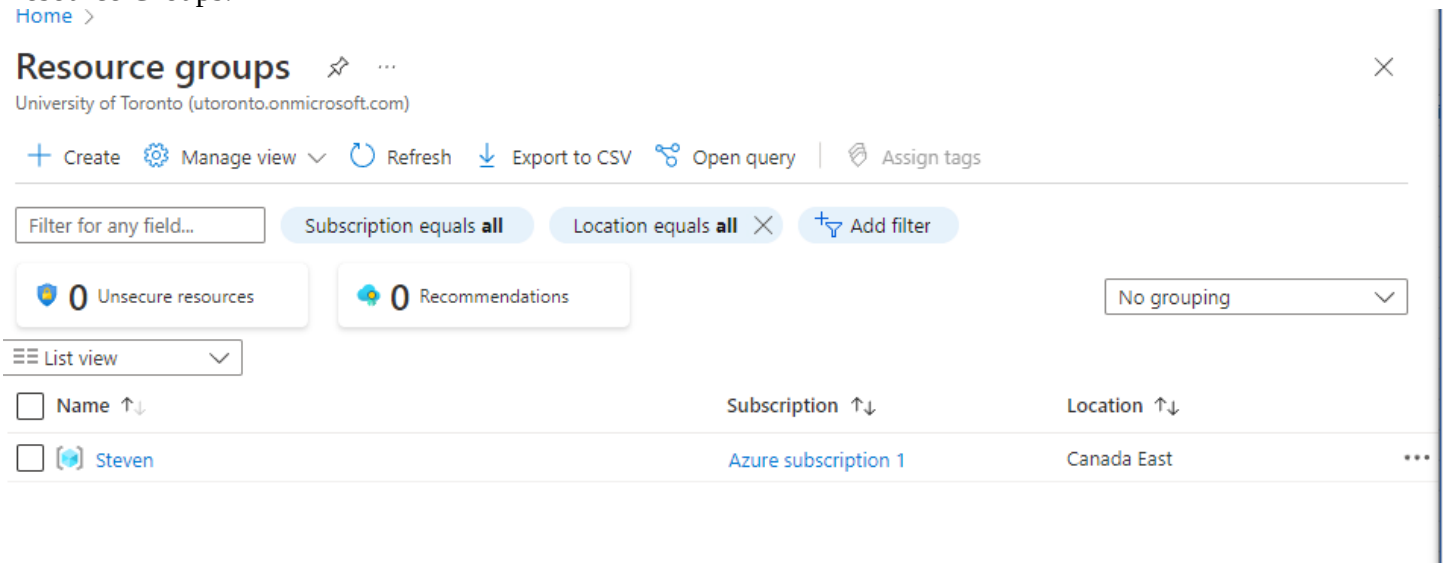
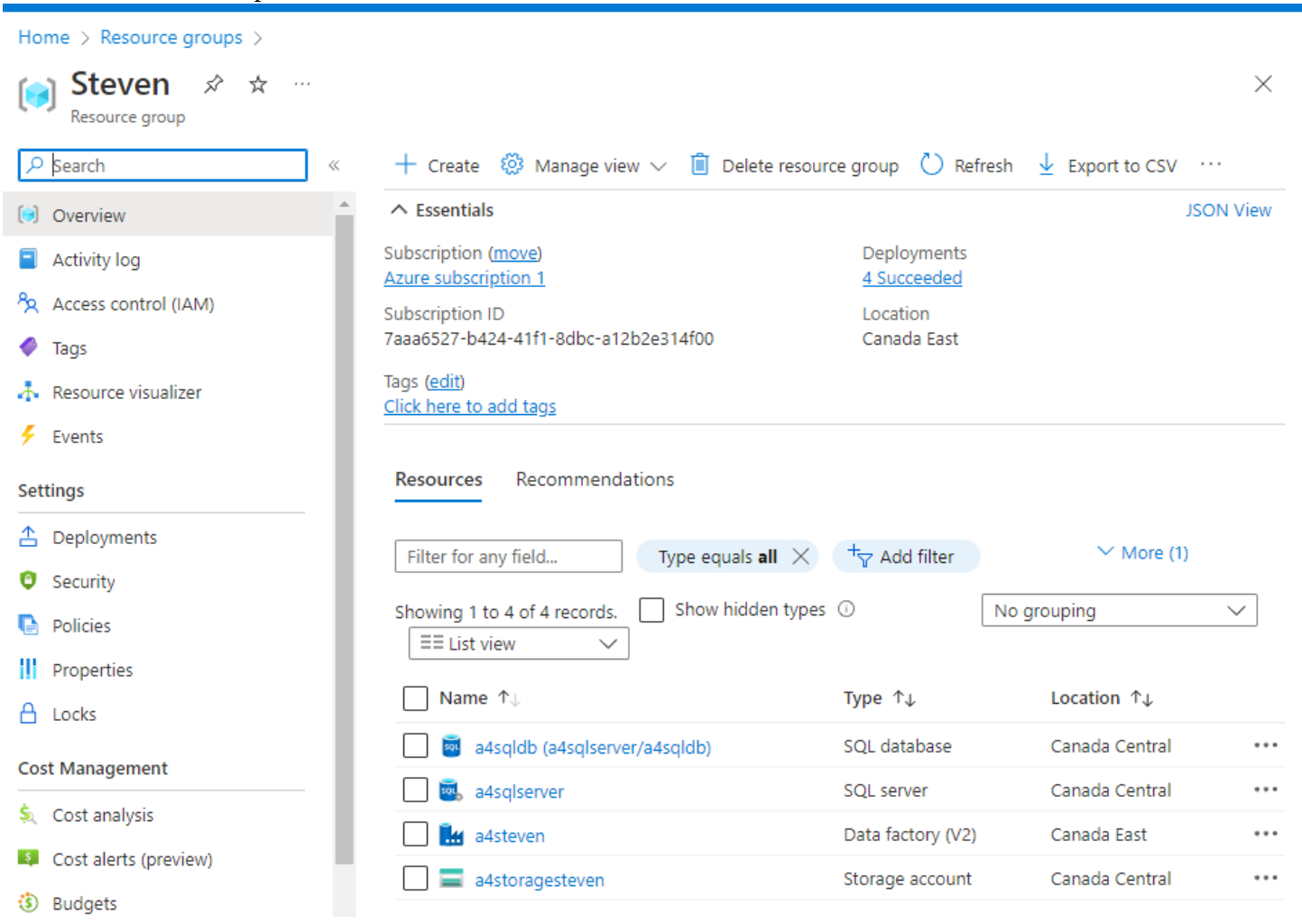
Part A:

1. Create a resource group in your Azure portal and deploy three resources. Azure Data Factory, Azure SQL DB and Blob storage account.

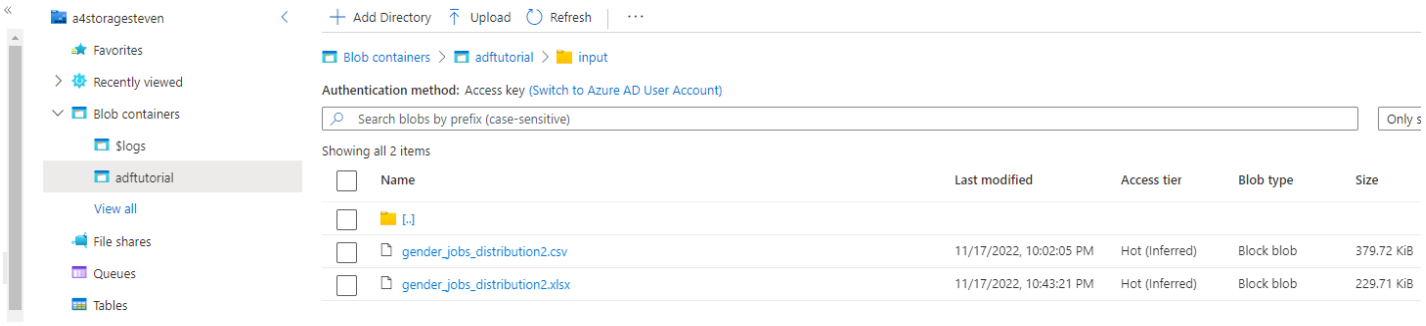
Resource Groups:

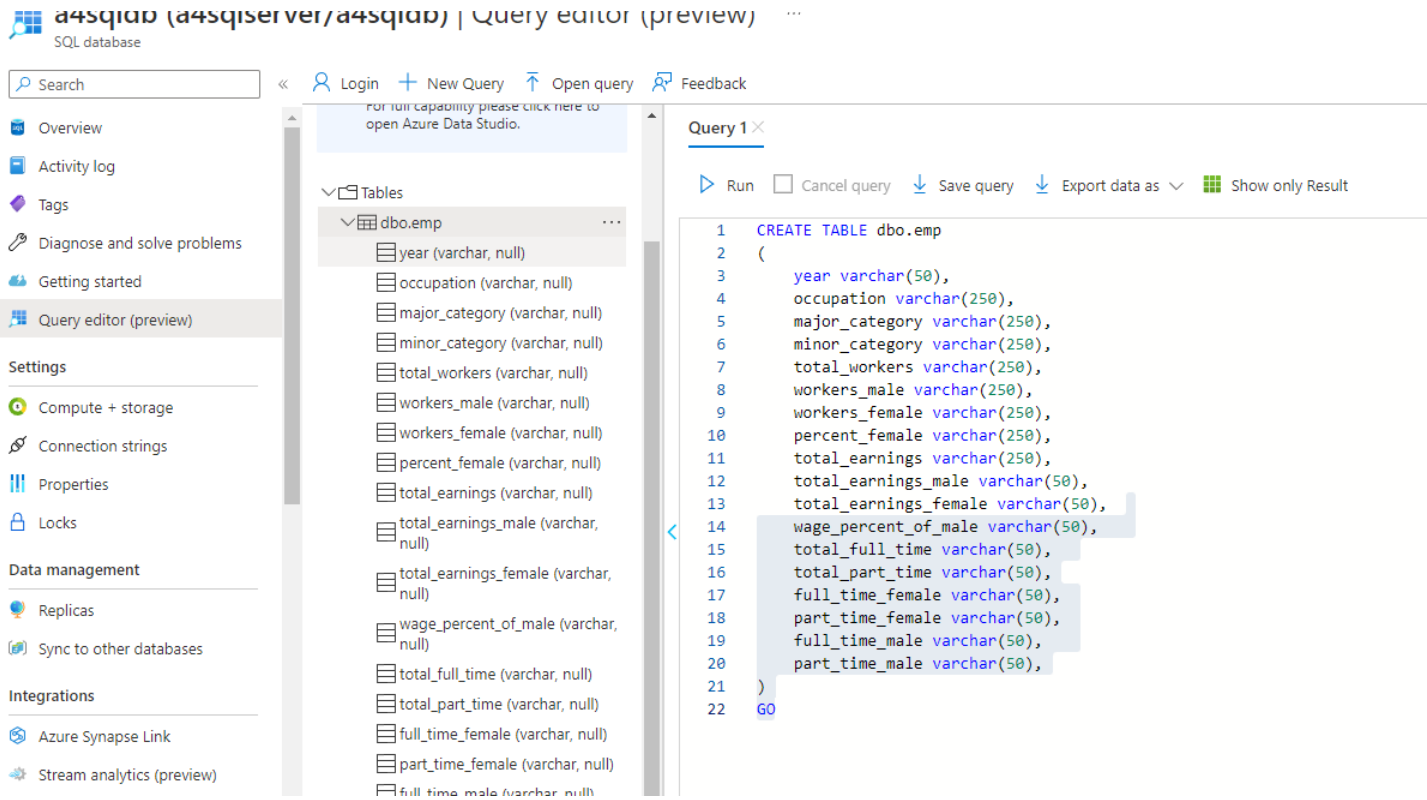


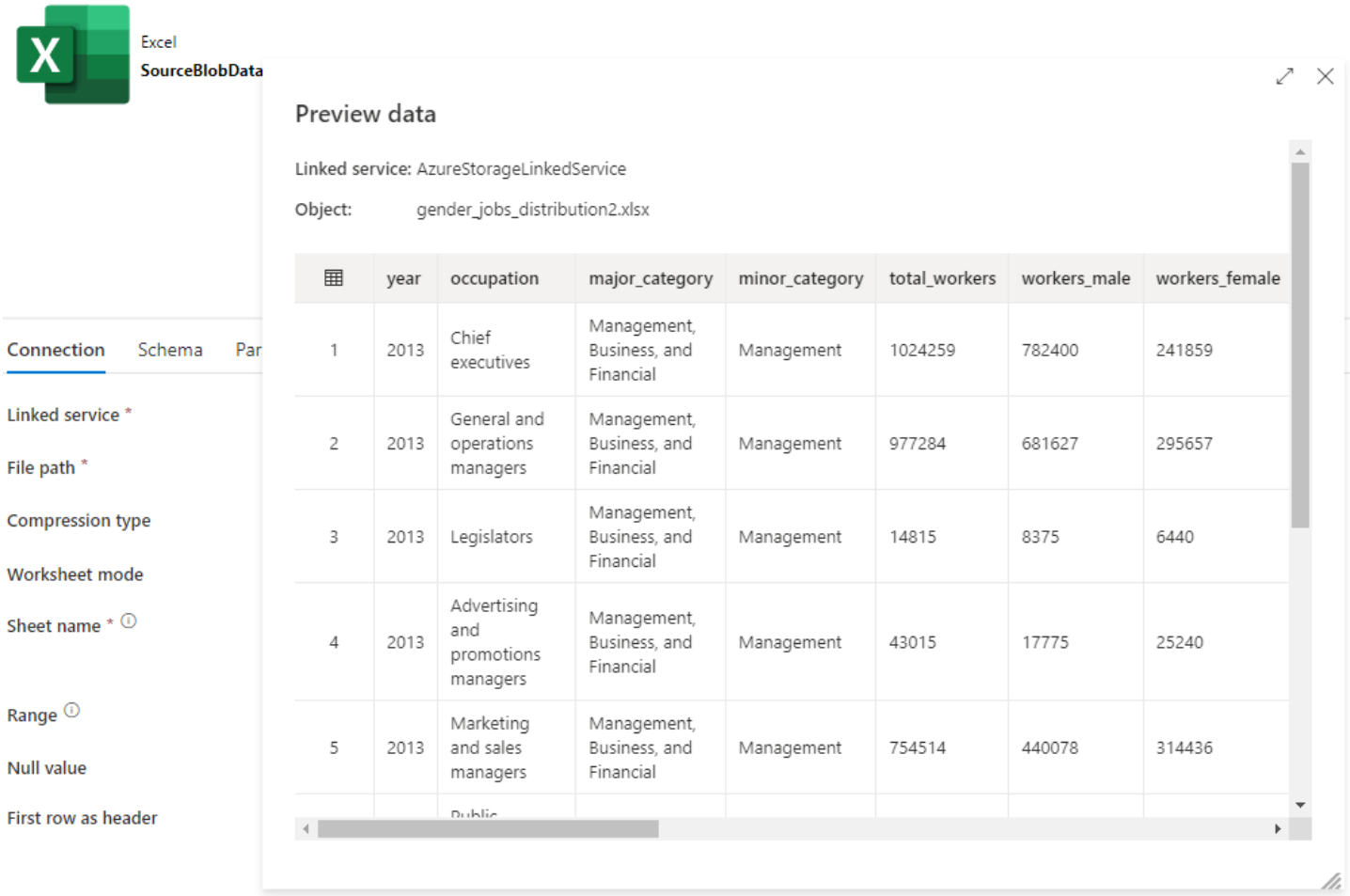
Inside Resource Group:

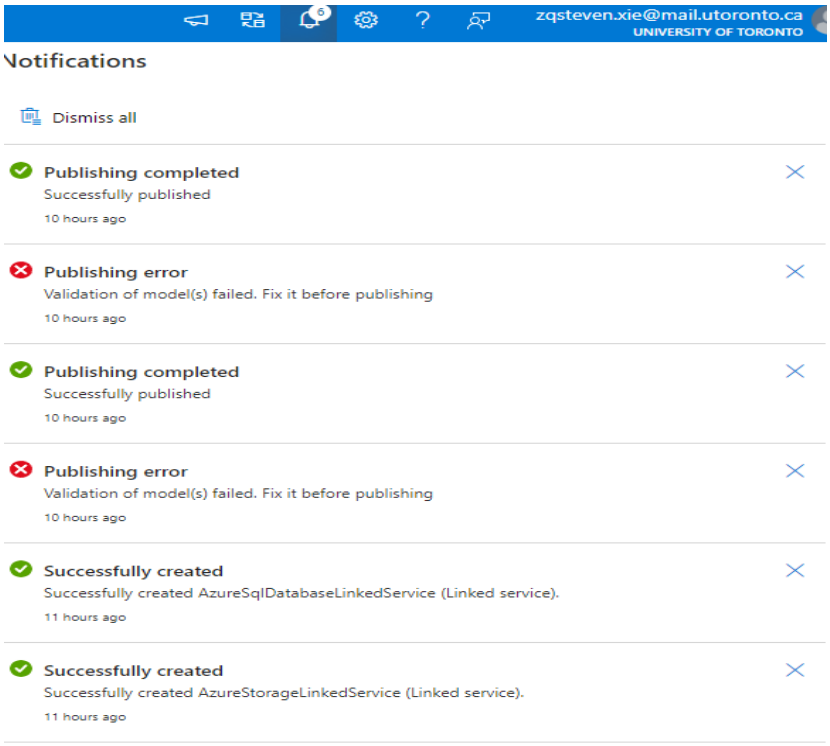


2. Upload gender_jobs_distribution2.csv to blob storage, in the storage browser. It seems csv file is encrypted so another xlsx is created and uploaded to the adftutorial folder.







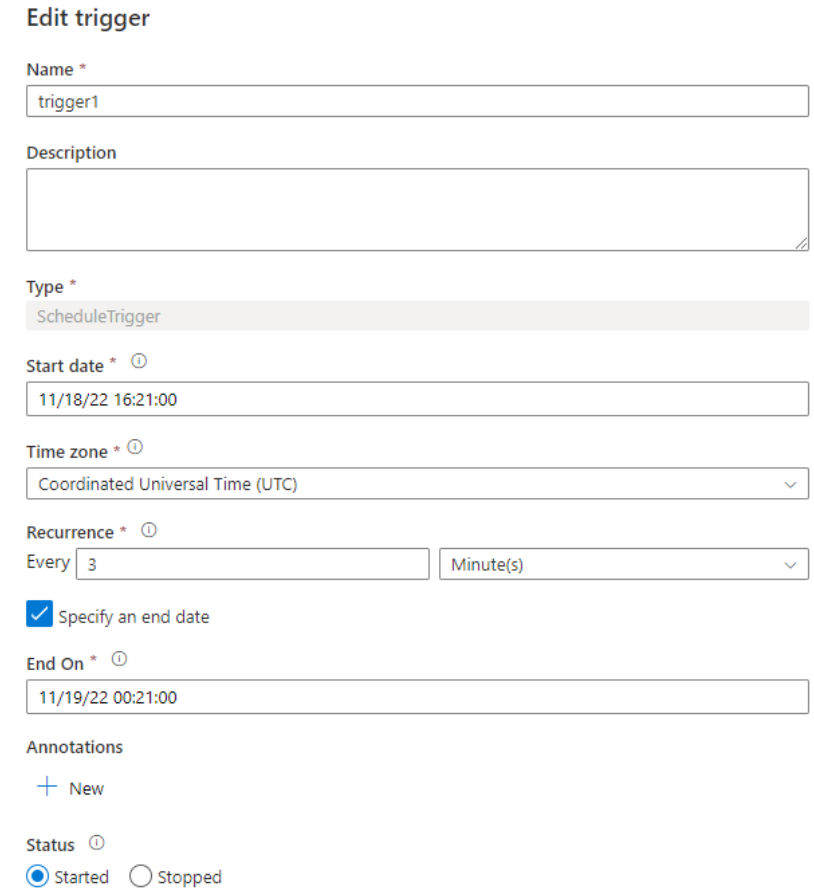


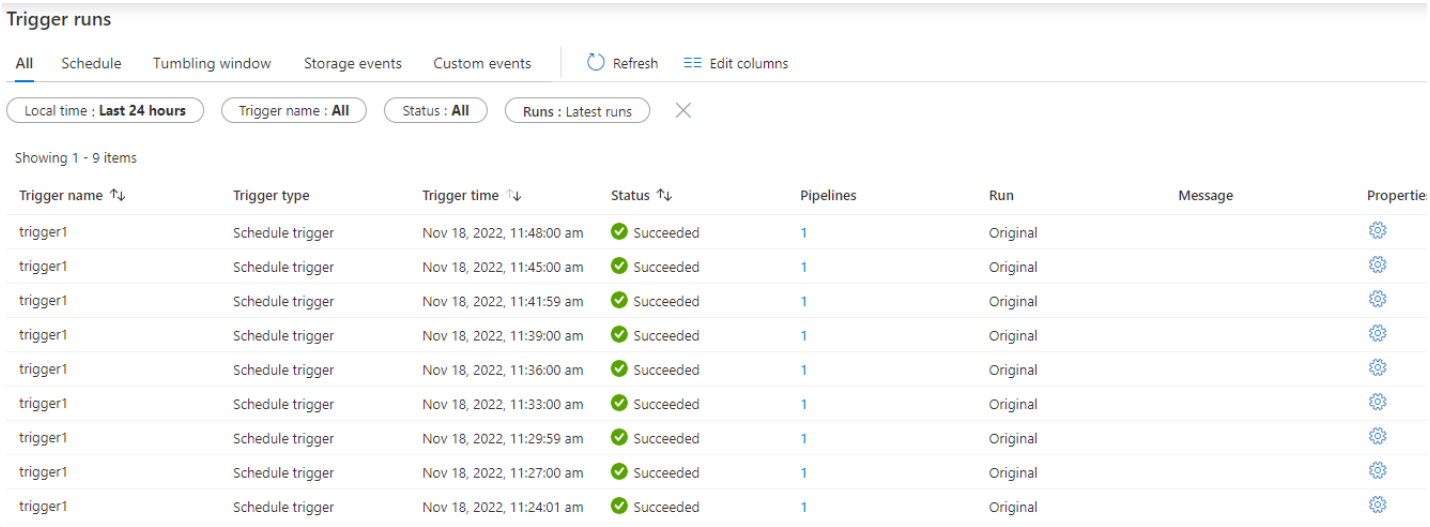
Notifications shows successful publications:

3. Explain the different types of triggers available in ADF.

3 types of triggers are Schedule Trigger, Tumbling Window Trigger, and Event-based Trigger. For Schedule Trigger, it offer more versatility by supporting various scheduling intervals, such as minutes, hours, days, weeks, or months. For Tumbling Window Trigger, it is a trigger that goes off periodically, beginning at a predetermined start time, and keeps state. For Event-based Trigger, it enables you to determine pipeline execution based on the dependence of file deposit or removal events.

Setup a scheduled trigger every 3 minutes.



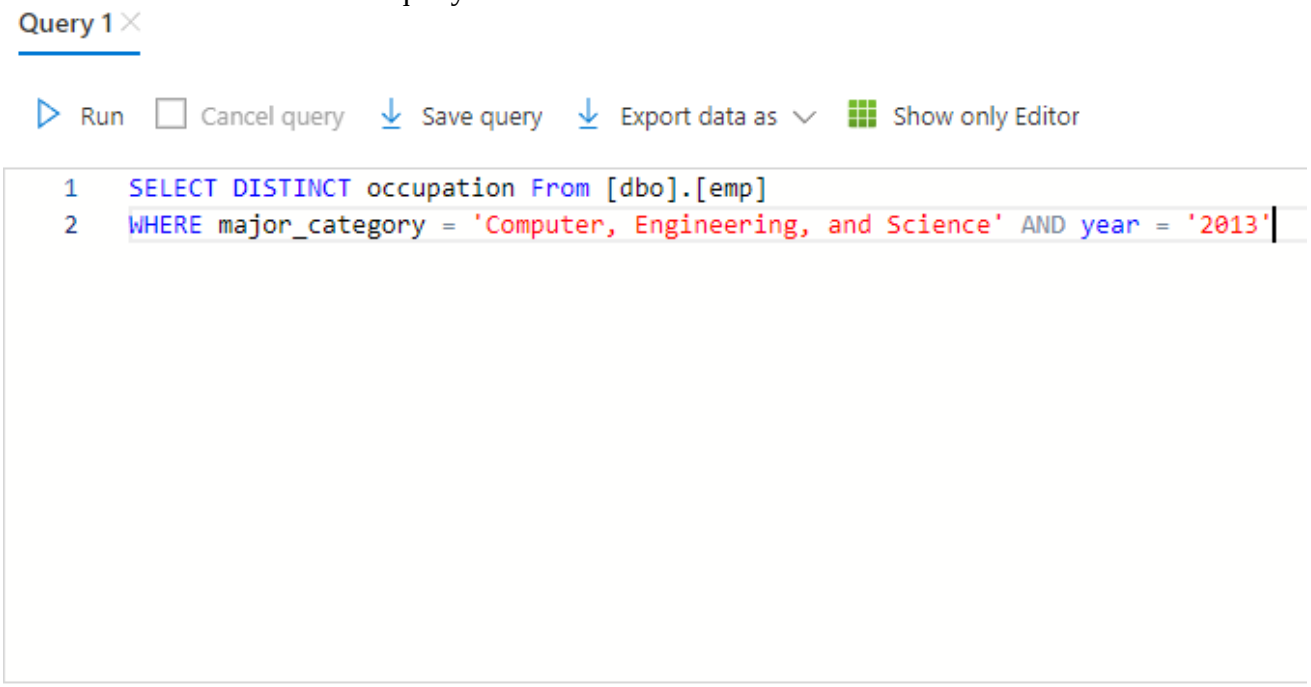


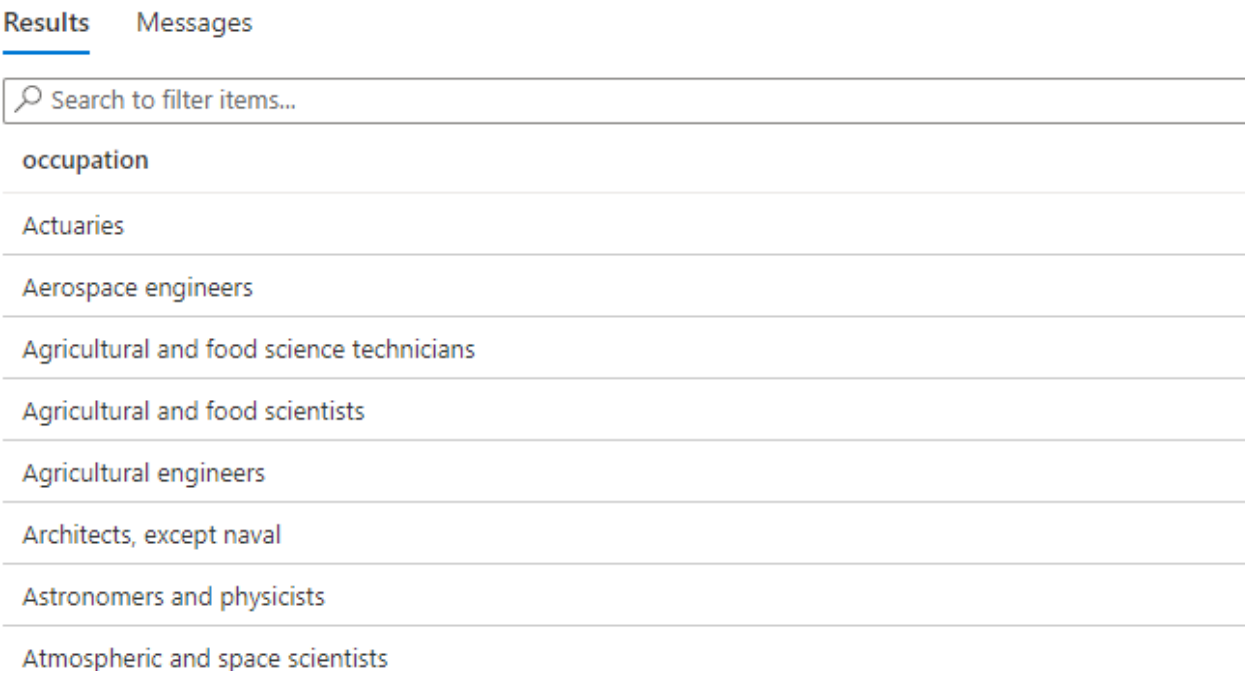
4. A client needs to replicate objects from ADLS Gen 2 in Canada Central to ADLS Gen 2 in West Europe. Let's say they want to do this in a bi-directional way. How can you set this up?

   Firstly, create 2 pipelines for replicating data in the data factory. 1 pipeline in Canada Central, the other one in West Europe. Secondly, set up the configuration of the source for 2 pipelines, select Azure Data Lake Gen2 and completing the account information to setup the linked service, then provide the file path for the material to be transferred. Thirdly, setup the sink for 2 pipelines. Then debug and publish the pipelines. And lastly, set up the event-based Triggers for the 2 pipelines.

Part B

1. Filter all the OCCUPATIONS in MAJOR_CATEGORY of Computer, Engineering, and Science for the YEAR 2013. Results saved in query1result.csv.





2. How many OCCUPATIONS exist in the MINOR_CATEGORY of Business and Financial Operations overall?

```
SELECT COUNT(DISTINCT occupation) From [dbo].[emp]
WHERE minor_category = 'Business and Financial Operations'
```

Results Messages

Search to filter items...

28

3. Get all relevant information for bus drivers across all years.

   The output is also saved in query3result.csv.

Run Cancel query Save query Export data as Show only Editor

```
SELECT * From [dbo].[emp]
WHERE occupation = 'bus drivers'
ORDER BY year
```

Results Messages

Search to filter items...

year	occupation	major_category	minor_category	total_workers	workers_male	workers_fem
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161
2013	Bus drivers	Production, Transportation, and...	Transportation	275991	174830	101161

4. Summarize the total number of WORKERS_FEMALE in the MAJOR_CATEGORY of Management, Business, and Financial by each year.

Run | Cancel query | Save query | Export data as | Show only Editor

```
SELECT year, SUM(Try_cast(workers_female as float)) AS total_num FROM [dbo].[emp]
WHERE major_category = 'Management, Business, and Financial'
GROUP BY year
```

Results | Messages

Search to filter items...

year	total_num
2015	100581744
2014	96737760
2013	92980164
2016	103414236

5. What were the total earnings of male (TOTAL_EARNINGS_MALE) employees in the Service MAJOR_CATEGORY for the year 2015?

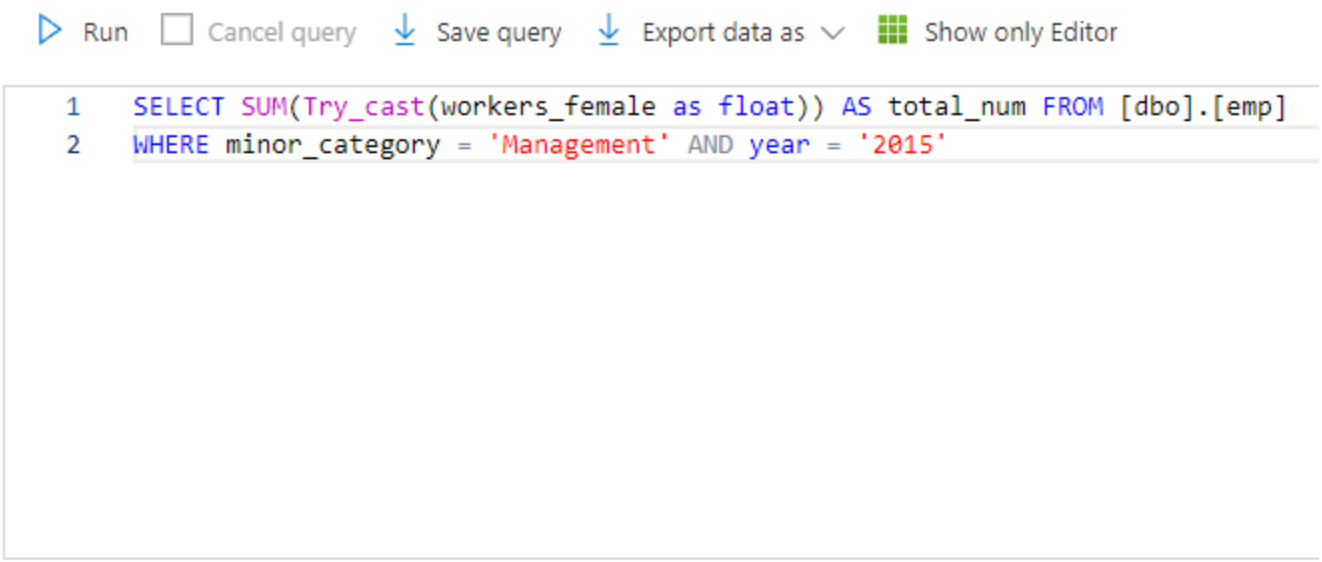
```
SELECT SUM(Try_cast(total_earnings_male as float)) AS total_num FROM [dbo].[emp]
WHERE major_category = 'Service' AND year = '2015'
```

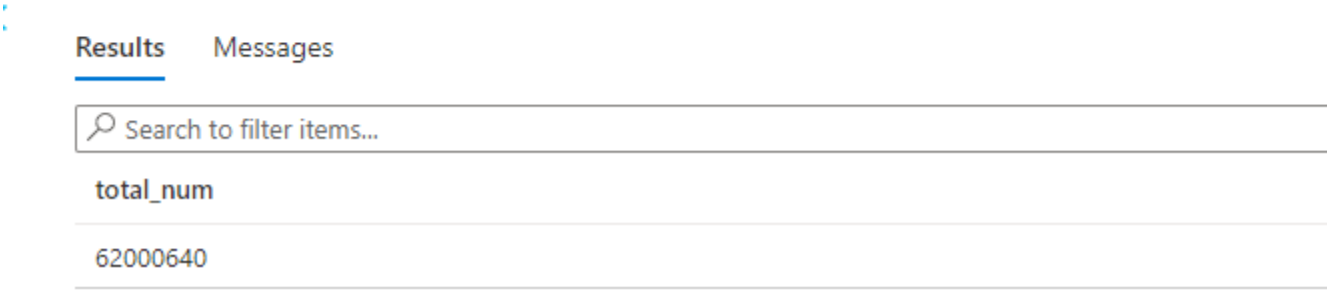
Results | Messages

Search to filter items...

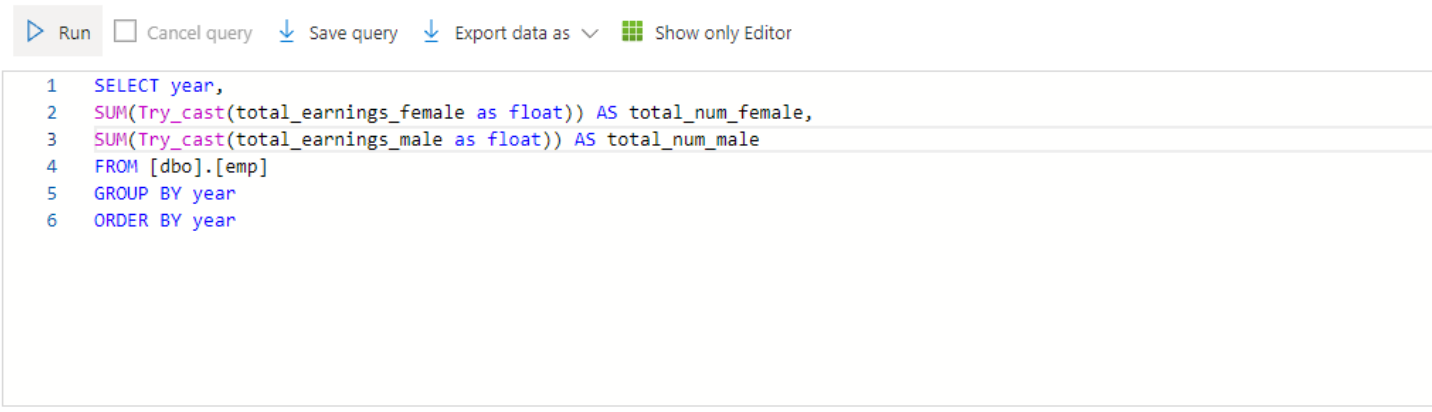
total_num
30029112

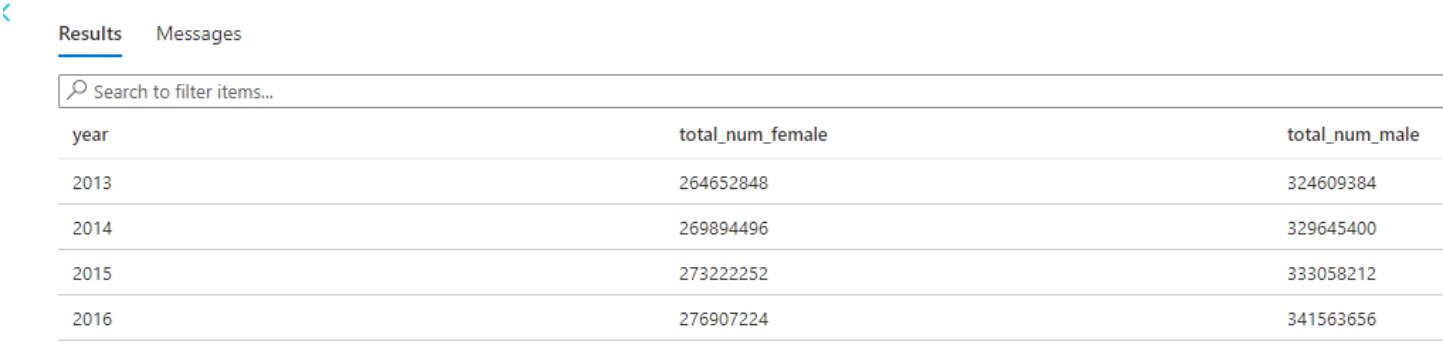
6. How many female workers were in management roles in the year 2015?





7. Compare the TOTAL_EARNINGS_MALE and TOTAL_EARNINGS_FEMALE earnings irrespective of occupation by each year





year	total_num_female	total_num_male
2013	264652848	324609384
2014	269894496	329645400
2015	273222252	333058212
2016	276907224	341563656

8. How much money (TOTAL_EARNINGS_FEMALE) did female workers make as engineers in 2016?

Run | Cancel query | Save query | Export data as | Show only Editor

```
SELECT year,
SUM(Try_cast(total_earnings_female as float)) AS total_earnings
FROM [dbo].[emp]
WHERE (occupation LIKE '%engineer%' OR occupation LIKE '%engineers%') AND year = '2016'
GROUP BY year
```

Results | Messages

Search to filter items...

year	total_earnings
2016	22131048

9. What is the total number of full-time and part-time female workers versus male workers year over year?

Run | Cancel query | Save query | Export data as | Show only Editor

```
SELECT year,
ROUND(SUM((Try_cast(full_time_male as float))*(Try_cast(workers_male as float))/100),0) AS Full_Male,
ROUND(SUM((Try_cast(part_time_male as float))*(Try_cast(workers_male as float))/100),0) AS Part_Male,
ROUND(SUM((Try_cast(full_time_female as float))*(Try_cast(workers_female as float))/100),0) AS Full_Female,
ROUND(SUM((Try_cast(part_time_female as float))*(Try_cast(workers_female as float))/100),0) AS Part_Female
FROM [dbo].[emp]
GROUP BY year
ORDER BY year
```

Results | Messages

Search to filter items...

year	Full_Male	Part_Male	Full_Female	Part_Female
2013	585929851	88327745	378817719	133098117
2014	603963263	87861781	387761765	134828215
2015	620646876	87854124	400973134	135087206
2016	630321511	89223593	411289530	136366302