

Sentiment Analysis Presentation

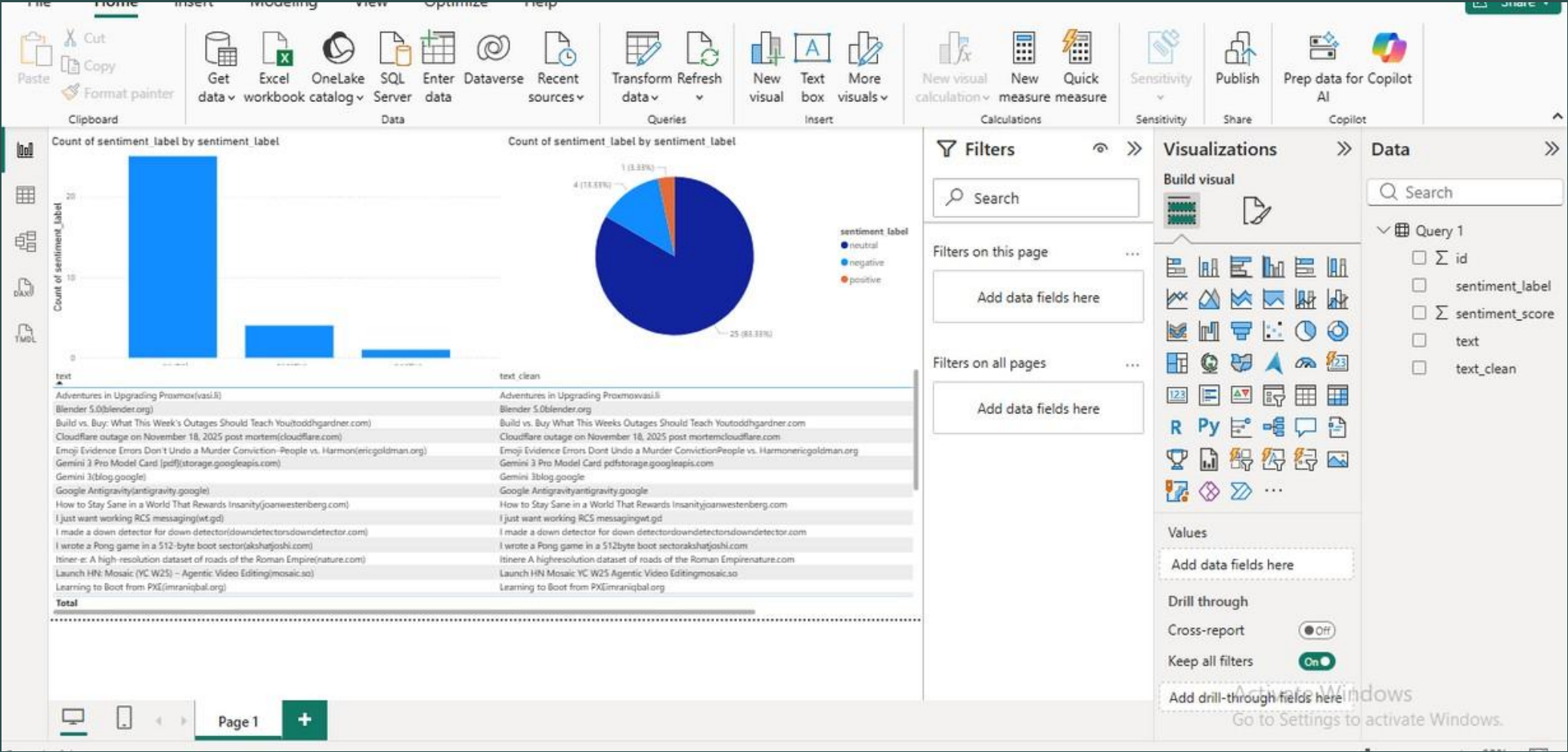
Group Members: Chandresh Patel (200595392)
Nancy Jangwal (200591978)



OVERVIEW

Project Workflow Overview

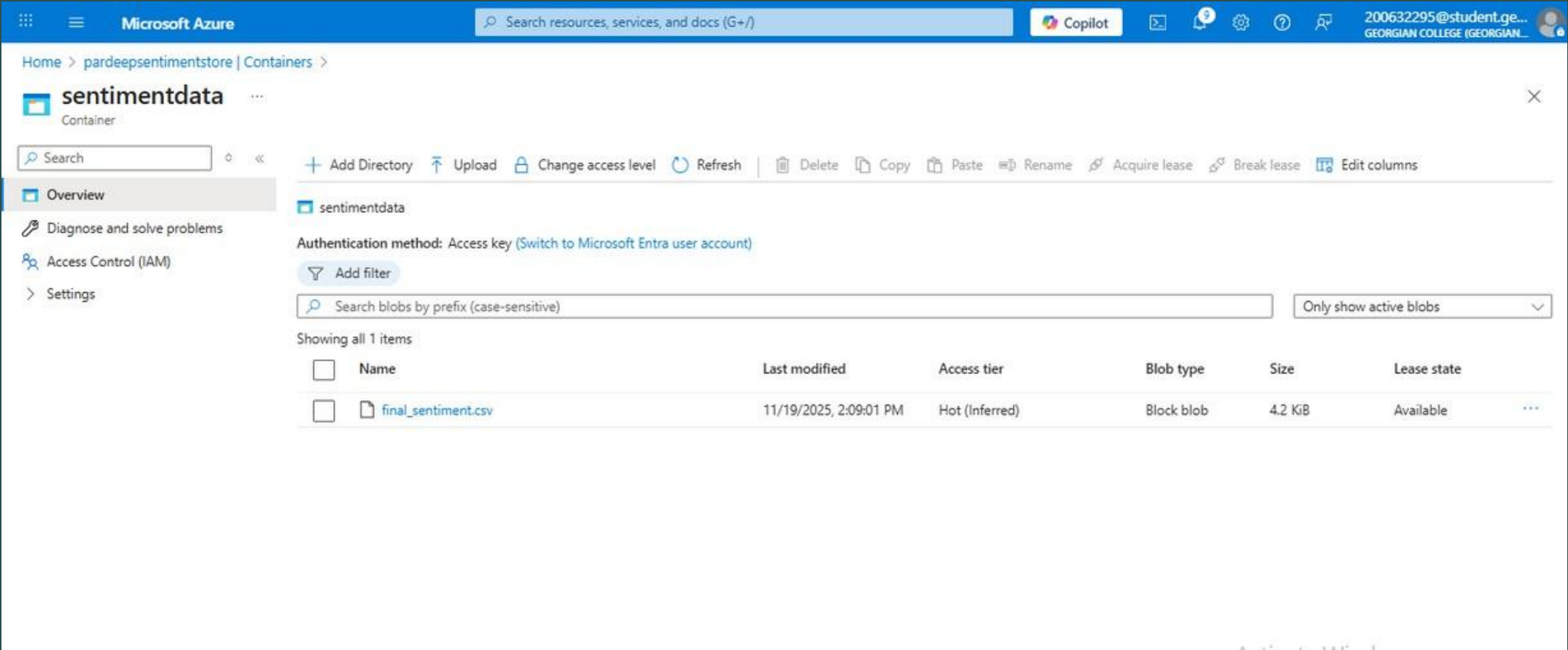
This project demonstrates an end-to-end sentiment analysis workflow using Azure services. The workflow includes: preprocessing text data, uploading CSV to Blob Storage, creating an ADF pipeline, loading data into SQL Database, and visualizing results using Power BI.



BLOB STORAGE

Uploading CSV Files

The processed final_sentiment.csv file was uploaded to Azure Blob Storage inside a dedicated container. This file serves as the input source for the Azure Data Factory pipeline.

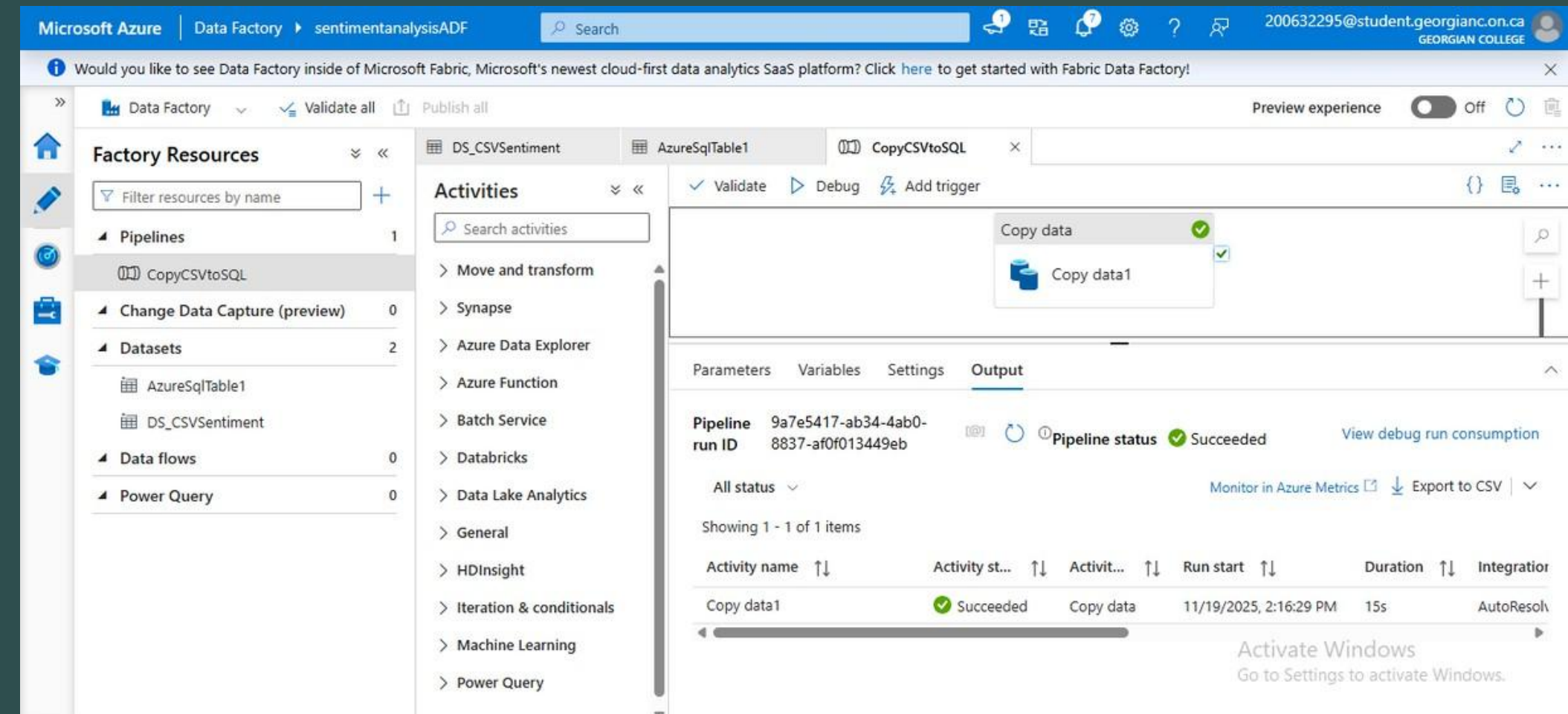


ADF PIPELINE

Pipeline Setup Overview

This section explains the **ADF pipeline setup**, detailing the Copy Data activity and how to configure linked services for seamless data movement.

- An ADF Copy Data pipeline was created to automate the transfer of the CSV file from Blob Storage into Azure SQL Database. The pipeline includes both source and sink configurations.

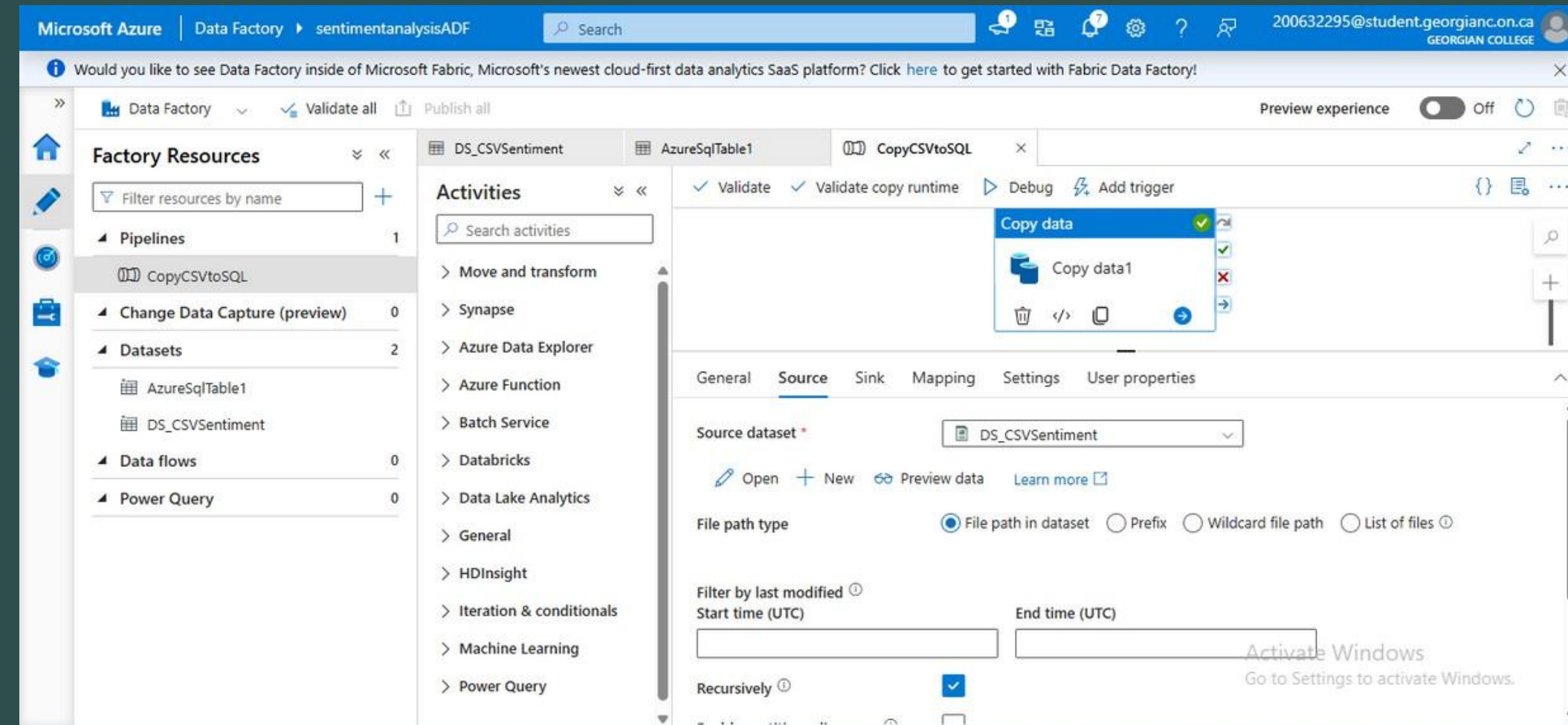


SOURCE DATASET

ADF Source Configuration

In this section, we detail the **setup of the source dataset** for our ADF pipeline, including CSV handling and schema import processes.

- The source dataset was configured to read the CSV from Blob Storage. Schema was imported automatically from the file and delimiter was set correctly.

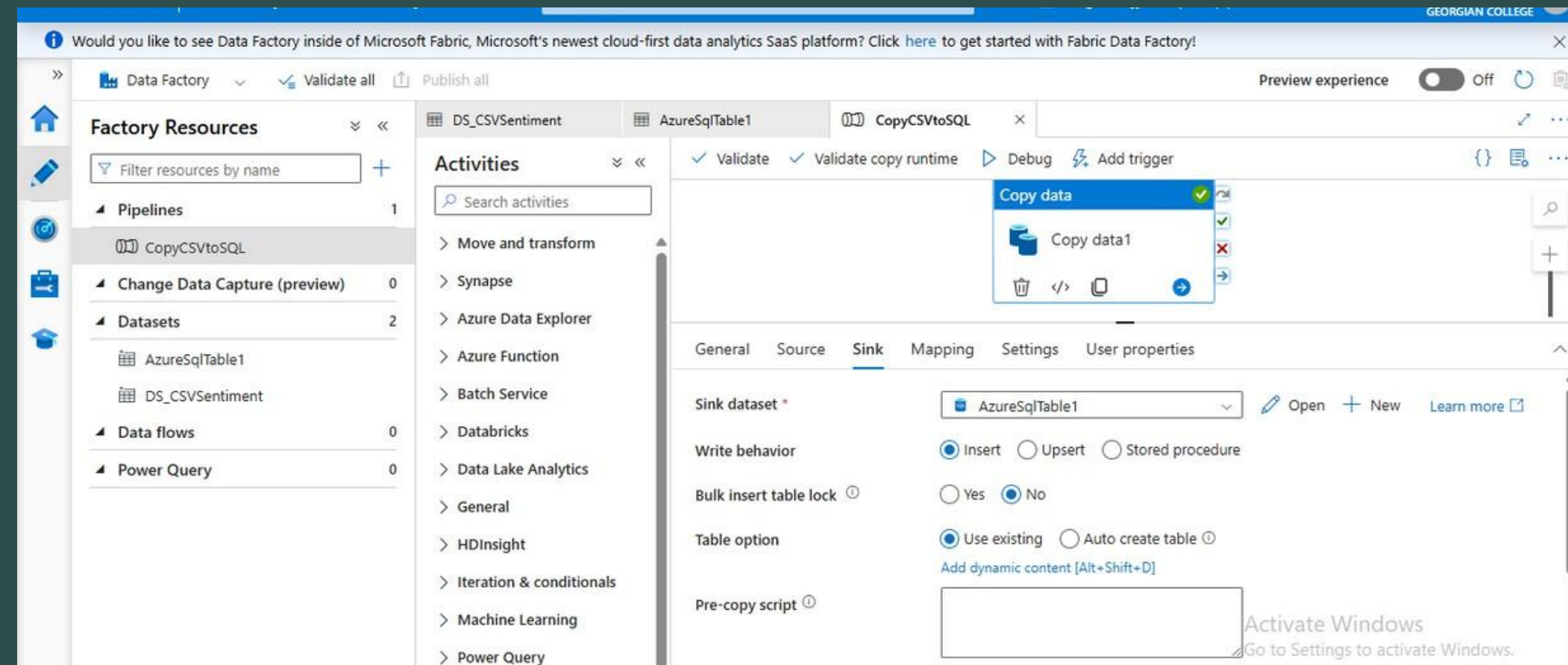


SINK DATASET

Table Mapping Overview

This section details the **mapping of tables** between the ADF pipeline and the SQL database, ensuring accurate data flow and integrity throughout the process.

- The sink dataset was connected to the Azure SQL Database and mapped to the SentimentOutput table. This allowed the CSV data to be inserted into SQL Server.

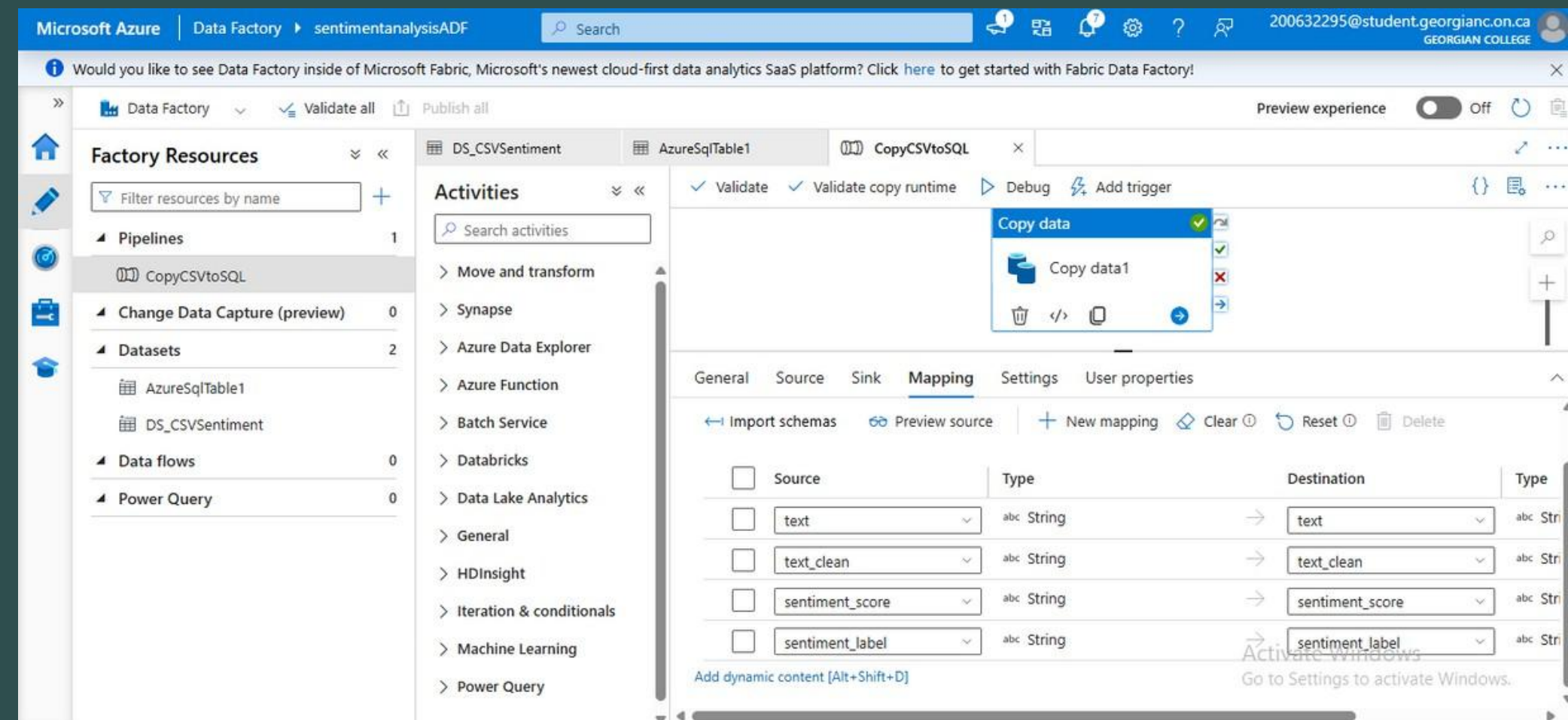


MAPPING

Column Mapping Overview

This section outlines the process of mapping columns between the source CSV data and the destination SQL database to ensure accurate data transfer.

- The mapping step ensures that every CSV column is correctly matched to the SQL table: text, text_clean, sentiment_score, sentiment_label.



EXECUTION SUCCESS

Pipeline Run Results

The pipeline successfully executed, resulting in the insertion of multiple rows into the SQL database. This indicates correct data flow throughout the ETL process.

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Gantt

Filter by run ID or name

Eastern Time (US & C... : Last 24 hours

Pipeline name : All

Status : All

Copy filters

Export to CSV

Showing 1 - 5 items

Last refreshed 0 minutes ago

<input type="checkbox"/>	Pipeline name ↑↓	Run start ↑↓	Run end ↑↓	Duration	Status ↑↓	Triggered by	Run ID	Parame
<input type="checkbox"/>	CopyCSVtoSQL	11/19/2025, 2:16:2	11/19/2025, 2:16:4	23s	✓ Succeeded	Manual trigger	9a7e5417-ab34-4ab...	
<input type="checkbox"/>	CopyCSVtoSQL	11/19/2025, 2:08:4	11/19/2025, 2:09:0	22s	✓ Succeeded	Manual trigger	63acce56-ce90-4968...	
<input type="checkbox"/>	CopyCSVtoSQL	11/19/2025, 2:07:4	11/19/2025, 2:08:0	20s	✓ Succeeded	Manual trigger	8269a73b-22e6-430...	
<input type="checkbox"/>	CopyCSVtoSQL	11/19/2025, 1:36:4	11/19/2025, 1:37:0	21s	✓ Succeeded	Manual trigger	186d78b2-371e-4f7...	
<input type="checkbox"/>	CopyCSVt...	11/19/2025, 1:32:2	11/19/2025, 1:32:4	20s	✓ Succeeded	Manual trigger	ddf56e31-e58b-47cf...	

Activate Windows
Go to Settings to activate Windows.

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All pipeline runs > ✓ CopyCSVtoSQL - Activity runs

Refresh

Update pipeline

List

Gantt

This is a recent debug run. The local pipeline configuration is shown.

Copy data

Copy data1

Activity runs

Pipeline run ID 9a7e5417-ab34-4ab0-8837-af0f013449eb

All status

Monitor in Azure Metrics

Export to CSV

Showing 1 - 1 of 1 items

Activity name ↑↓	Activity st... ↑↓	Activit... ↑↓	Run start ↑↓	Duration ↑↓	Integration runtime ↑↓	User pro
Copy data1	✓ Succeeded	Copy data	11/19/2025, 2:16:29 PM	15s	AutoResolveIntegrationRuntime (Canada Central)	

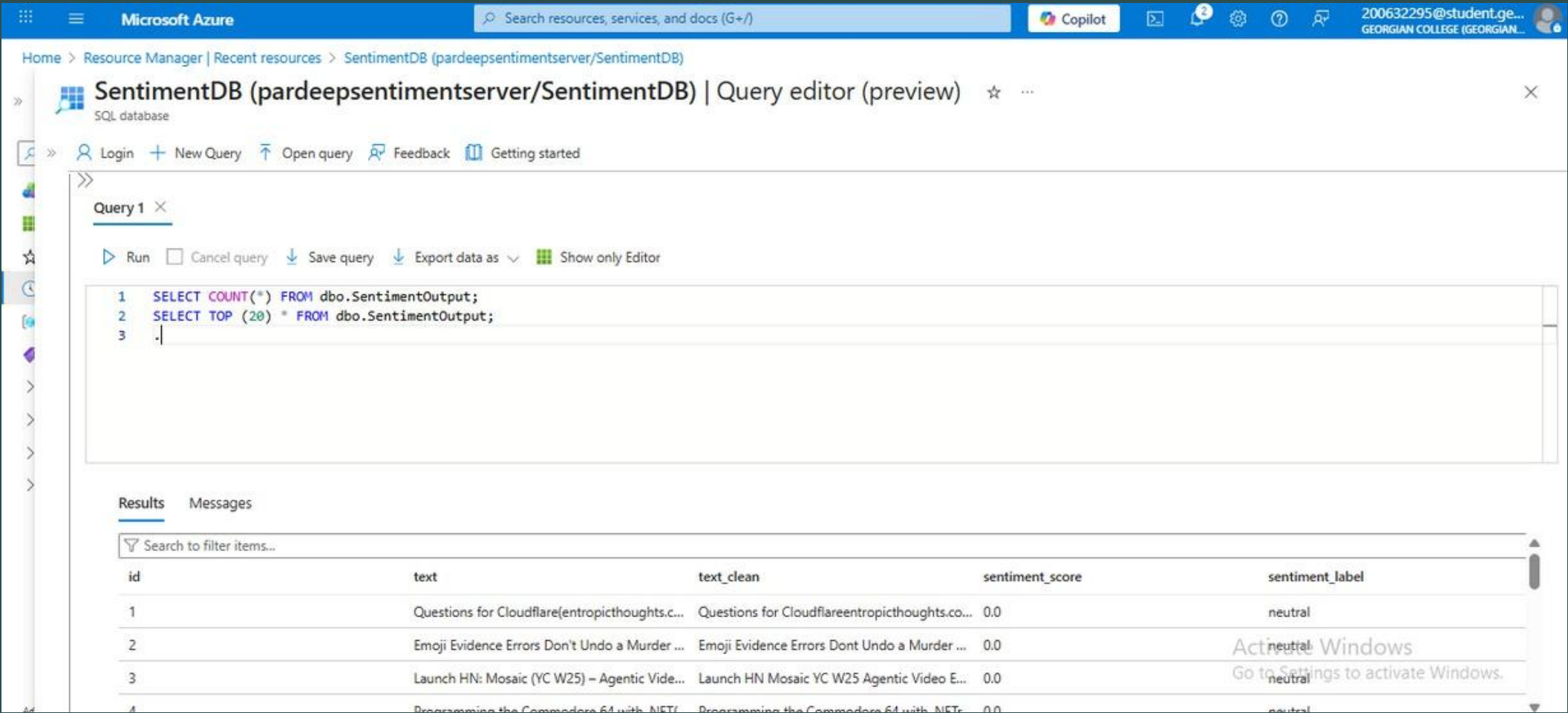
Activate Windows
Go to Settings to activate Windows.

SQL VALIDATION

SQL Query Results

This section highlights the importance of validating SQL data after extraction. Ensure accuracy by reviewing query results to confirm successful data loads into the database.

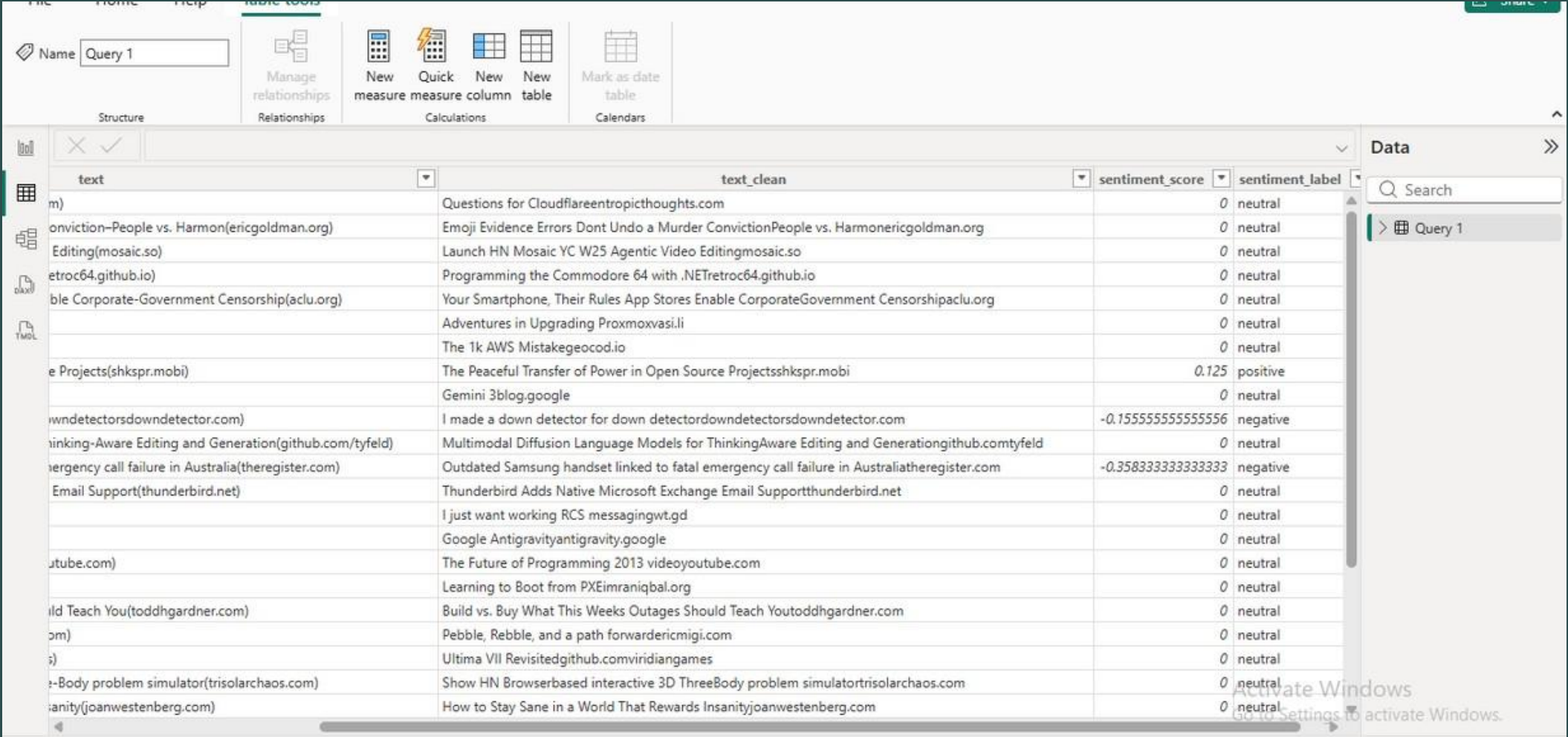
- Data was validated in Azure SQL by running queries such as `SELECT COUNT(*)` and `SELECT TOP(20)`. This confirms successful data insertion.



Importing Data from SQL

In this section, we will discuss how to seamlessly import data from the SQL database into Power BI for effective data visualization and reporting.

- Power BI was connected to the SQL Database table. The SentimentOutput table was imported successfully for further visualization.

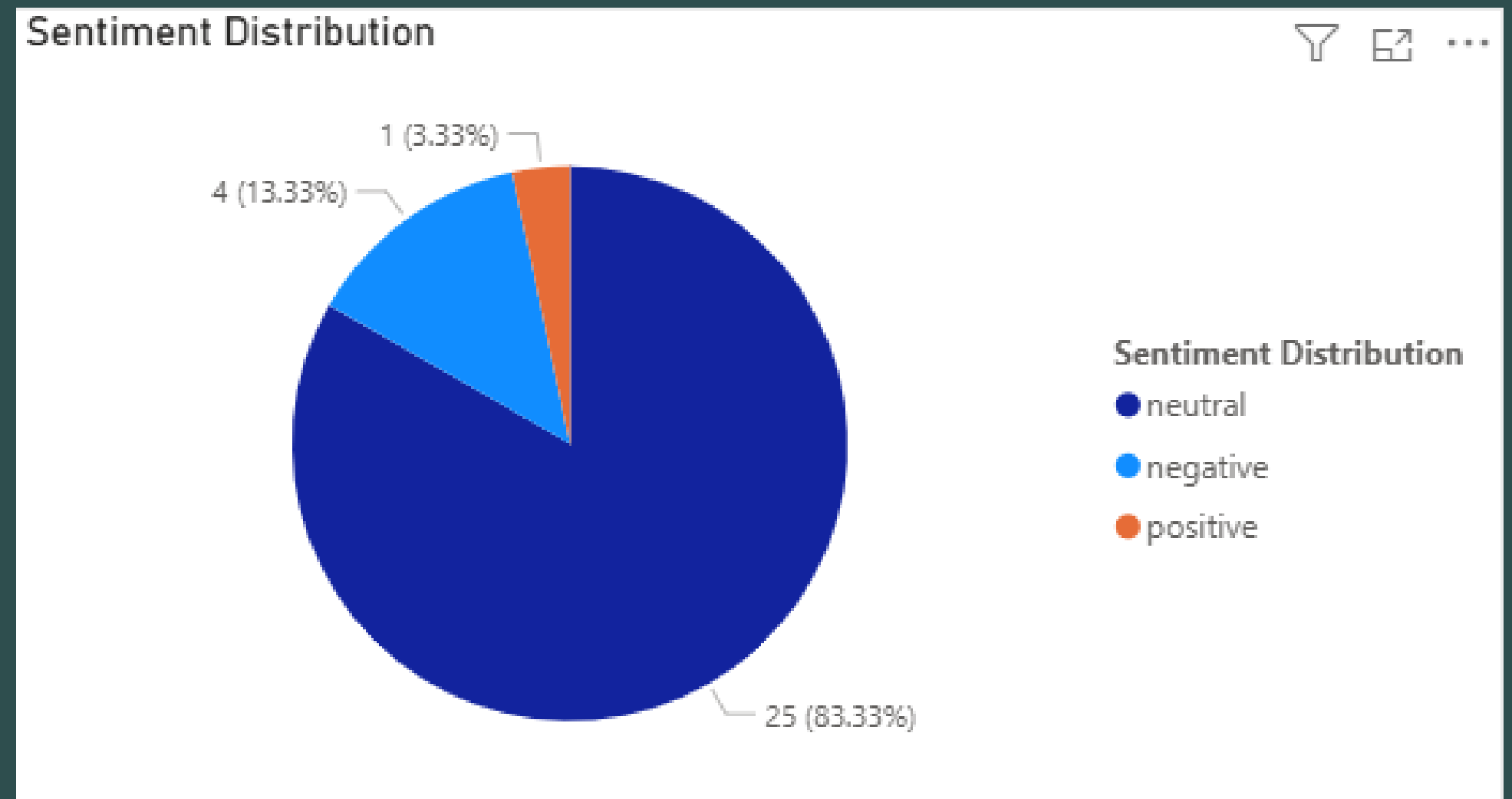
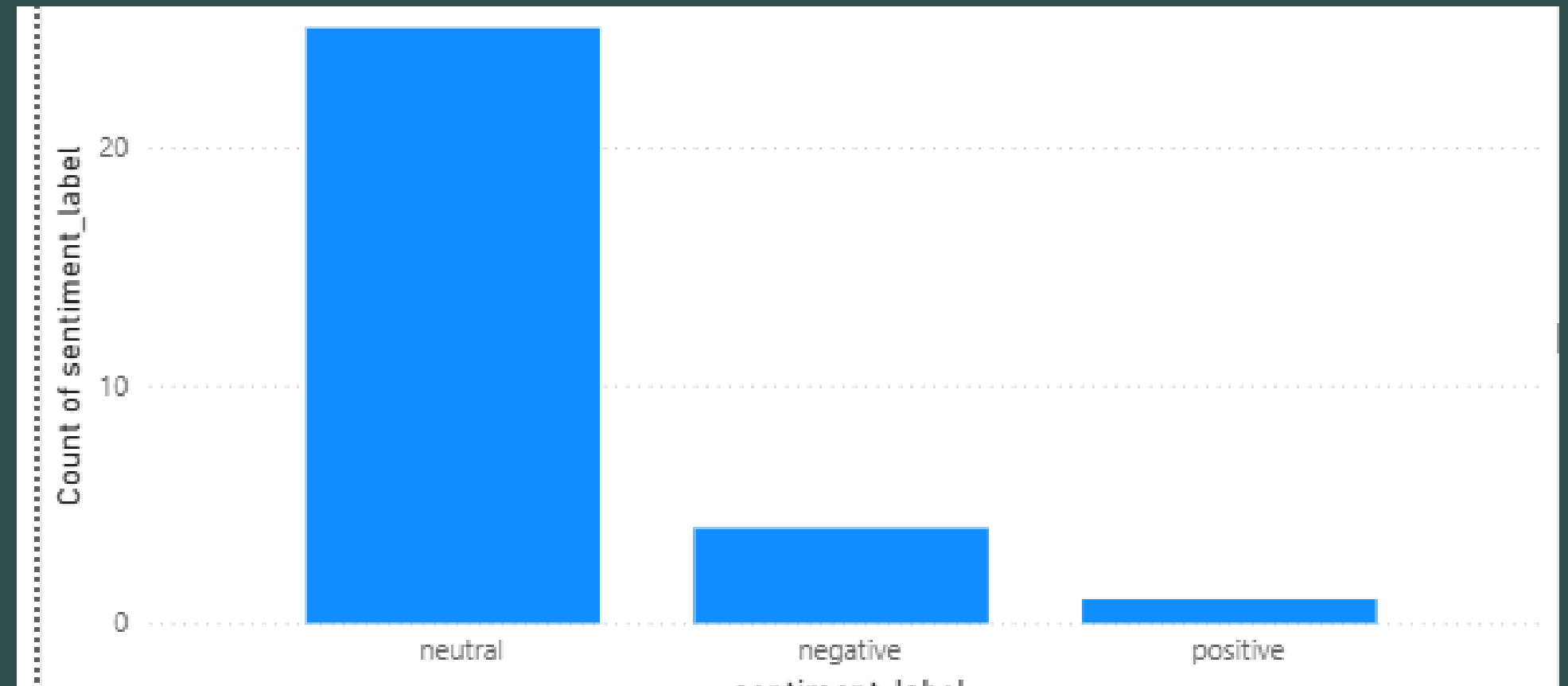


text	text_clean	sentiment_score	sentiment_label
m)	Questions for Cloudflareentropicthoughts.com	0	neutral
onviction–People vs. Harmon(ericgoldman.org)	Emoji Evidence Errors Dont Undo a Murder ConvictionPeople vs. Harmonericgoldman.org	0	neutral
Editing(mosaic.so)	Launch HN Mosaic YC W25 Agentic Video Editingmosaic.so	0	neutral
etroc64.github.io)	Programming the Commodore 64 with .NETretroc64.github.io	0	neutral
ble Corporate-Government Censorship(aclu.org)	Your Smartphone, Their Rules App Stores Enable CorporateGovernment Censorshipaclu.org	0	neutral
	Adventures in Upgrading Proxmoxvasi.li	0	neutral
	The 1k AWS Mistakegeocod.io	0	neutral
e Projects(shkspr.mobi)	The Peaceful Transfer of Power in Open Source Projectsshkspr.mobi	0.125	positive
	Gemini 3blog.google	0	neutral
wndetectorsdowndetector.com)	I made a down detector for down detectordowndetectorsdowndetector.com	-0.15555555555556	negative
inking-Aware Editing and Generation(github.com/tyfeld)	Multimodal Diffusion Language Models for ThinkingAware Editing and Generationgithub.comtyfeld	0	neutral
ergency call failure in Australia(theregister.com)	Outdated Samsung handset linked to fatal emergency call failure in Australiatheregister.com	-0.3583333333333333	negative
Email Support(thunderbird.net)	Thunderbird Adds Native Microsoft Exchange Email Supportthunderbird.net	0	neutral
	I just want working RCS messagingwt.gd	0	neutral
	Google Antigravityantigravity.google	0	neutral
utube.com)	The Future of Programming 2013 videoyoutube.com	0	neutral
	Learning to Boot from PXEimraniqbal.org	0	neutral
ild Teach You(toddhgardner.com)	Build vs. Buy What This Weeks Outages Should Teach Youtoddhgardner.com	0	neutral
om)	Pebble, Rebble, and a path forwardericmigi.com	0	neutral
i)	Ultima VII Revisitedgithub.comviridiangames	0	neutral
z-Body problem simulator(trisolarchaos.com)	Show HN Browserbased interactive 3D ThreeBody problem simulatortrisolarchaos.com	0	neutral
ianity(joanwestenberg.com)	How to Stay Sane in a World That Rewards Insanityjoanwestenberg.com	0	neutral

VISUALS

Power BI Charts

This section showcases the **dynamic bar and pie charts** generated in Power BI, illustrating key sentiment analysis metrics and insights from the data.



FINAL TABLE

Power BI Visuals – Table

This section illustrates the **finalized data table** in Power BI, showcasing key metrics and insights derived from the ETL process for effective analysis.

	text_clean	Sum of sentiment_score	sentiment_label
le Corporate Government Censorship(aclu.org)	Your Smartphone, Their Rules App Stores Enable CorporateGovernment Censorshipaclu.org	0.00	neutral
	Ultima VII Revisitedgithub.com/miridiangames	0.00	neutral
mail Support(thunderbird.net)	Thunderbird Adds Native Microsoft Exchange Email Supportthunderbird.net	0.00	neutral
Projects(shkspr.mobi)	The Peaceful Transfer of Power in Open Source Projectsshkspr.mobi	0.13	positive
ube.com)	The Future of Programming 2013 videoyoutube.com	0.00	neutral
uce a science fiction anthology(compellingsciencefiction.com)	The code and opensource tools I used to produce a science fiction anthologycompellingsciencefiction.com	0.00	neutral
	The Tk AWS Mistakegeocod.io	0.00	neutral
Body problem simulator(trisolarchaos.com)	Show HN Browserbased interactive 3D ThreeBody problem simulatortrisolarchaos.com	0.00	neutral
}	Questions for Cloudflareentropicthoughts.com	0.00	neutral
roc64.github.io)	Programming the Commodore 64 with .NETretroc64.github.io	0.00	neutral
	Pimped Amiga 500pimyretro.org	0.00	neutral
n)	Pebble, Rebbie, and a path forwardericmigl.com	0.00	neutral
gency call failure in Australia(theregister.com)	Outdated Samsung handset linked to fatal emergency call failure in Australiatheregister.com	-0.36	negative
inking Aware Editing and Generation(github.com/tyfold)	Multimodal Diffusion Language Models for ThinkingAware Editing and Generationgithub.com/tyfold	0.00	neutral
com/toddmaustin)	MojoV Secret Computation for RISCvgithub.com/toddmaustin	-0.40	negative
		-1.19	

Conclusion

This end-to-end pipeline demonstrates data ingestion, processing, storage, and visualization using Azure services. The workflow is scalable and suitable for real-world sentiment analysis scenarios.

Reference:

- Loria, S. (2020). TextBlob Documentation.
- Microsoft Azure (2025). Blob Storage, Data Factory & SQL DB Docs.
- Hacker News (2025). News Headlines Source.
- McKinney, W. (2018). Python for Data Analysis.
- Microsoft (2025). Power BI Documentation.

Github Link:

https://github.com/chandresh2508/Sentiment_Analysis

Coding part

```
jupyter sentimentanalysis Last Checkpoint: 8 hours ago
File Edit View Run Kernel Settings Help
Project structure created successfully!

[1]:
import requests
from bs4 import BeautifulSoup
import pandas as pd
import os

# make sure the folder exists
os.makedirs("data", exist_ok=True)

# scrape
url = "https://news.ycombinator.com/"
r = requests.get(url, timeout=10)
soup = BeautifulSoup(r.text, "html.parser")

titles = [item.get_text(strip=True) for item in soup.select(".titleline")]

# create dataframe
df = pd.DataFrame({"text": titles})

# correct save line
df.to_csv("data/IMDB_Dataset.csv", index=False, encoding="utf-8")

df.head()
```

```
jupyter sentimentanalysis Last Checkpoint: 8 hours ago
File Edit View Run Kernel Settings Help
Project structure created successfully!

[3]:
import requests
from bs4 import BeautifulSoup
import pandas as pd
import os

# make sure the folder exists
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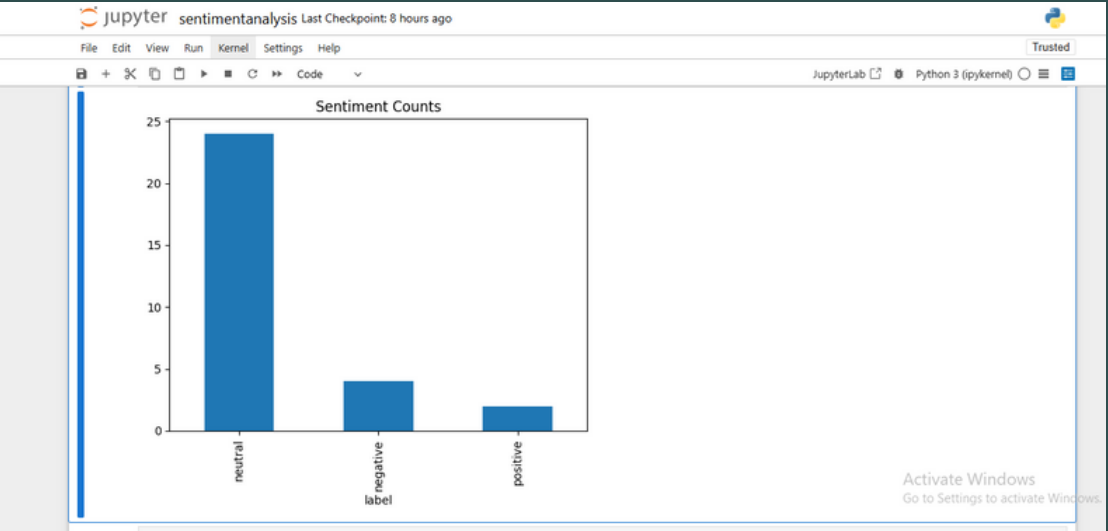
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```



```
jupyter sentimentanalysis Last Checkpoint: 8 hours ago
File Edit View Run Kernel Settings Help
Project structure created successfully!

[6]:
text
0 Questions for Cloudflare(entropicthoughts.com) Questions for Cloudflareentropicthoughts.com 0.0 neutral
1 Emoji Evidence Errors Don't Undo a Murder Conv... Emoji Evidence Errors Dont Undo a Murder Conv... 0.0 neutral
2 Launch HN: Mosaic (YC W25) - Agentic Video Edi... Launch HN Mosaic YC W25 Agentic Video Editing... 0.0 neutral
3 Programming the Commodore 64 with .NET(retroc... Programming the Commodore 64 with .NETretroc64... 0.0 neutral
4 Your Smartphone. Their Rules: App Stores Enabl... Your Smartphone. Their Rules App Stores Enable... 0.0 neutral

[8]:
print(os.listdir("data"))

['final_sentiment.csv', 'IMDB_Dataset.csv', 'HW151', 'news_raw.csv', 'sentiment_text.csv']

[9]:
sent_df = pd.read_csv("data/final_sentiment.csv")
sent_df.head()
```

	text	text_clean	sentiment_score	sentiment_label
0	Questions for Cloudflare(entropicthoughts.com)	Questions for Cloudflareentropicthoughts.com	0.0	neutral
1	Emoji Evidence Errors Don't Undo a Murder Conv...	Emoji Evidence Errors Dont Undo a Murder Conv...	0.0	neutral
2	Launch HN: Mosaic (YC W25) - Agentic Video Edi...	Launch HN Mosaic YC W25 Agentic Video Editing...	0.0	neutral
3	Programming the Commodore 64 with .NET(retroc...	Programming the Commodore 64 with .NETretroc64...	0.0	neutral
4	Your Smartphone. Their Rules: App Stores Enabl...	Your Smartphone. Their Rules App Stores Enable...	0.0	neutral

Thank you!