

Google Sheets to PostgreSQL

This project connects to a Google Spreadsheet using the Google Sheets API, reads data from all sheets/tabs, and stores each sheet as a separate table in a PostgreSQL database using SQLAlchemy and pandas.

The project is split into two Python scripts:

question1.py → Authenticates and reads all Google Sheets data

question2.py → Normalizes and inserts each sheet into PostgreSQL

Github repo link:

<https://github.com/K-Tharun/internship-assessment>

1) Snap of the Google Sheet given.

Subset of AI2030 Database-AI Tools Sheet 1

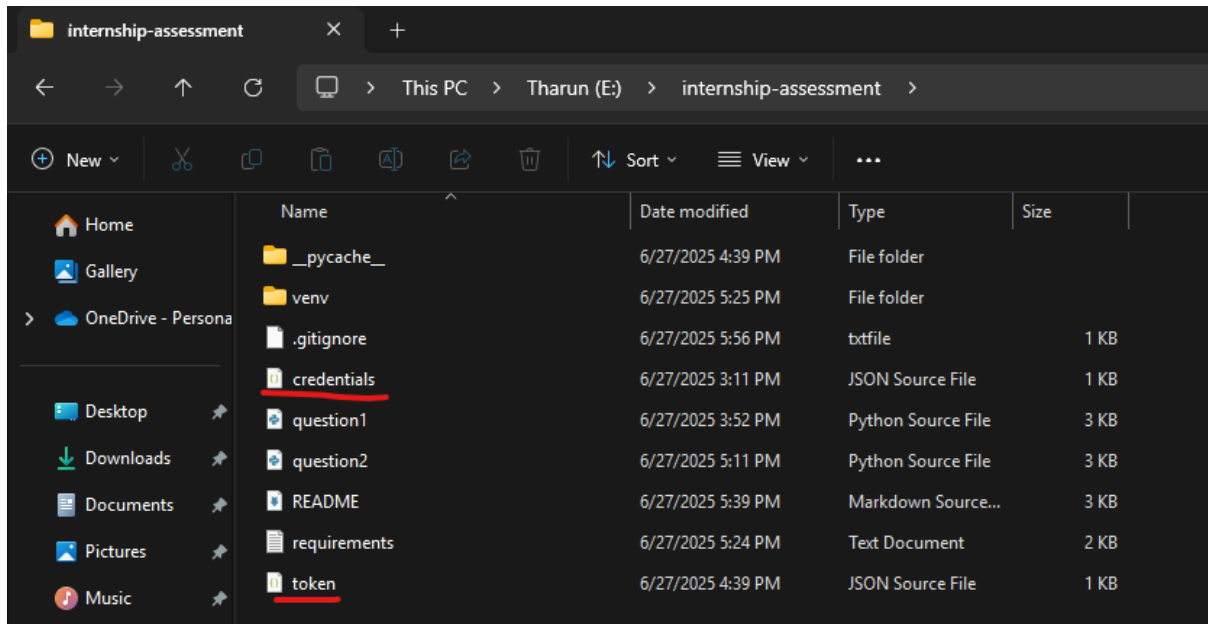
File Edit View Insert Format Data Tools Extensions Help

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	A	B	C	D	E	F	G	H	I	J
	Tool/API Name	Description	Website	API Availability	Responsible AI Focus	Target Industry	Key Features	Pricing	Location	Launched Year
1	Google ML-Fairness-gym	Tool for auditing machine learning models for bias and fairness issues	https://github.com/google/ml-fairness-gym							
2	Microsoft Fairlearn	Open-source Python package for assessing and improving fairness in AI systems	https://github.com/microsoft/fairlearn							
3	AI Explainability 360	Toolkit from IBM for interpreting and explaining AI model predictions	https://github.com/Trusted-AI/AIX360							
4	SHAP	Game-theoretic approach to explain the output of any machine learning model	https://github.com/slundberg/shap							
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Transparency Tools Privacy & Security Tools Fairness Tools Explainability Tools Ethical Tools Bias Tools Index Sheet

- 2) Snap of the credential.json file downloaded from the google console and token.json generated after initial authentication.



- 3) Output for question 1 (transparency tools table)

```
(venv) PS E:\internship-assessment> python .\question1.py

Sheet: Transparency Tools
[Tool/API Name', 'Description', 'Website', 'API Availability', 'Responsible AI Focus', 'Target Industry', 'Key Features', 'Pricing', 'Location', 'Launched Year']
['Google ML-Fairness-gym', 'Tool for auditing machine learning models for bias and fairness issues', 'https://github.com/google/ml-fairness-gym']
['Microsoft Fairlearn', 'Open-source Python package for assessing and improving fairness in AI systems', 'https://github.com/microsoft/fairlearn']
['AI Explainability 360', 'Toolkit from IBM for interpreting and explaining AI model predictions', 'https://github.com/Trusted-AI/AIX360']
['SHAP', 'Game-theoretic approach to explain the output of any machine learning model', 'https://github.com/slundberg/shap']
```

- 4) Docker creation

```
Run 'docker run --help' for more information
PS C:\Users\Admin> docker run --name mypg -e POSTGRES_USER=postgres -e POSTGRES_PASSWORD=pass123 -e POSTGRES_DB=sheetsdb -p 5432:5432 -d postgres
Unable to find image 'postgres:latest' locally
latest: Pulling from library/postgres
eb3a531023c8: Pull complete
abfd68ef219e: Pull complete
64e8f1b2b243: Pull complete
8a1f652e0c97: Pull complete
dad67da3f26b: Pull complete
db3ab53631e4: Pull complete
603ef9fcd8e: Pull complete
c6def2c6e21d: Pull complete
c95f49cc11b3: Pull complete
b47a445a47f0: Pull complete
3664068a9b37: Pull complete
05b641b3bdab: Pull complete
f4ce9941f6e3: Pull complete
928d00623a6e: Pull complete
Digest: sha256:6cf6142afacfa89fb28b894d6391c7dcbf6523c33178bdc33e782b3b533a9342
Status: Downloaded newer image for postgres:latest
053d1783581d60a50dcad8ebcf27ca426b274b6edac9a66b6d77ff068db0bda0
```

5) Question 2 outputs

```
IDLE Shell 3.13.5
File Edit Shell Debug Options Window Help
Python 3.13.5 (tags/v3.13.5:6cb20a2, Jun 11 2025, 16:15:46) [MSC v.1943 64
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: E:\internship-assessment\question2.py =====
Uploaded 'Transparency Tools' to table: transparency_tools
Uploaded 'Privacy & Security Tools' to table: privacy_&_security_tools
Uploaded 'Fairness Tools' to table: fairness_tools
Uploaded 'Explainability Tools' to table: explainability_tools
Uploaded 'Ethical Tools' to table: ethical_tools
Uploaded 'Bias Tools ' to table: bias_tools
Uploaded 'Index Sheet' to table: index_sheet
All sheets uploaded to PostgreSQL.
```

List of tables created in the database

```
PS C:\Users\Admin> docker exec -it mypg psql -U postgres -d sheetsdb
psql (17.5 (Debian 17.5-1.pgdg120+1))
Type "help" for help.

sheetsdb=# \dt
          List of relations
Schema | Name | Type | Owner
-----+-----+-----+-----
public | bias_tools | table | postgres
public | ethical_tools | table | postgres
public | explainability_tools | table | postgres
public | fairness_tools | table | postgres
public | index_sheet | table | postgres
public | privacy_&_security_tools | table | postgres
public | transparency_tools | table | postgres
(7 rows)
```

bias_tools table (SELECT * FROM bias_tools;)

Availability	Tool Name			Responsible AI Focus	Description	Target Industry	Website	Key Features	API Avail
	Pricing	Location	Launched Year						
(6 rows)	Aequitas	Bias Auditing and Fair ML Toolkit	Bias audit toolkit to audit machine learning models for discrimination and bias	Legal; Financial	Understand where biases exist in your model(s), Bias disparity, Bias Metric Visualisation	http://www.data-science-public-policy.org/our-work/tools-guides/aequitas/	Yes		
	Free	Global	2018						
	AI Fairness 360	Bias detection, Fairness metrics, Bias mitigation	Toolkit to help detect and mitigate bias in machine learning	Technology, Research	Bias detection, Fairness metrics, Bias mitigation algorithms	https://github.com/Trusted-AI/AIF360	Yes		
	Free	Global	2018						
	FairML	Bias detection, Fairness metrics	Toolbox for diagnosing bias in machine learning models	Technology, Research	Bias detection, Fairness metrics, Model debugging	https://github.com/adebayoj/fairml	Yes		
	Free	Global	2017						
(6 rows)	Aequitas	Bias detection, Fairness metrics	Bias and fairness audit toolkit	Technology, Research	Bias detection, Fairness metrics, Visualization	https://github.com/dssg/aequitas	Yes		
	Free	Global	2018						
	FairTest	Bias detection, Fairness testing	Testing tool for discovering unfair bias in machine learning models	Technology, Research	Bias detection, Fairness testing, Statistical analysis	https://github.com/columbia/fairtest	Yes		
	Free	Global	2017						
	Themis-ml	Bias detection, Fairness metrics	Python library for testing bias and fairness of machine learning models	Technology, Research	Bias detection, Fairness metrics, Visualization	https://github.com/cosmic8boy/themis-ml	Yes		
	Free	Global	2020						

Index_sheet table

sheetsdb=# SELECT * FROM index_sheet;	
Responsible AI Pillar	Tools Count (this is a subset for marketplace DEV)
Transparency Tools	5
Privacy & Security Tools	5
Fairness Tools	10
Explainability Tools	8
Bias Tools	7
Ethical Tools	4
(6 rows)	

Github repo snap

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<div> <div>main</div> <div>1 Branch</div> <div>0 Tags</div> <div>Go to file</div> <div>Add file</div> <div>Code</div> </div>		
<div> <div> <div> <div> <div>K-Tharun</div> <div>Update README.md</div> </div> </div> <div> <div>19c50f3 · 32 minutes ago</div> <div>2 Commits</div> </div> </div> </div>		
<div> <div>.gitignore</div> <div>completed the assessment</div> <div>36 minutes ago</div> </div>		
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<div> <div>question1.py</div> <div>completed the assessment</div> <div>36 minutes ago</div> </div>		
<div> <div>question2.py</div> <div>completed the assessment</div> <div>36 minutes ago</div> </div>		
<div> <div>requirements.txt</div> <div>completed the assessment</div> <div>36 minutes ago</div> </div>		