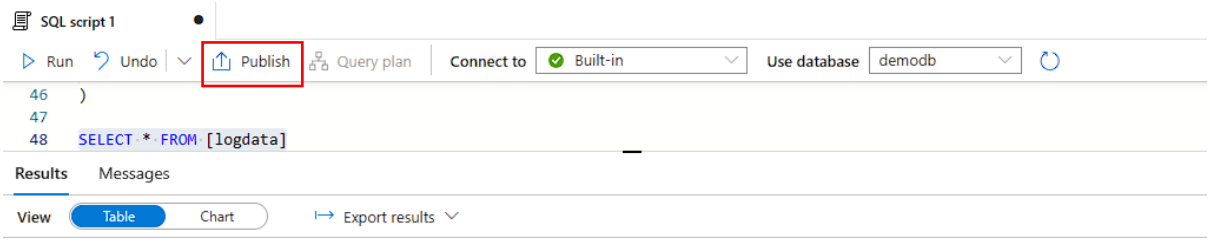
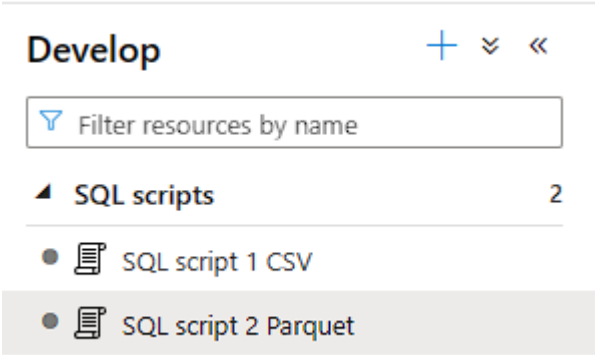
😊 Using External Tables for Parquet

1. In the previous lab we created an external table for our CSV file but this time we will be creating an external table for our Parquet file.
2. So, in the parquet file the information is the same, the only difference is that parquet stores the data in binary format. So, we are going to make use of an external table to be able to read the data in this file.
3. Now in your Azure portal go to your Synapse Workspace.
4. Now in our workspace we have an external table for CSV. So, you have to click on Publish.

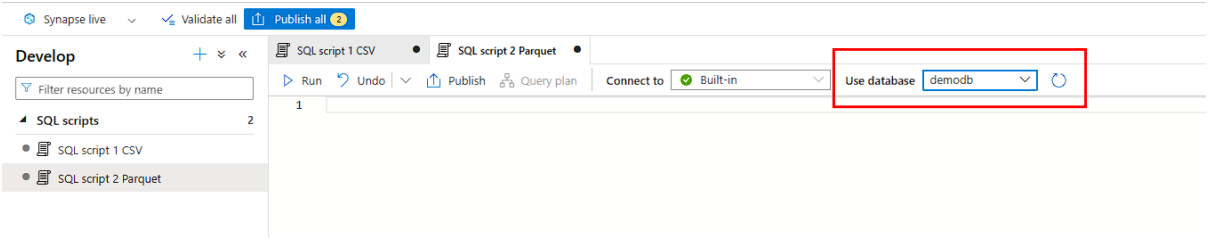


5. Once it is published again you are going to create a new SQL Script. In the Develop section click on the Plus icon and you will get the option to create a new script click on it.
6. Below you can see that you have now a second SQL script on which you are going to work.

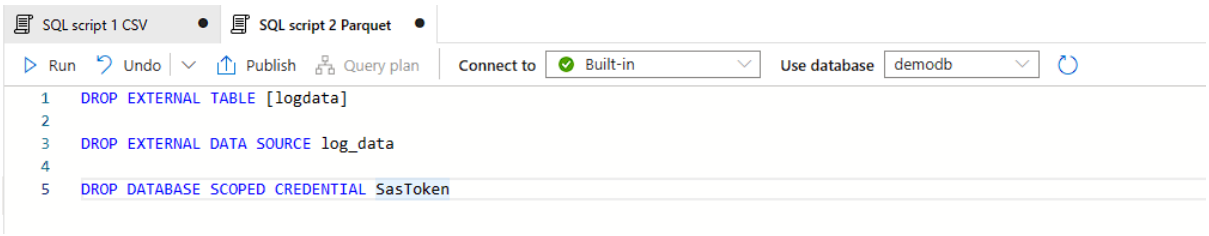


7. We can now copy some of the aspects that we used in our previous script file. Now, do we need to create the database again? No, we can create now our new external table within the same database. So, we don't need to execute the CREATE DATABASE command. Can we make use of the same database scope credential? So yes. If you are working on the same day, definitely you can use the same shared access signature. Since I'm still working on the same day, I will use the same shared access signature and I can still use that same master encryption key.
8. In case you come the next day and your shared access signature is not working because it is already expired, you can go ahead and create the SAS token, the shared access signature again, and then specify a database scope credential.

9. Now just in case if you are working the next day and your SAS token has expired for that first you have to run the command to Drop your external table and data then you have to Drop the Database Scoped Credentials that you have mentioned.
10. For that first you have to use your database from last SQL script then run these commands shown below.



11. Then you have to run these commands one by one shown below.



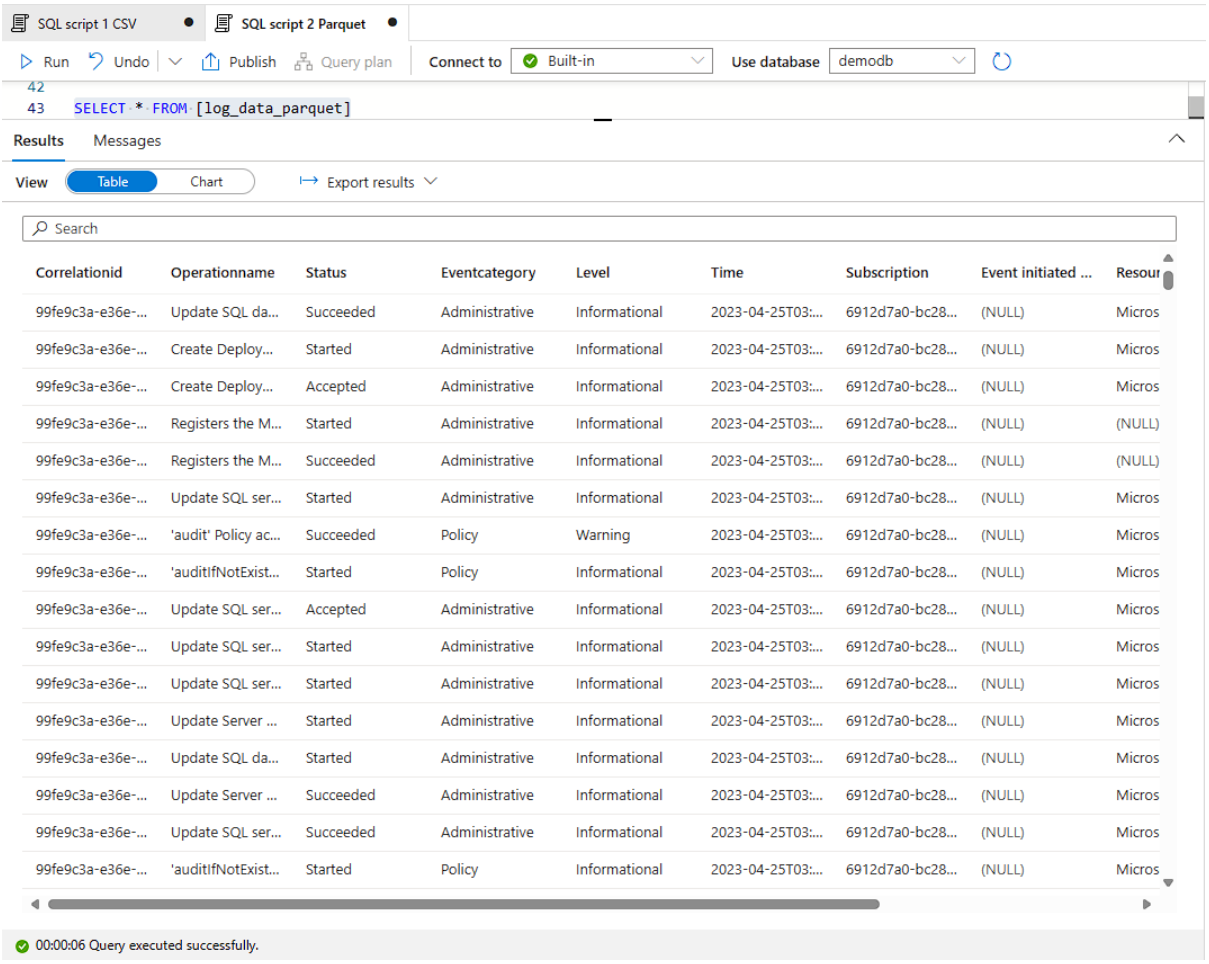
12. After that you go back to your storage account and create a new SAS token then you have to paste them in the command again and run the command.
13. Then you are going to issue the command to create an external data source.
14. After that you have to issue the command to create an external file format.
15. **You can get the code file from GitHub.**

```
CREATE DATABASE SCOPED CREDENTIAL SasToken
WITH IDENTITY='SHARED ACCESS SIGNATURE'
, SECRET = 'sv=2022-11-02&ss=b&srt=sco&sp=rwd&se=2024-03-31T13:12:23Z&st=2024-03-31T05:12:23Z&spr=https&sig=ybtnbcrlN18SFSP%2FheD8

CREATE EXTERNAL DATA SOURCE log_data_parquet
WITH (    LOCATION   = 'https://sqlstorage1010.blob.core.windows.net/parquet',
          CREDENTIAL = SasToken
)

CREATE EXTERNAL FILE FORMAT parquetfile
WITH (
    FORMAT_TYPE = PARQUET,
    DATA_COMPRESSION = 'org.apache.hadoop.io.compress.SnappyCodec'
);
```

16. Then just create your external table.

```
22  DROP EXTERNAL TABLE [log_data_parquet]
23
24  CREATE EXTERNAL TABLE [log_data_parquet]
25  (
26      [Correlationid] [varchar](200) NULL,
27      [Operationname] [varchar](200) NULL,
28      [Status] [varchar](100) NULL,
29      [Eventcategory] [varchar](100) NULL,
30      [Level] [varchar](100) NULL,
31      [Time] [varchar](500) NULL,
32      [Subscription] [varchar](200) NULL,
33      [Event initiated by] [varchar](1000) NULL,
34      [Resourcetype] [varchar](1000) NULL,
35      [Resourcegroup] [varchar](1000) NULL,
36      [Resource] [varchar](2000) NULL)
37  WITH (
38   LOCATION = '/log.parquet',
39      DATA_SOURCE = log_data_parquet,
40      FILE_FORMAT = parquetfile
41  )
```

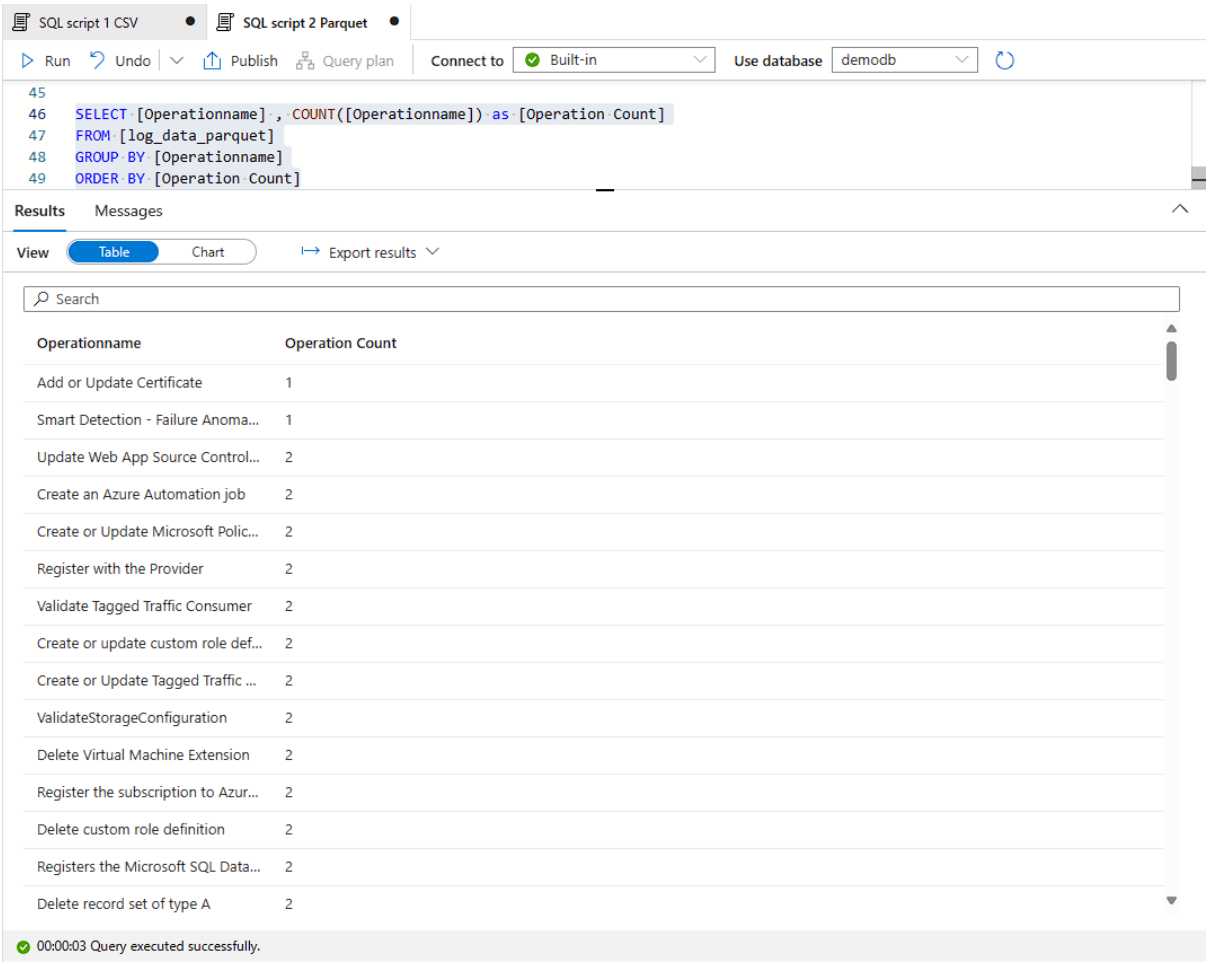
17. Now use the Select statement to view your table.
18. And below you can view your table.



19. Also, when it comes to now working with external tables. So, even though your data is in the Data Lake Gen 2 storage account because you have now defined an external table with a predefined schema, you can use your SQL-based commands to work with the data. So, for example, let's say you want to select the operation name, the count of the operation name from the log data, and the parquet log data table. So, now we can use SQL-based statements against our data using the external table.

```
SELECT [Operationname] , COUNT([Operationname]) as [Operation Count]
FROM [logdata]
GROUP BY [Operationname]
ORDER BY [Operation Count]
```

20. Below you can see that you are getting the data accordingly.



21. Now click on publish to save your SQL Script.