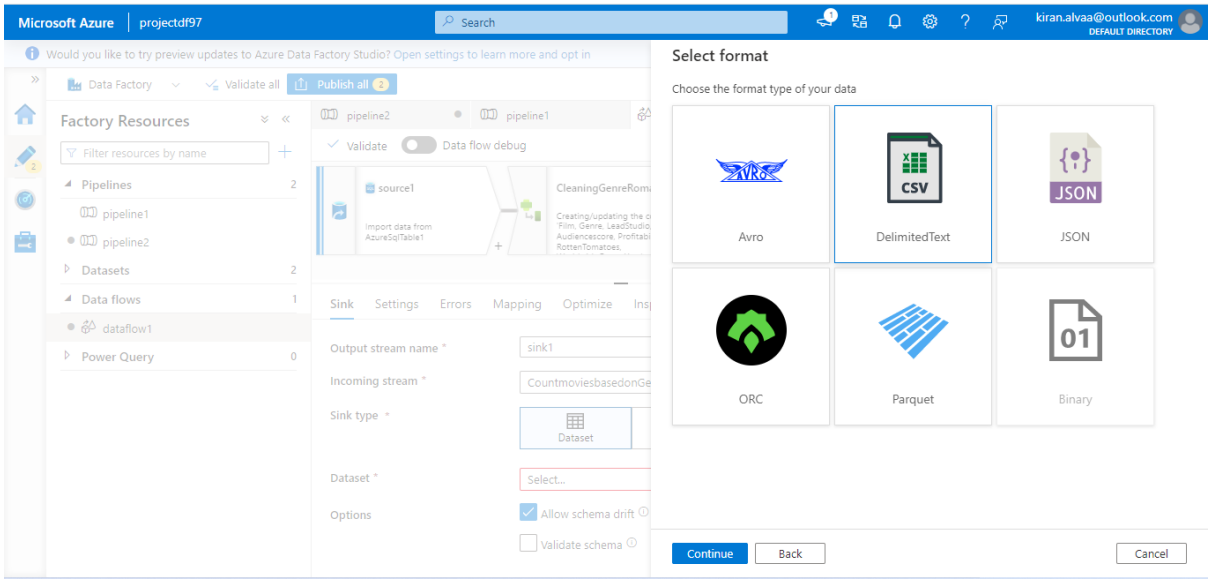
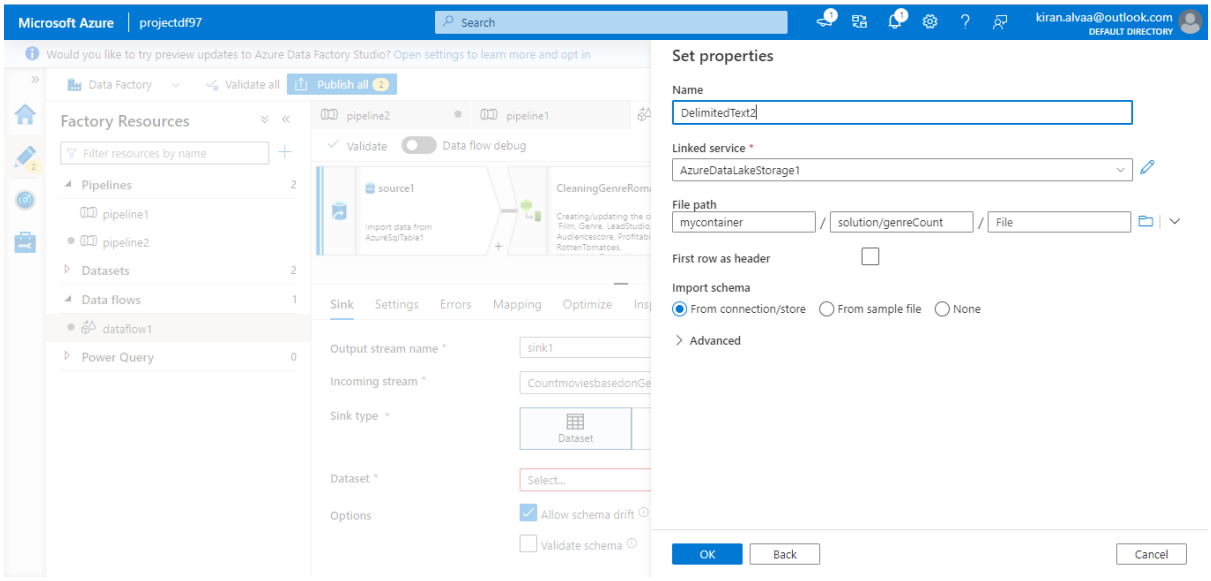
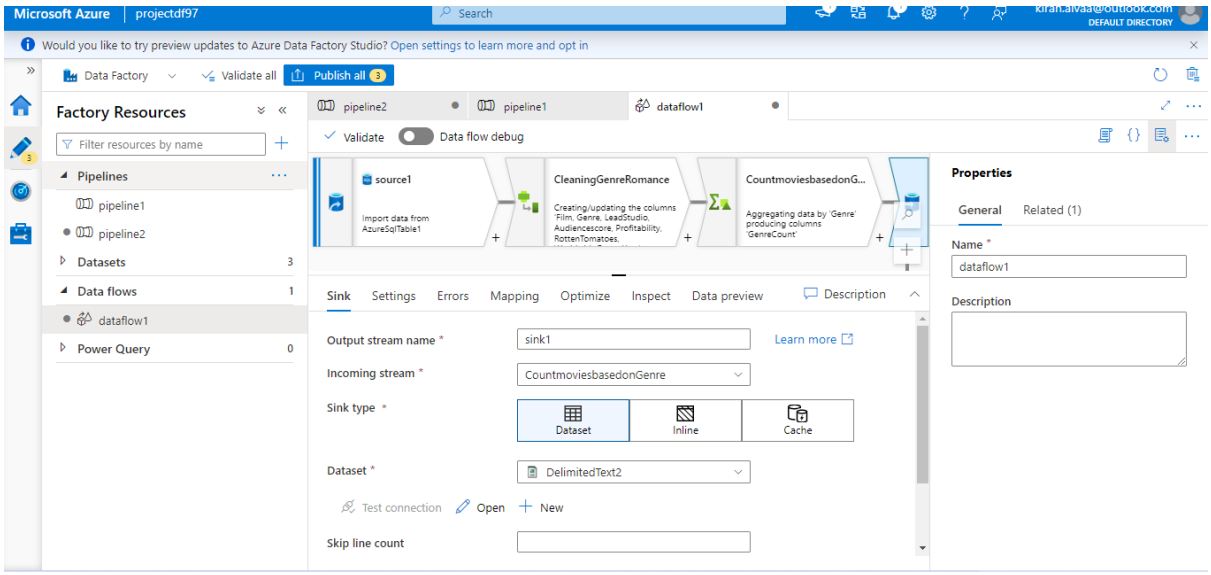
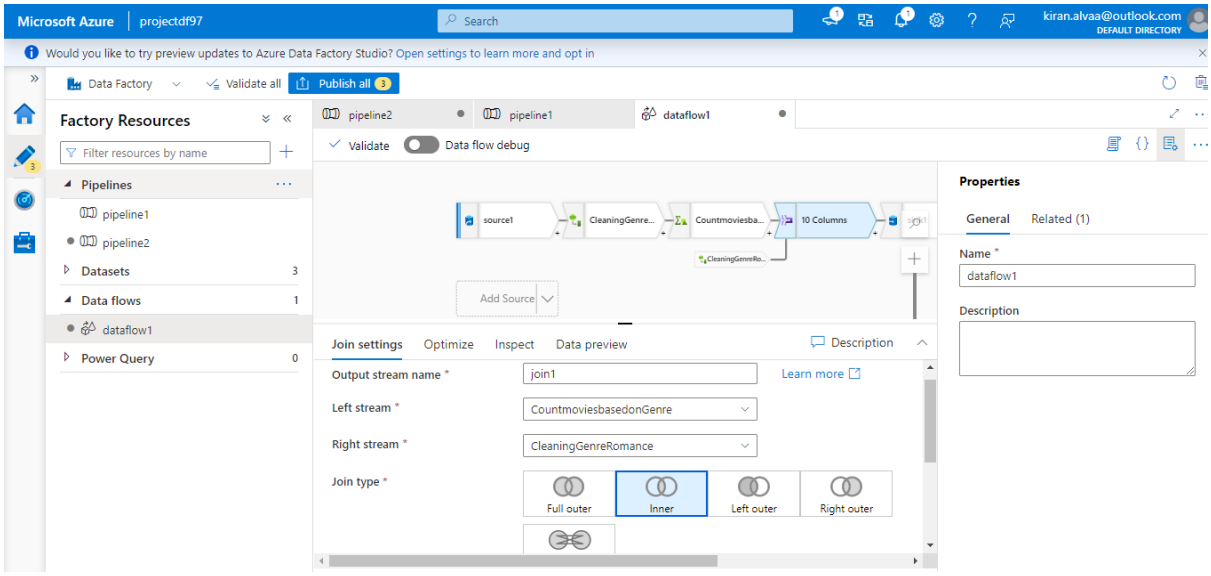






3. Create a new stream named JoinMovieCountWithCleanData. Perform join operation on CountMoviesBasedOnGenre with CleaningGenreRomance stream and store the same in the Azure SQL Database.



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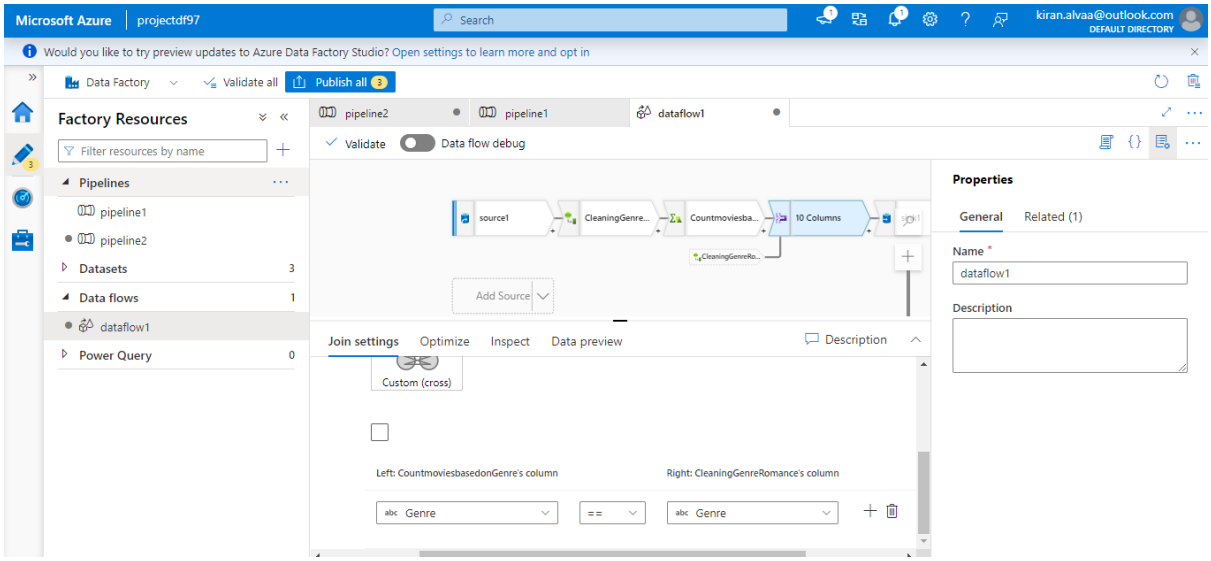

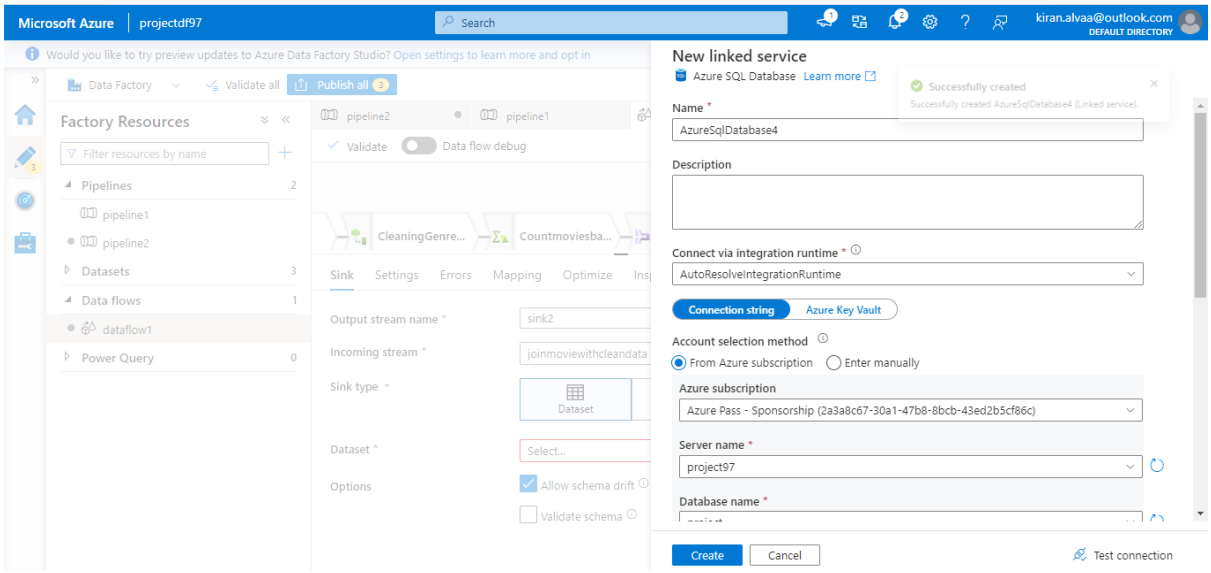

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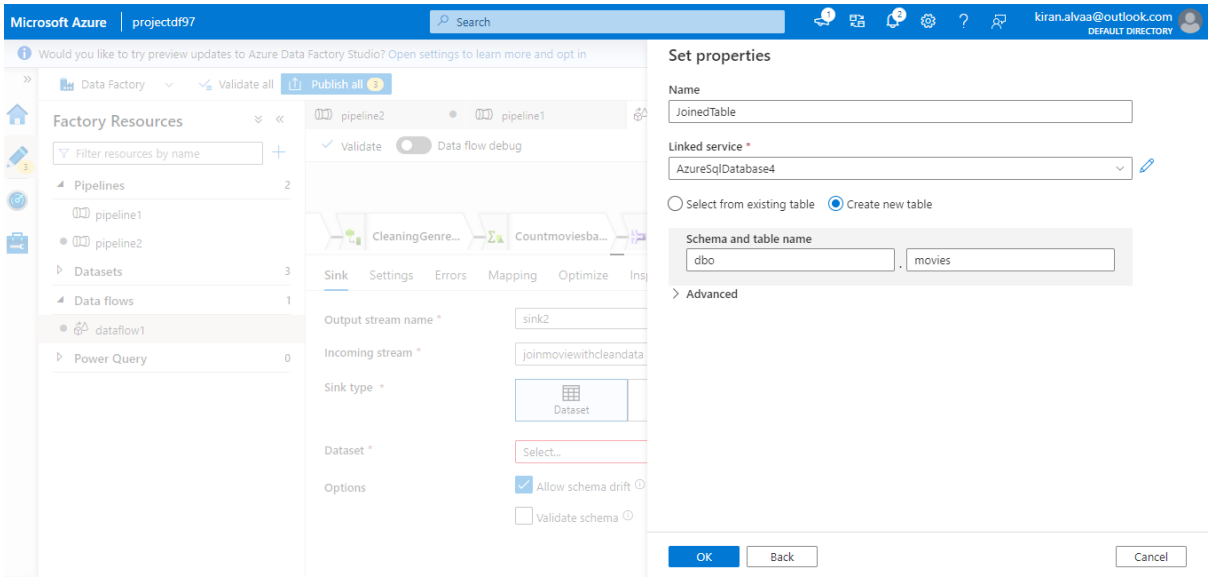

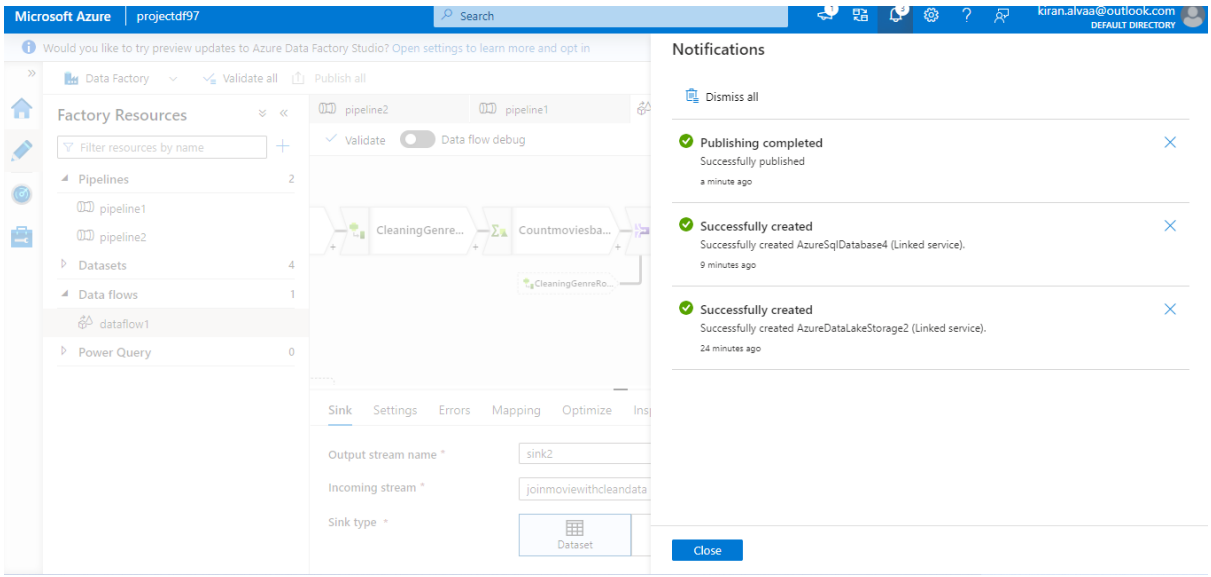

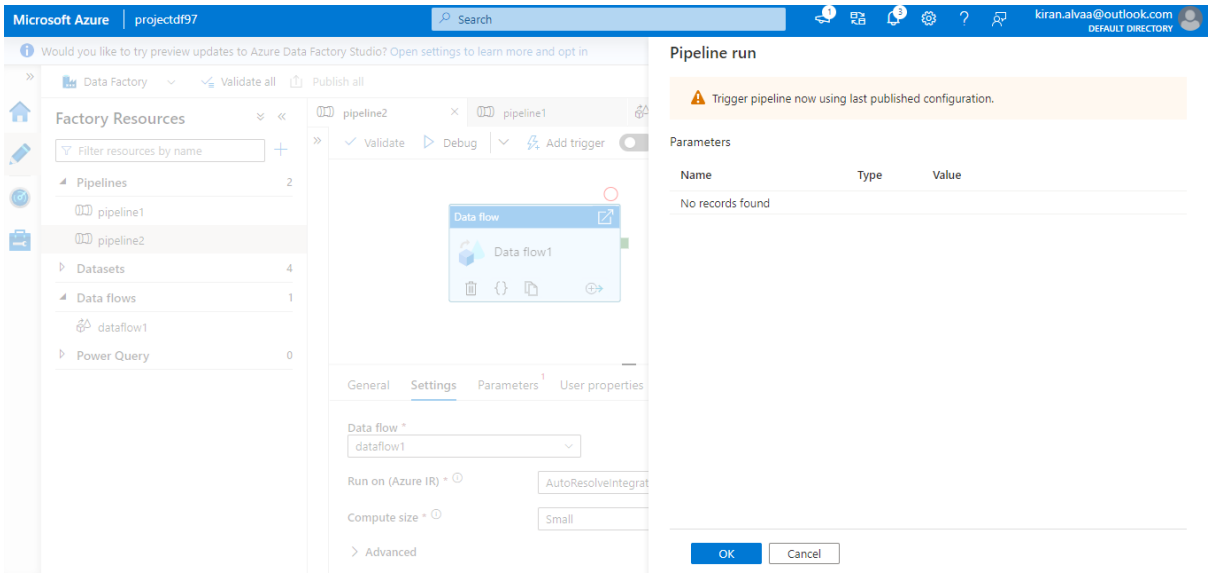

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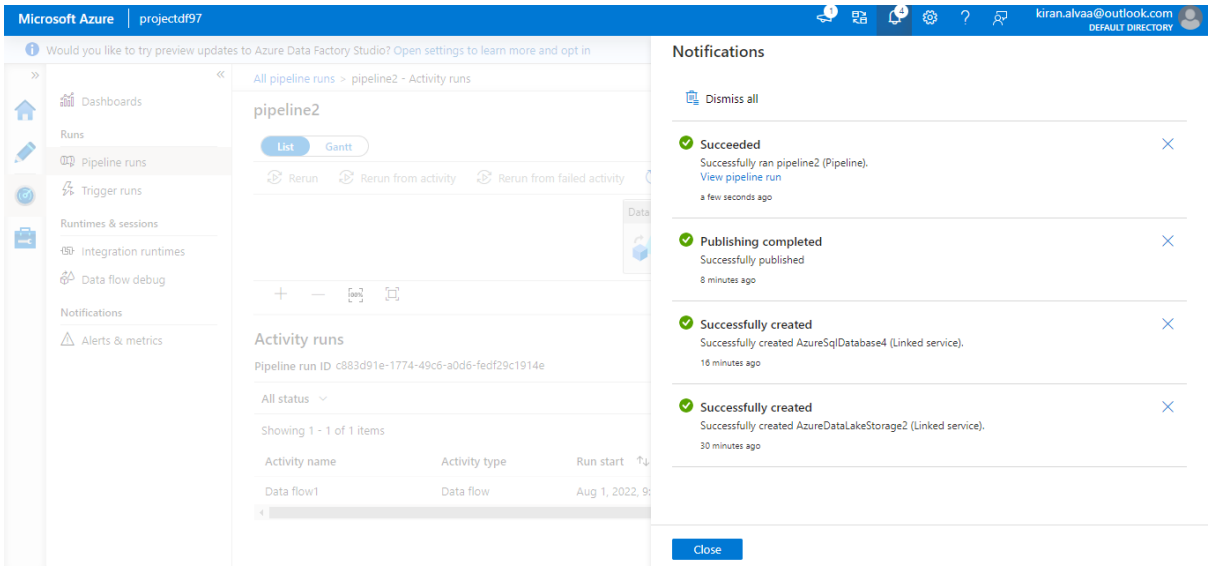

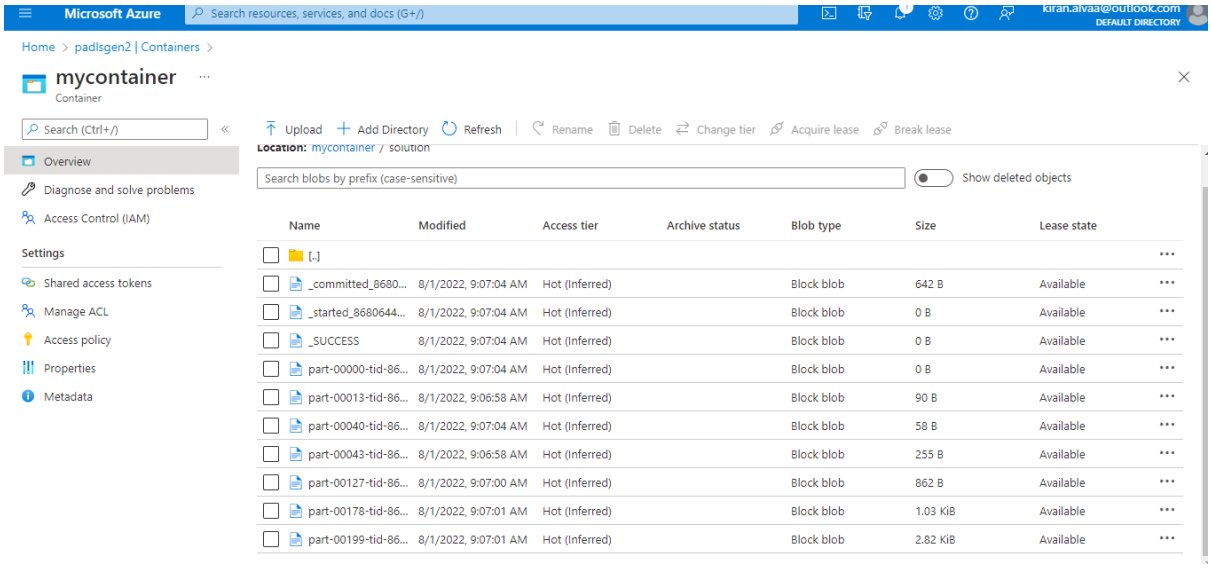

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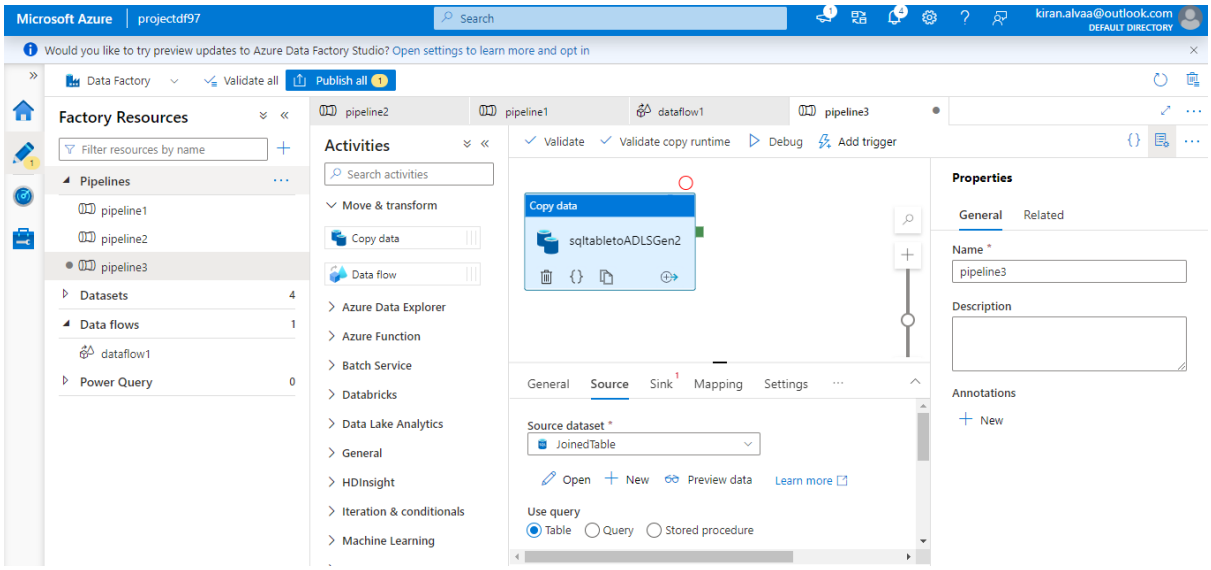
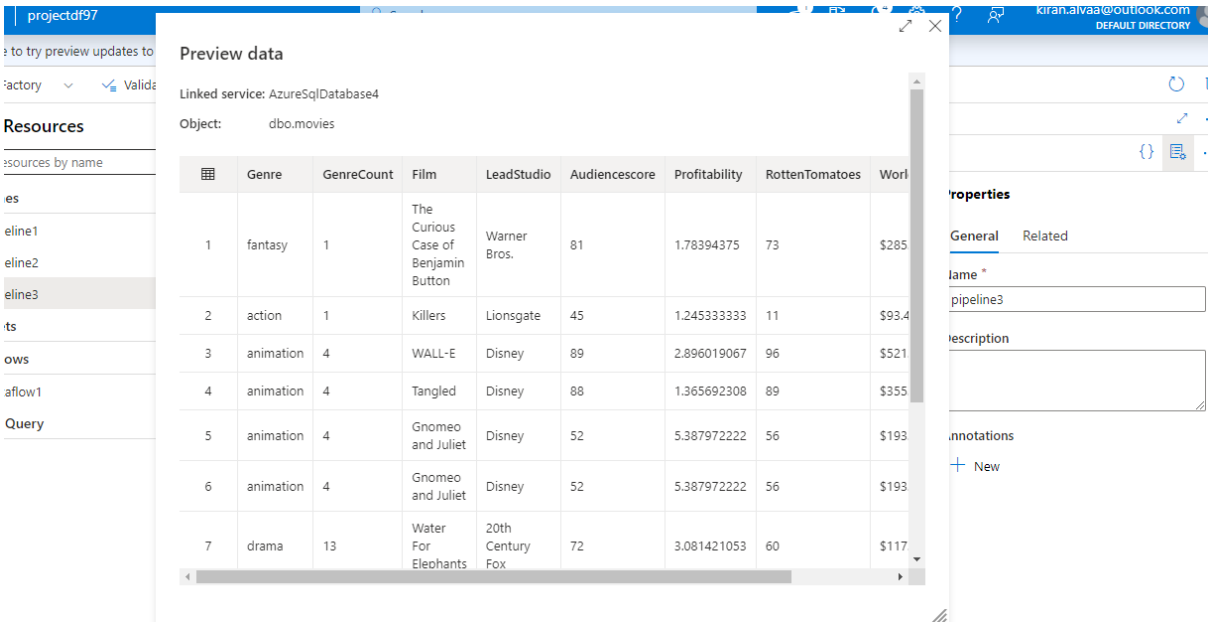
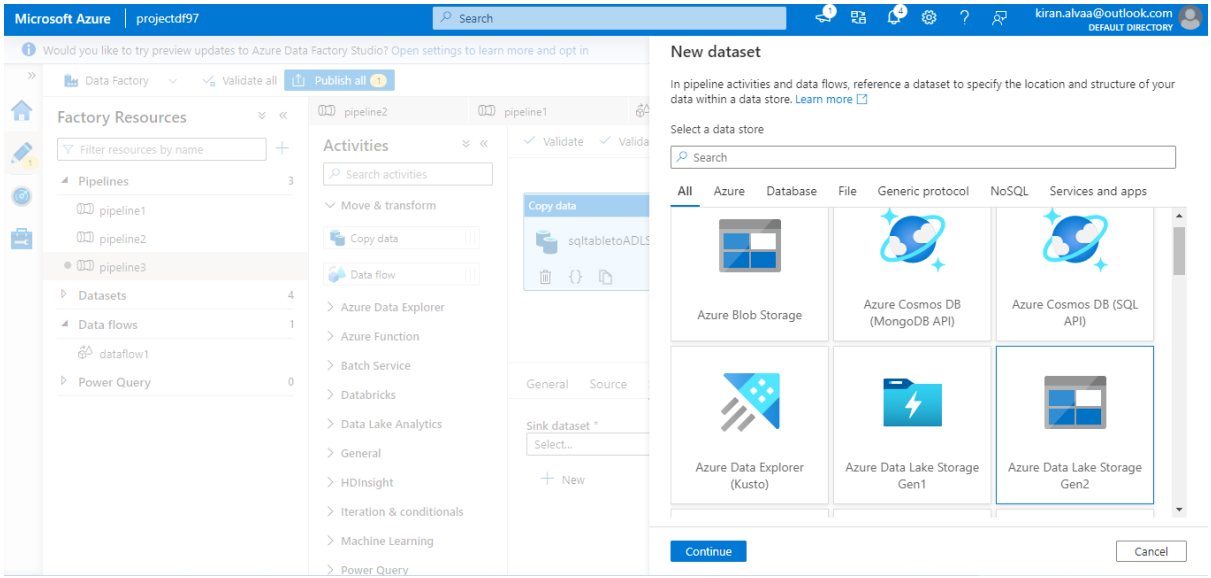
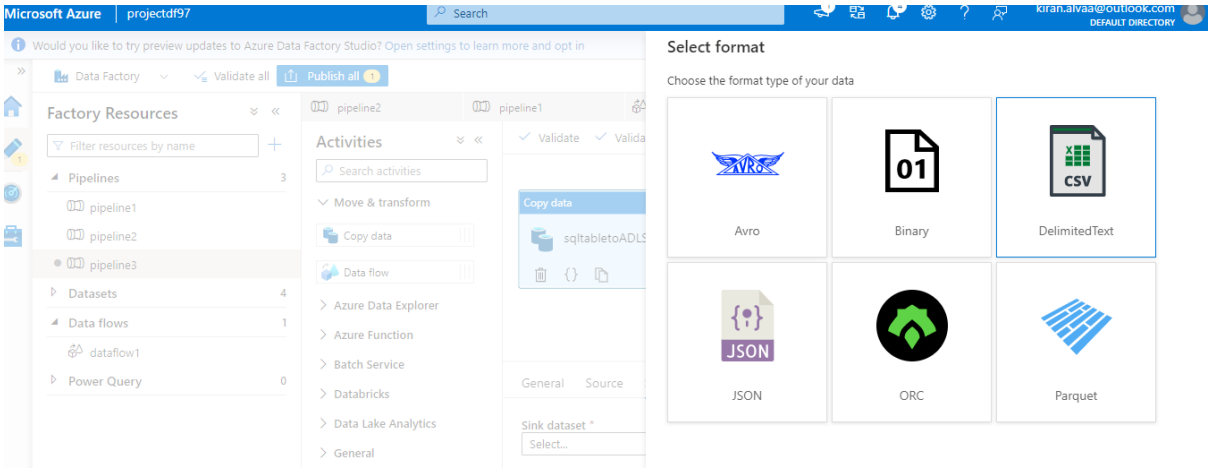
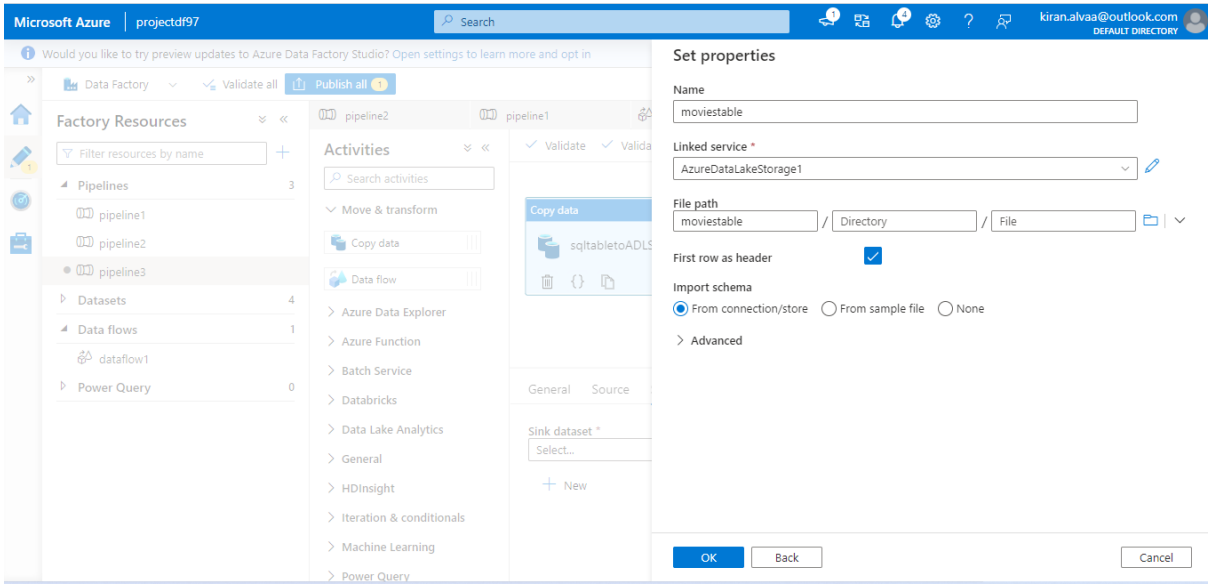
1. Get the clean data from Azure SQL DB. Create an activity that can copy the data from SQLDB to ADLS Gen2.











2. Create an activity that can use Azure Databricks to read the data from the ADLS Gen2 and perform rank operation on the Genre column. Ensure this activity gets activated only after the data is stored in ADLS from SQL DB. The result of Databricks must be stored in the ADLS.

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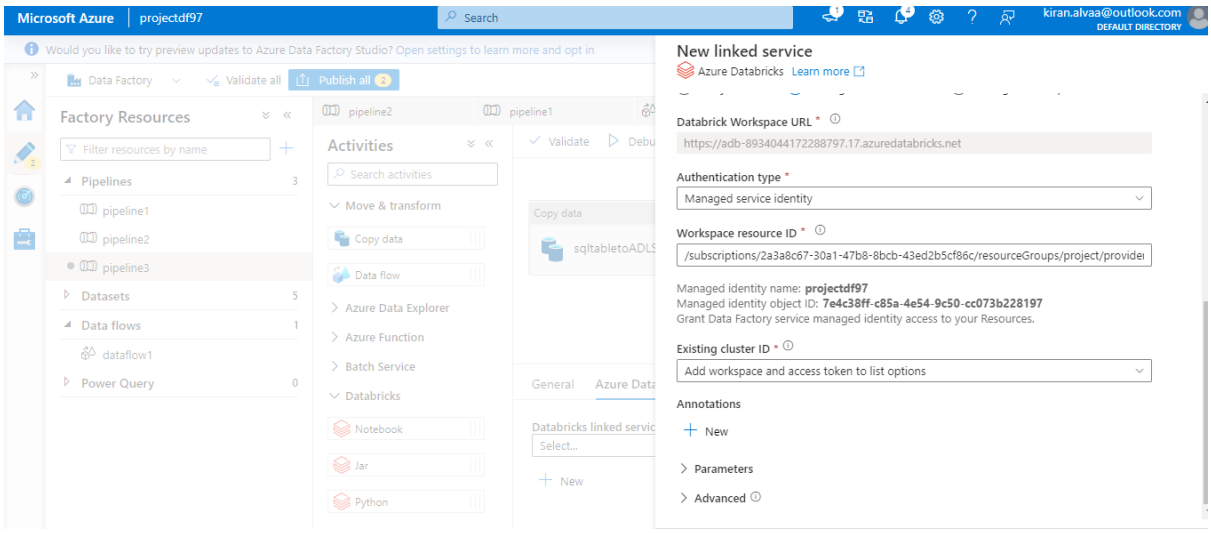

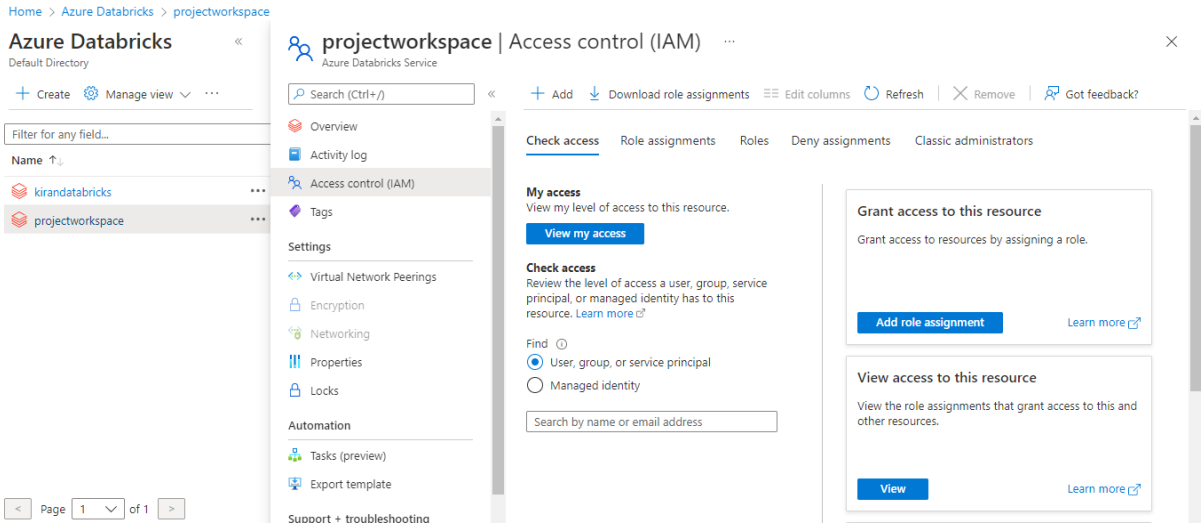

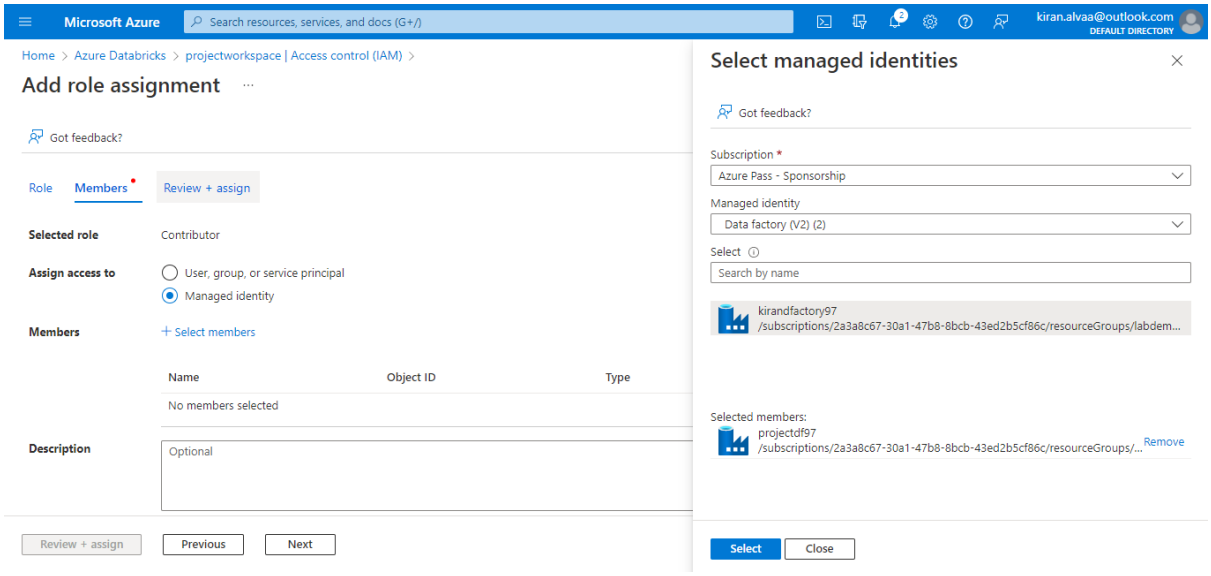
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Data factory (V2) (2)
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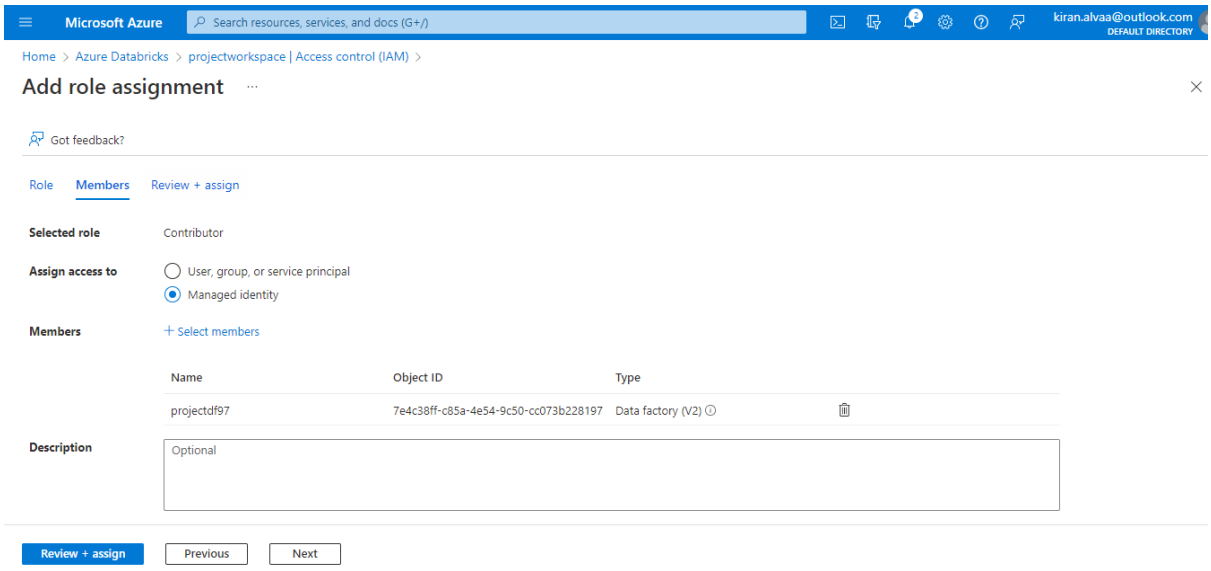
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Managed identity
Members
+ Select members
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Data factory (V2)
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Optional
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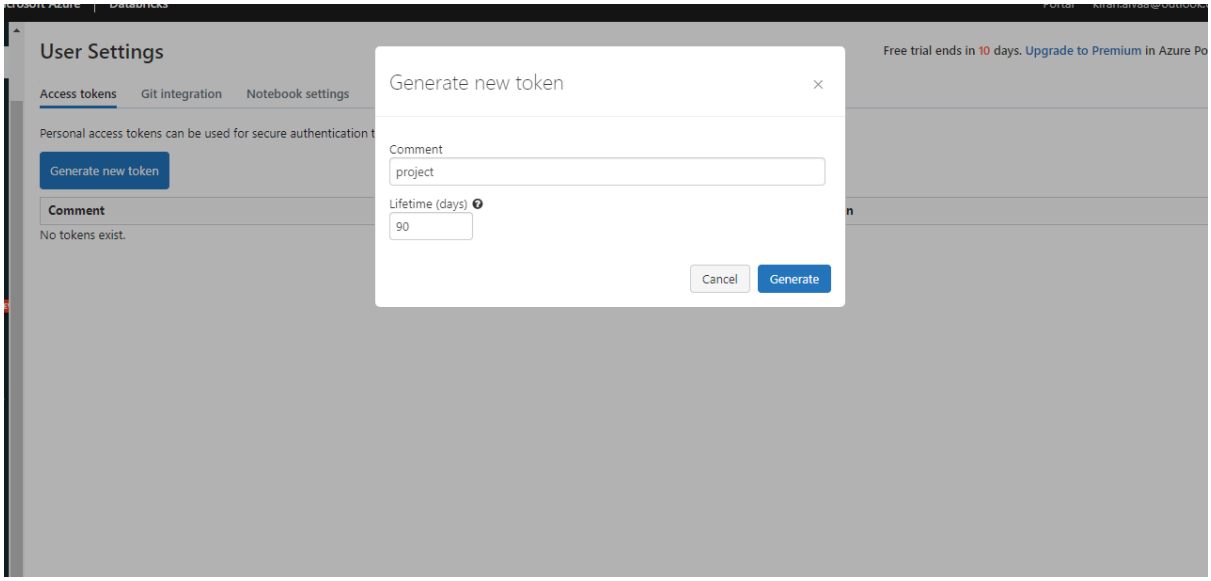

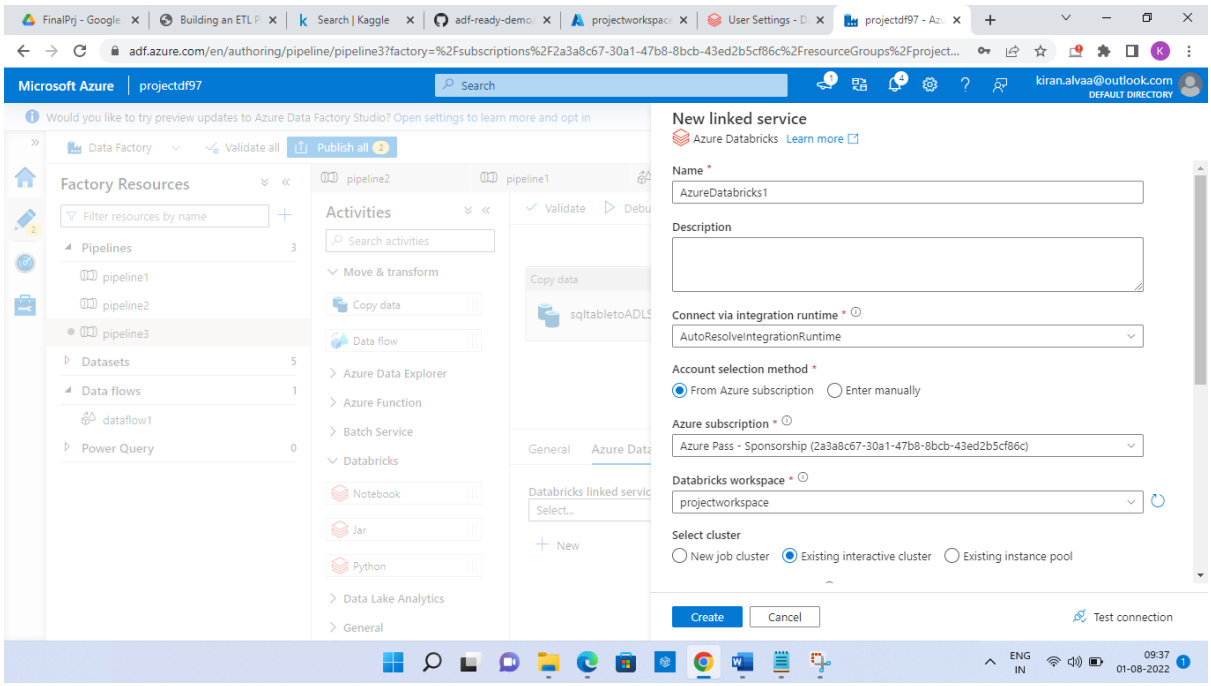

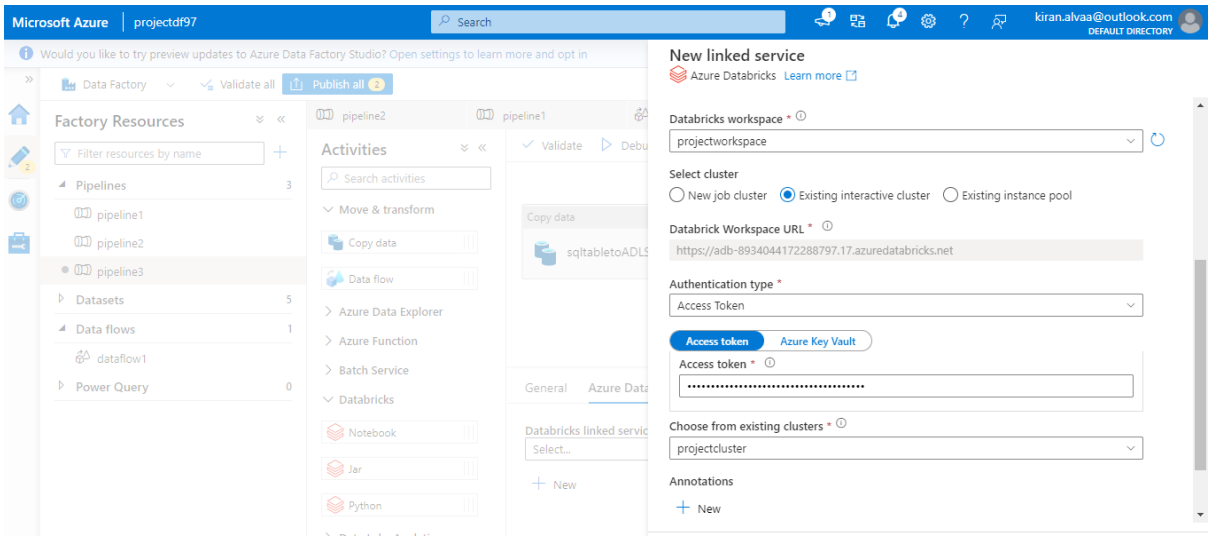

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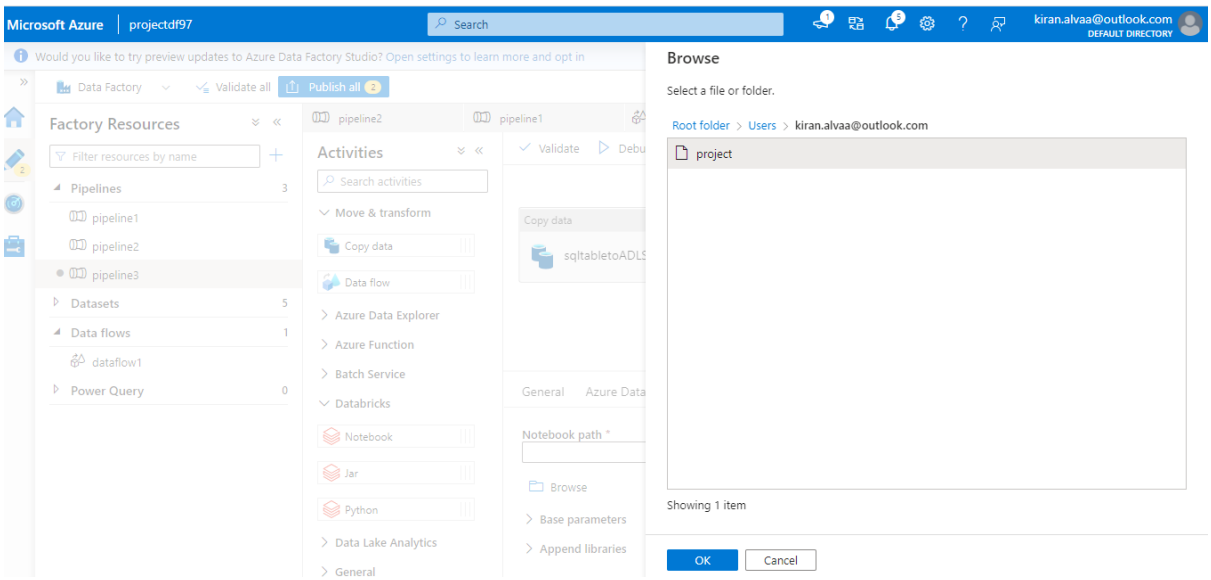
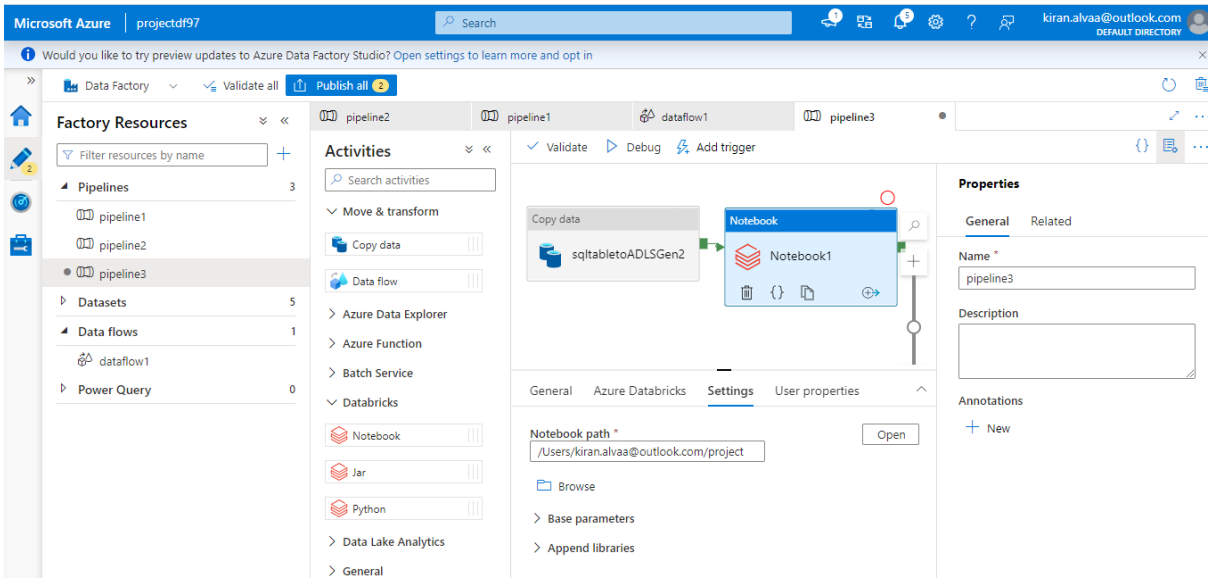
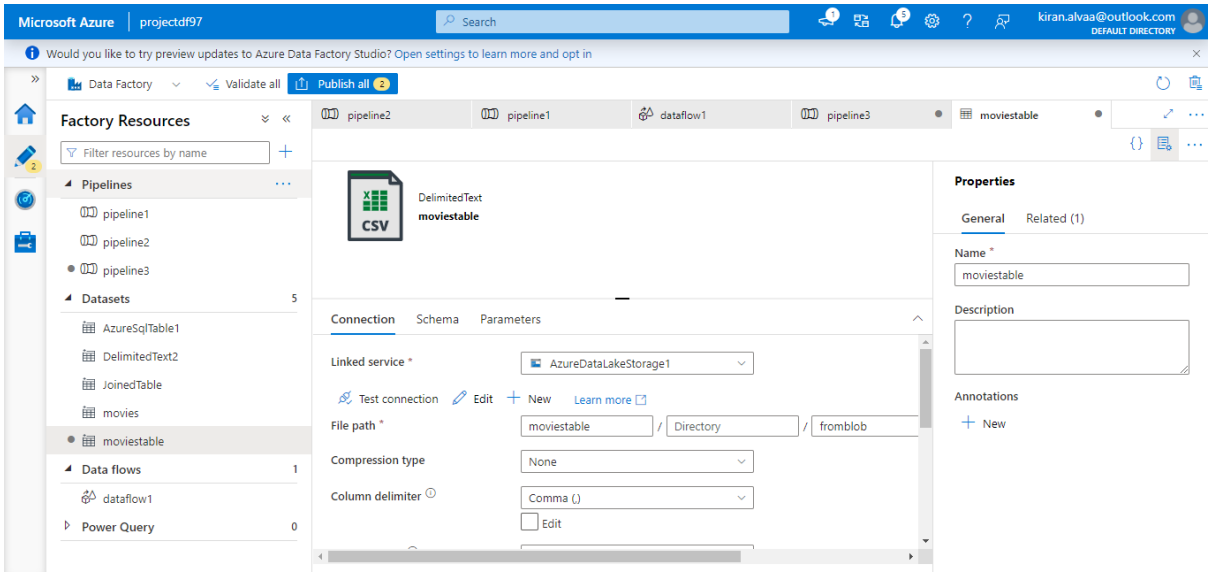
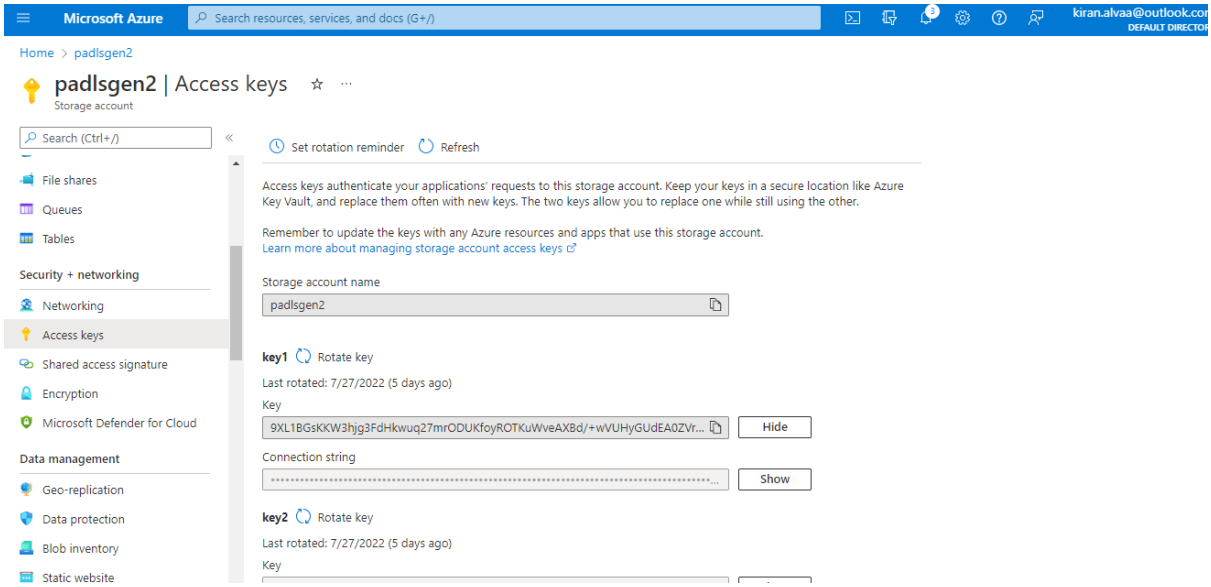
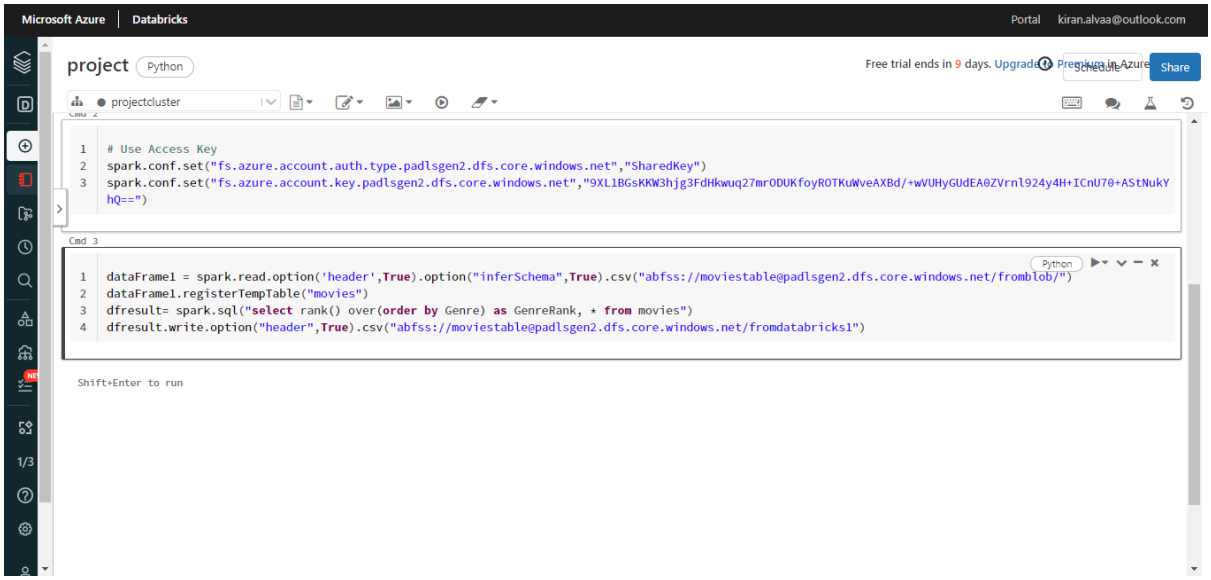










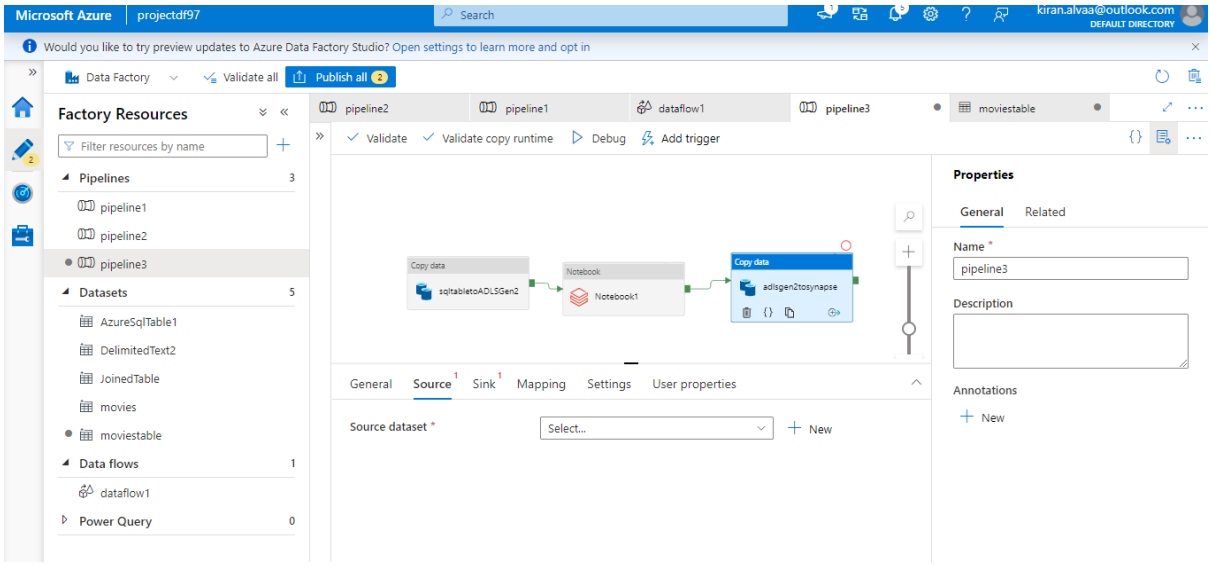
dataFrame1 = spark.read.option('header',True).option("inferSchema",True).csv("abfss://moviestable@padlsgen2.dfs.core.windows.net/fromblob/")

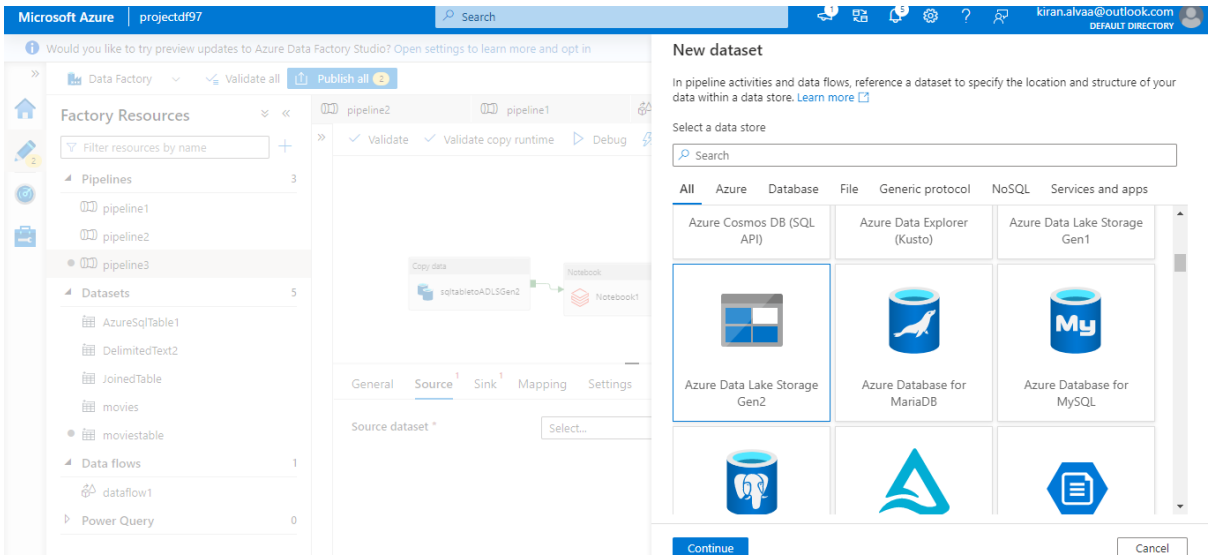
dataFrame1.registerTempTable("movies")

dfresult= spark.sql("select rank() over(order by Genre) as GenreRank, * from movies")

dfresult.write.option("header",True).csv("abfss://moviestable@padlsgen2.dfs.core.windows.net/fromdatabricks1")

3. Create a final activity that will read the output of previous activity in ADLS and store the same in Synapse.





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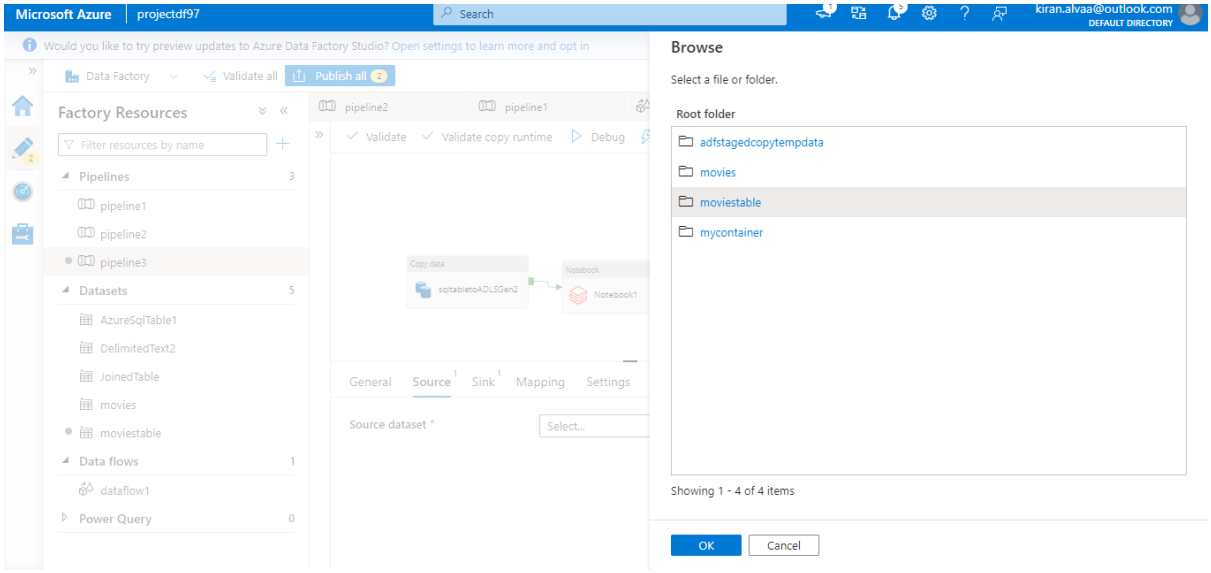

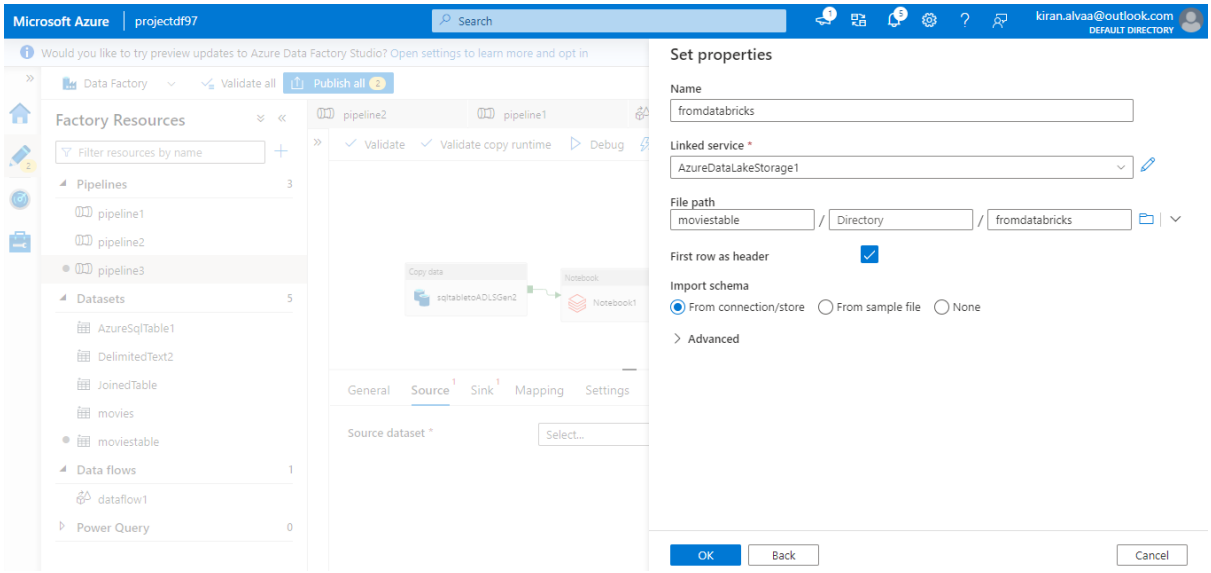

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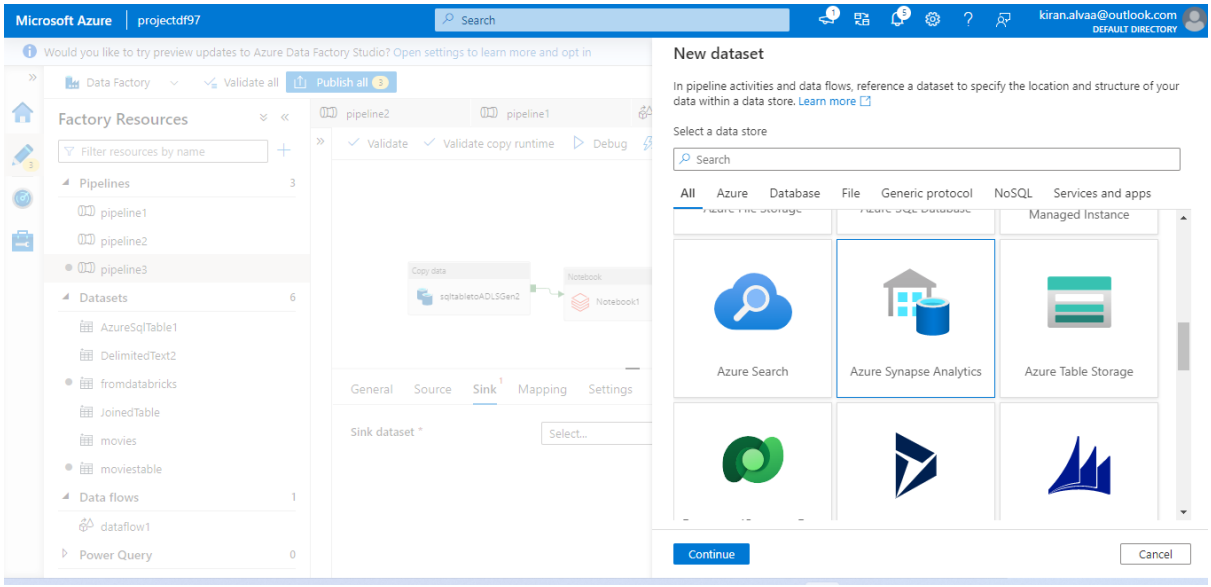
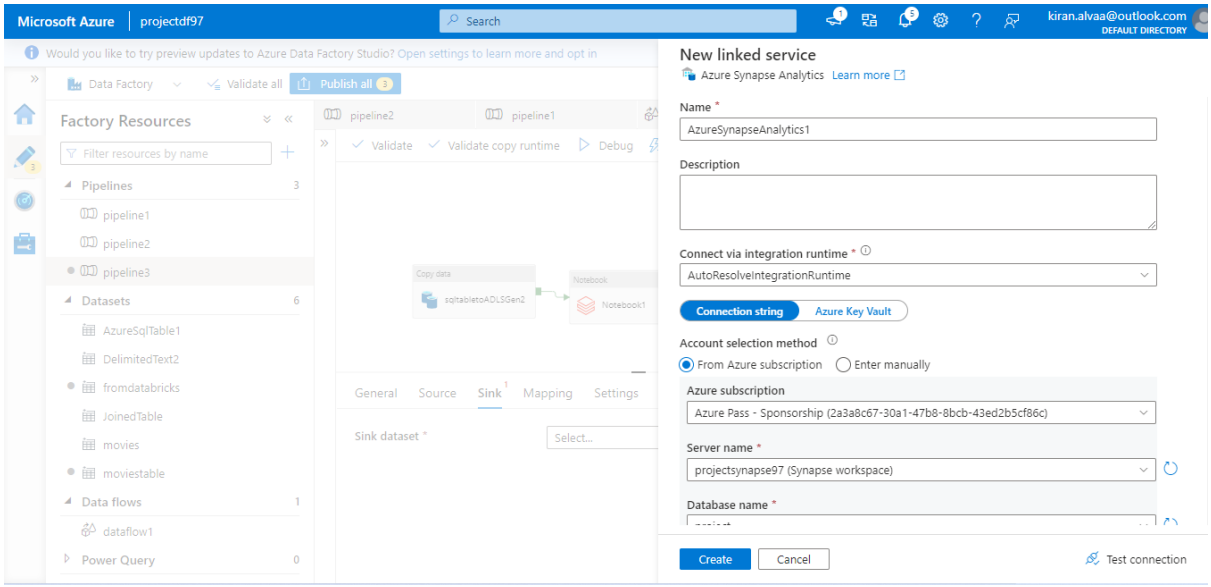
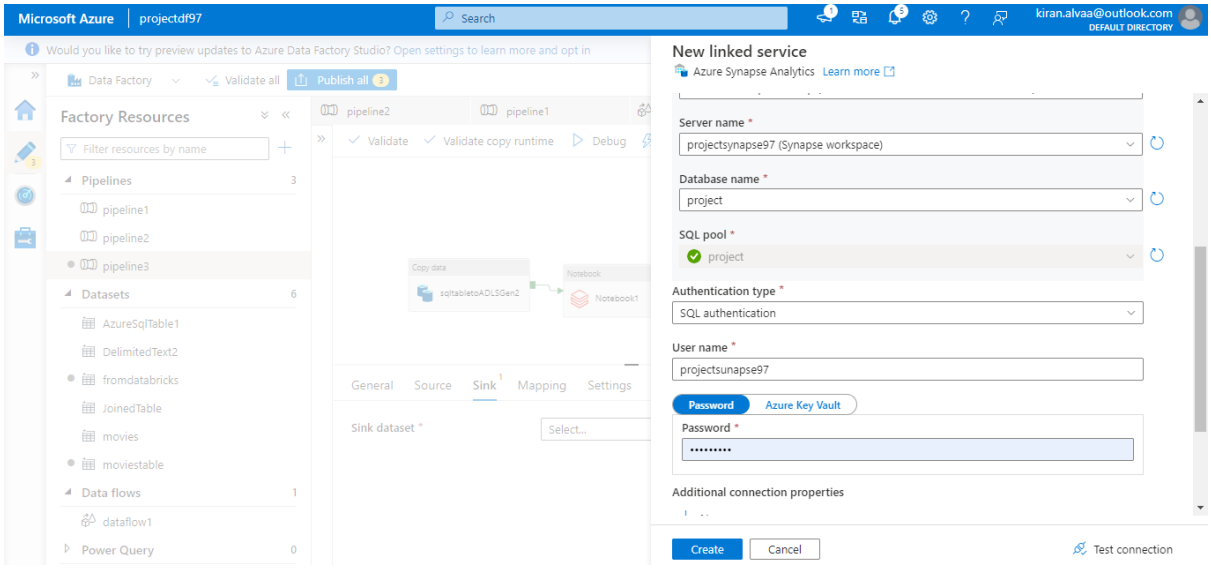
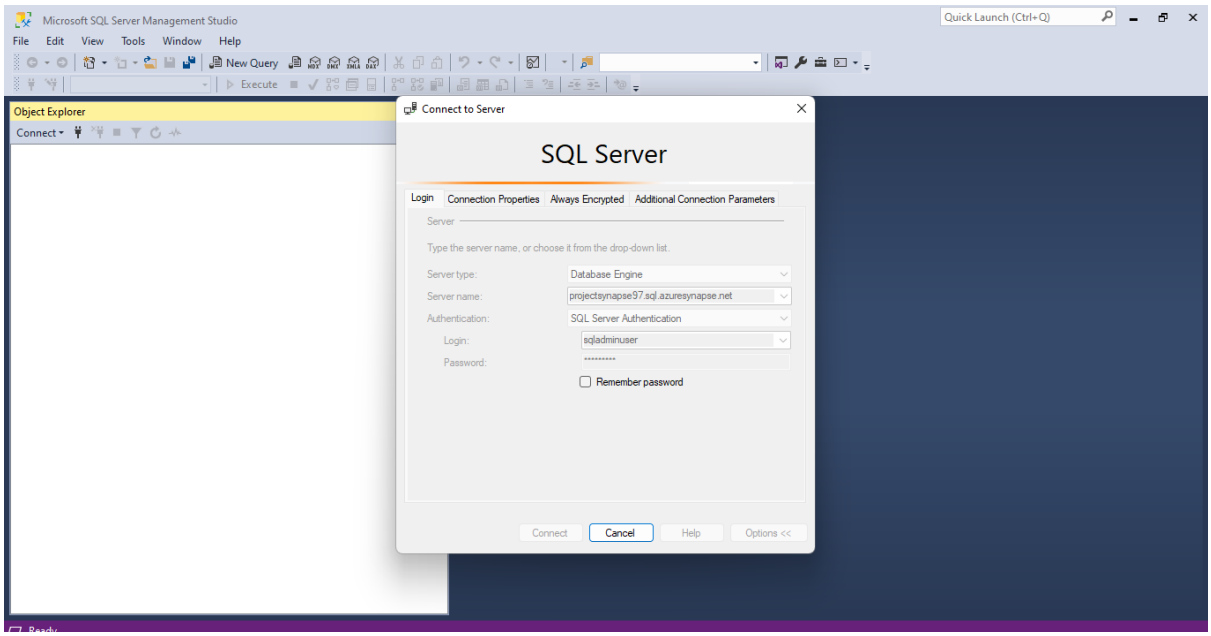


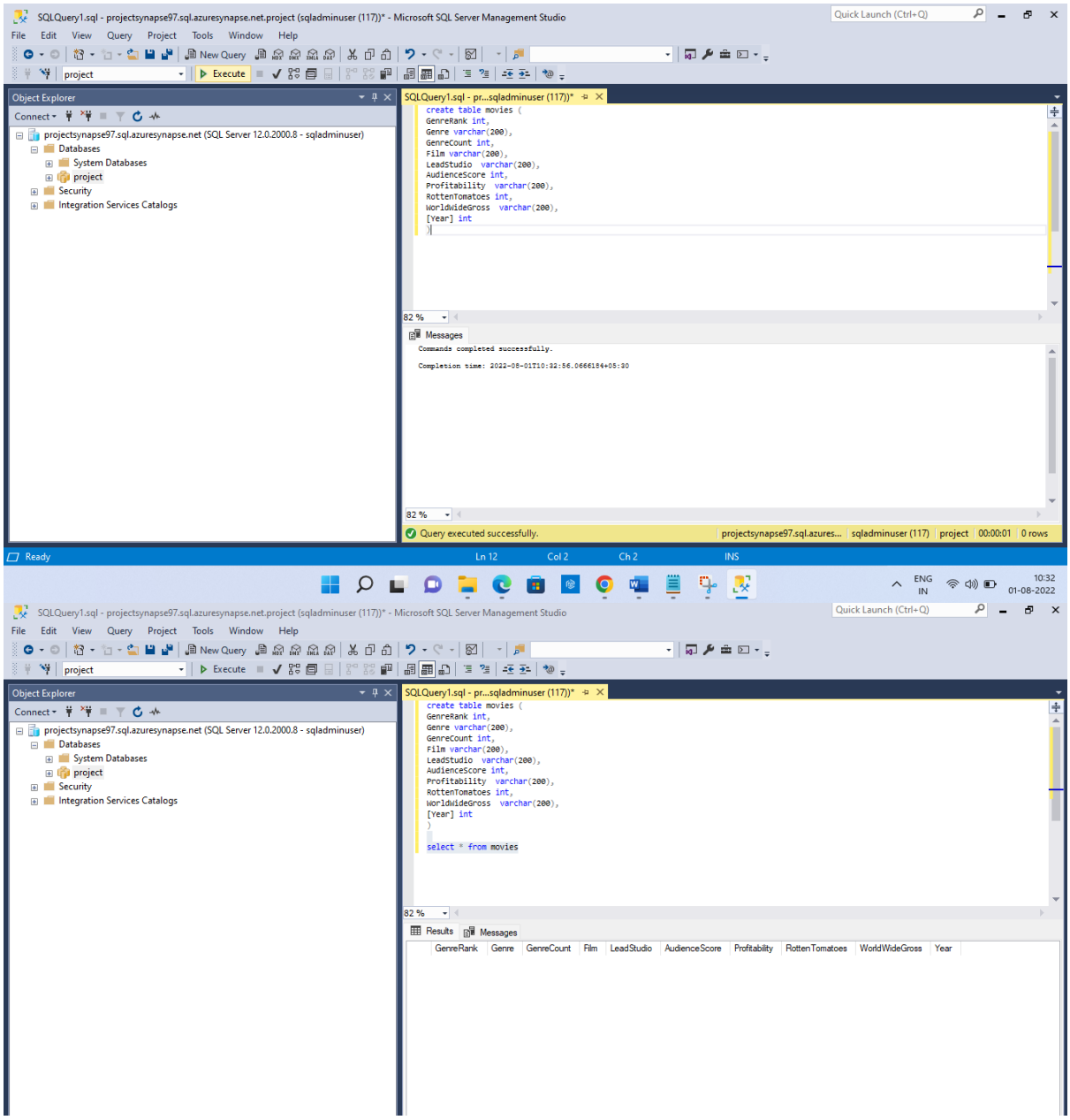







```
create table movies (
GenreRank int,
Genre varchar(200),
GenreCount int,
Film varchar(200),
LeadStudio  varchar(200),
AudienceScore int,
Profitability  varchar(200),
RottenTomatoes int,
WorldWideGross  varchar(200),
```

```
[Year] int
                                                                    )
```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SQLQuery1.sql - pr...sqladminuser (117))*
create table movies (
GenreRank int,
Genre varchar(200),
GenreCount int,
Film varchar(200),
LeadStudio varchar(200),
AudienceScore int,
Profitability varchar(200),
RottenTomatoes int,
WorldWideGross varchar(200),
[Year] int
82 %
Messages
Commands completed successfully.
Completion time: 2022-08-01T10:32:56.0666184+05:30
Query executed successfully.
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00:00:01
0 rows
Ready
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ENG
IN
10:32
01-08-2022
select * from movies
Results
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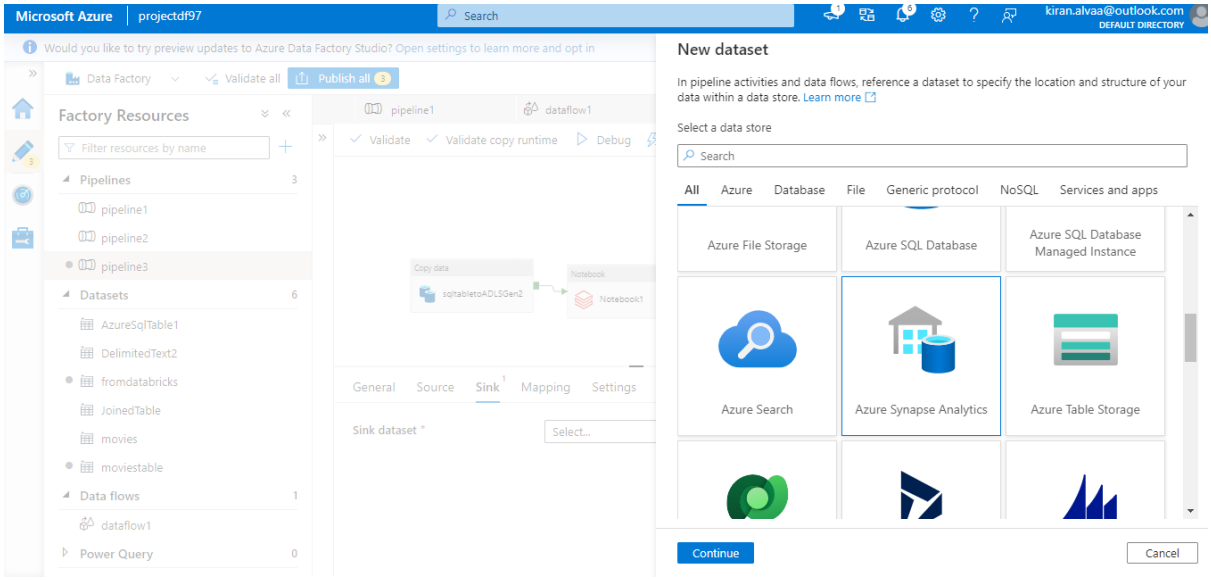
GenreRank
Genre
GenreCount
Film
LeadStudio
AudienceScore
Profitability
RottenTomatoes
WorldWideGross
Year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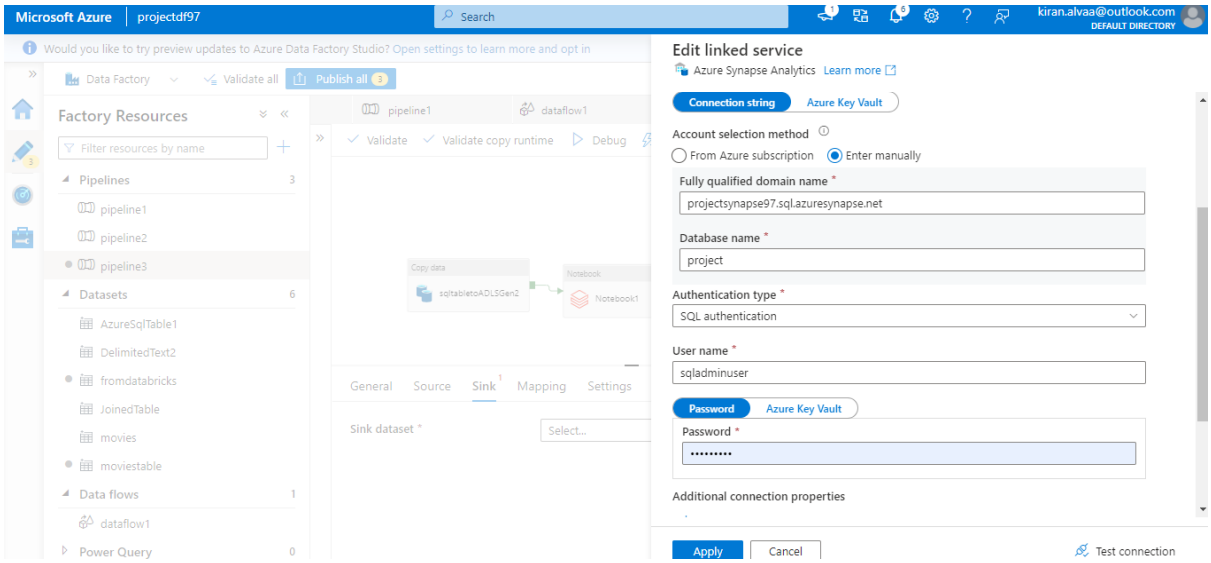
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Power Query 0
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Account selection method
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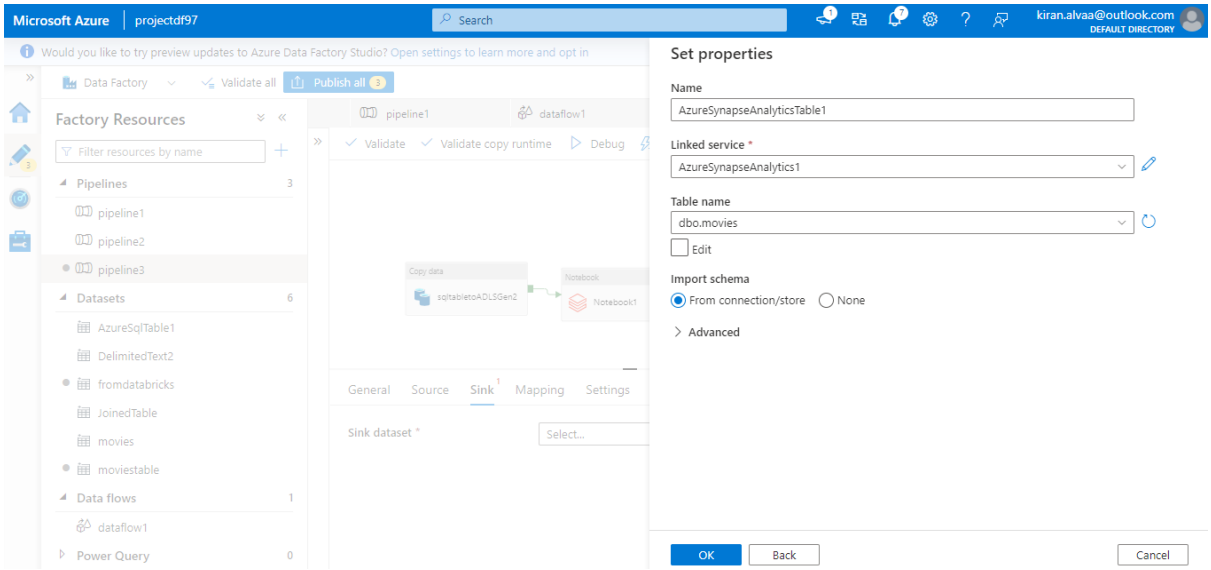
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AzureSynapseAnalytics1
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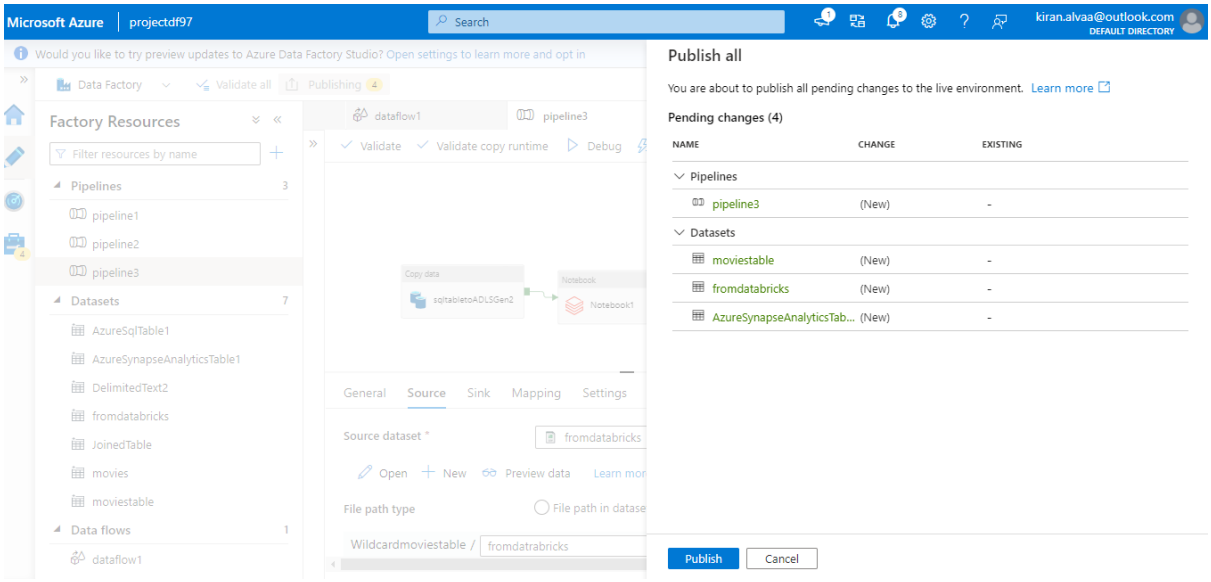

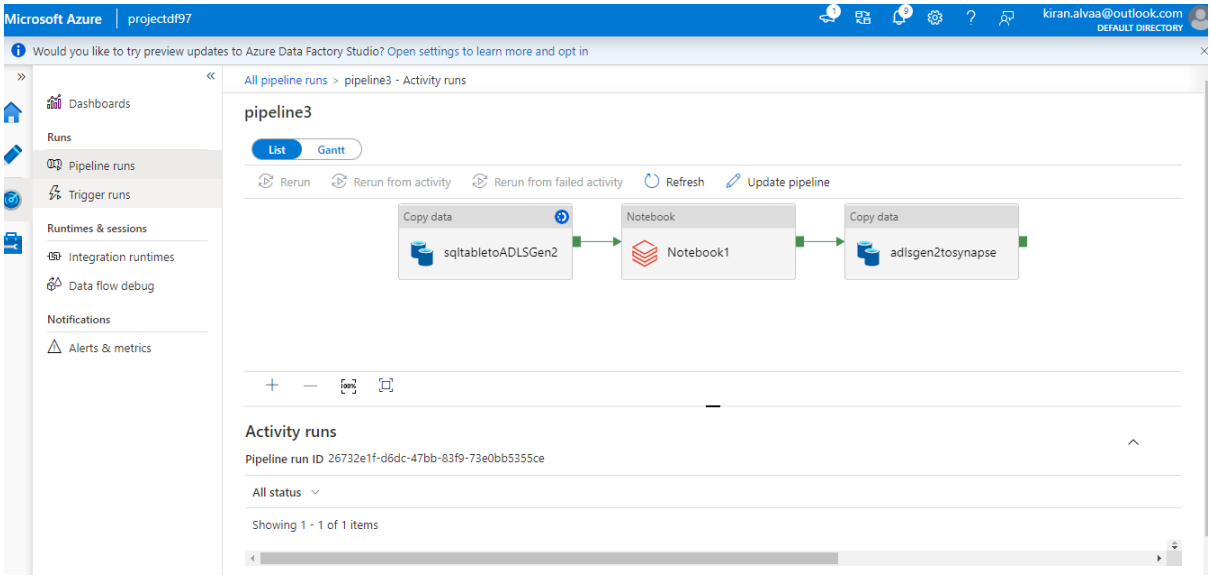

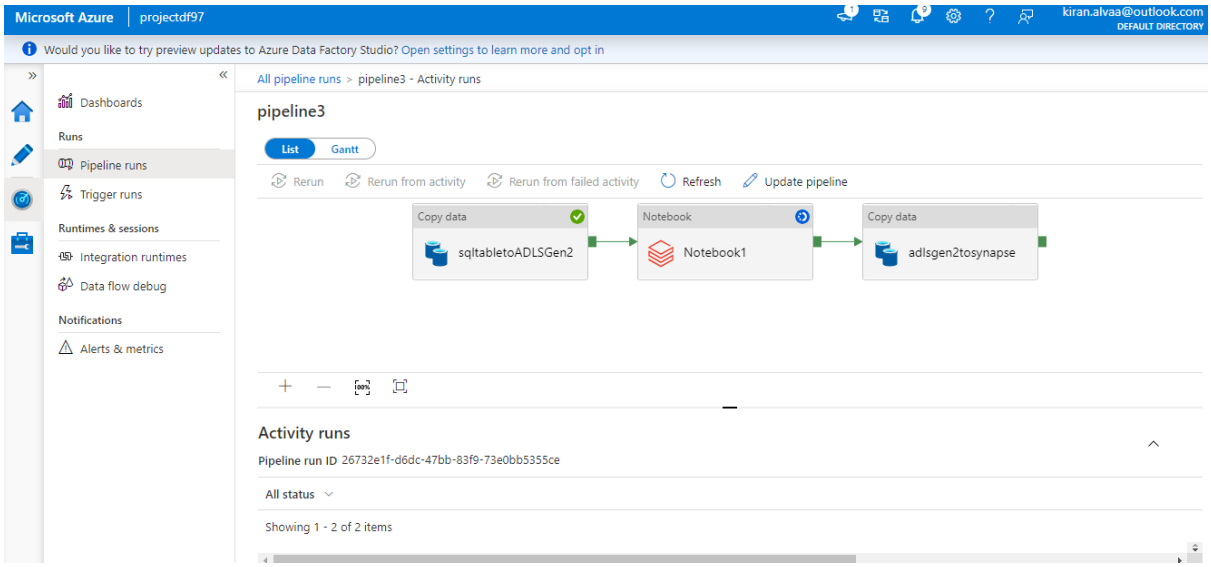

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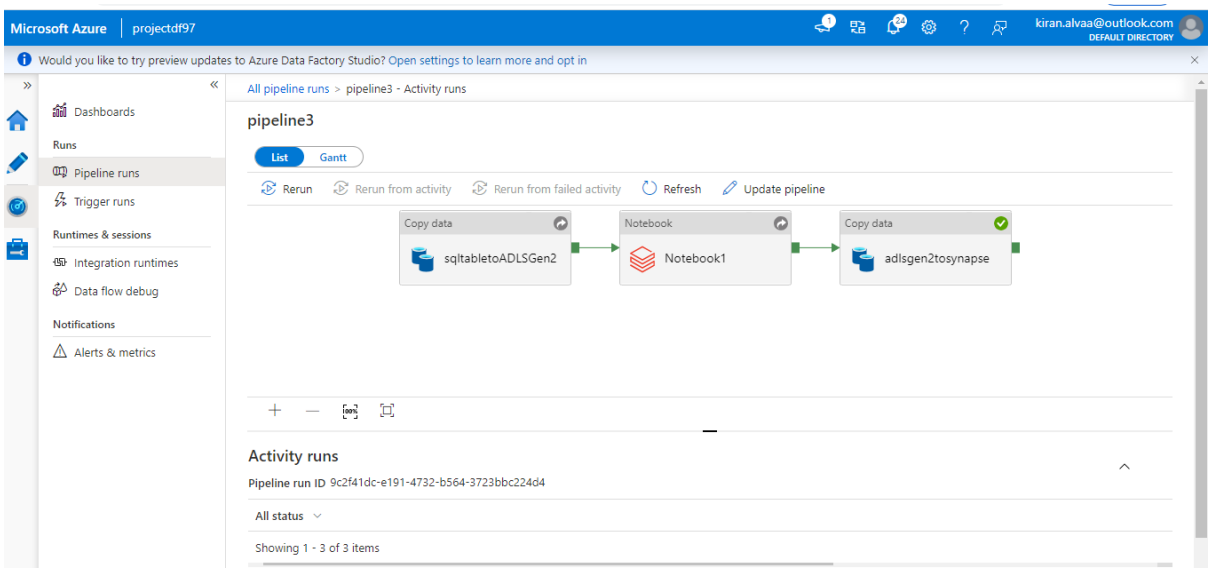

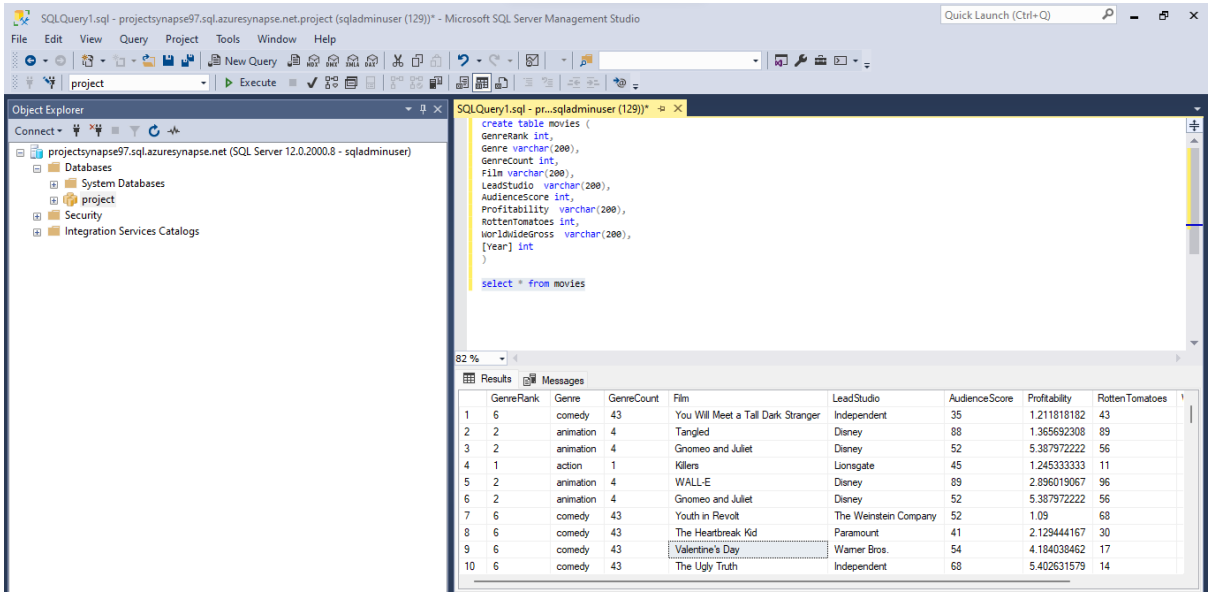

	GenreRank	Genre	GenreCount	Film	LeadStudio	AudienceScore	Profitability	RottenTomatoes
1	6	comedy	43	You Will Meet a Tall Dark Stranger	Independent	35	1.211818182	43
2	2	animation	4	Tangled	Disney	88	1.365692308	89
3	2	animation	4	Gnomeo and Juliet	Disney	52	5.387972222	56
4	1	action	1	Killers	Lionsgate	45	1.245333333	11
5	2	animation	4	WALL-E	Disney	89	2.896019067	96
6	2	animation	4	Gnomeo and Juliet	Disney	52	5.387972222	56
7	6	comedy	43	Youth in Revolt	The Weinstein Company	52	1.09	68
8	6	comedy	43	The Heartbreak Kid	Paramount	41	2.129444167	30
9	6	comedy	43	Valentine's Day	Warner Bros.	54	4.184038462	17
10	6	comedy	43	The Ugly Truth	Independent	68	5.402631579	14