

**Q1) Do you numbers for question 8 change if you use LLM Generated Fields (rather than your downloaded fields)?**

I created two extra queries (QUERY\_7a and QUERY\_8A) to test this question. The numbers did not change, perhaps because the LLM did a good job of cleaning the data for the degree and universities included in the queries.

**Q2) Next, come up with 2 additional questions that you are curious to answer — formulate those questions in words, and then write SQL code to answer.**

I chose the two extra queries listed below (QUERY\_9 and QUERY\_10) because I am an international student with a background in engineering.

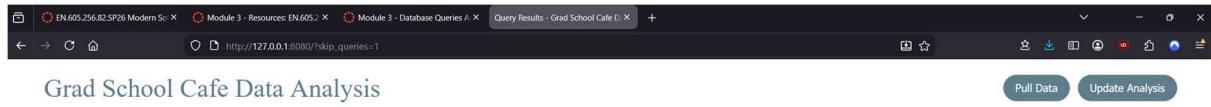
1. Number of **rejected engineering** applicants for **Fall 2026**
2. Percent of **rejected international engineering** applicants for **Fall 2026**

**Please see answers in the terminal output below for all assignment queries (including llm and my two additional queries). The output is produced from running query\_data.py which queries the cleaned dataset in the postgresql database.**

The screenshot shows a Jupyter Notebook environment with the following details:

- Project View:** Shows the directory structure of "module\_3" containing files like practice1.py, practice2.py, app.py, query\_data.py, llm\_extend\_applicant\_data.json, and load\_data.py.
- Code Editor:** Displays the content of query\_data.py. The code defines a list of 10 numbered queries (1 through 10) using f-strings to format the query numbers and names. It includes imports for psycopg and os, and a main block that connects to a PostgreSQL database using psycopg.connect.
- Terminal Output:** Shows the execution of the script and its output. The output lists 10 numbered facts about applicant data, such as:
  - 1. Number of applications for Fall 2026: 6990
  - 2. Percentage of international students (not American/Other): 44.36
  - 3. Average GPA: 3.812119653199939
  - 4. Average GRE: 204.8922193877551
  - 5. Average GRE V: 160.41995640590943
  - 6. Average GRE AW: 8.507754942767967
  - 7. Average GPA of American students in Fall 2026: 4.074023154848009
  - 8. Percent of Fall 2026 acceptances: 24.32
  - 9. Average GPA of applicants who applied for Fall 2026: 3.804900000000001
  - 10. Number of applicants who applied to JHU for MS Computer Science degrees: 6
- Status Bar:** Shows the path as "C:\Users\infern\Desktop\JHU MSC\jhu\_software\_concepts\module\_3\venv\Scripts\python.exe" and the message "Process finished with exit code 0".

## Screenshot web application query results



### User Guidance

1. Use the Pull Data button in the top right navigation to fetch new Grad Cafe entries, clean them, and save them to the database. Existing entries are skipped based on URL.
2. Use the Update Analysis button in the top right navigation to refresh the query results.

Note: Update Analysis will not run while a Pull Data request is in progress.

Pulled 0 new entries into database, also saved in new\_only.json.

### Query Results

#### 1. How many entries do you have in your database who have applied for Fall 2026?

Answer: Applicant count: 7078

#### 2. What percentage of entries are from international students (not American or Other) (to two decimal places)?

Answer: Percent International: 44.36

#### 3. What is the average GPA, GRE, GRE V, and GRE AW of applicants who provide these metrics?

Answer: GPA: 3.81, GRE: 205.04, GRE V: 160.42, GRE AW: 8.50

#### 4. What is their average GPA of American students in Fall 2026?

Answer: Average GPA American: 4.07

#### 5. What percent of entries for Fall 2026 are Acceptances (to two decimal places)?

Answer: Acceptance percent: 24.67

#### 6. What is the average GPA of applicants who applied for Fall 2026 who are Acceptances?

Answer: Average GPA Acceptance: 3.81

#### 7. How many entries are from applicants who applied to JHU for a masters degrees in Computer Science?

Answer: JHU CS Masters Applicants: 6

#### 7a. Number of applicants who applied to JHU for MS Computer Science degrees (LLM)

Answer: JHU CS Masters Applicants (LLM): 6

#### 8. How many entries from 2026 are acceptances from applicants who applied to Georgetown University, MIT, Stanford University, or Carnegie Mellon University for a PhD in Computer Science?

Answer: 2026 Acceptances for CS PhD at Georgetown, Stanford and Carnegie Mellon: 2

#### 8a. Number of 2026 acceptances for CS PhD at Georgetown, MIT, Stanford, Carnegie Mellon (LLM)

Answer: 2026 Acceptances for CS PhD at Georgetown, Stanford and Carnegie Mellon (LLM): 2

#### 9. Number of rejected engineering applicants for Fall 2026

Answer: Count of rejected Engineering applicants for Fall 2026: 2538

#### 10. Percent of rejected international engineering applicants for Fall 2026

Answer: Percent of rejected international engineering applicants for Fall 2026: 20.32

## Screenshot of console output for query results

The screenshot shows a code editor interface with a project named 'module\_3'. The 'app' directory contains several files: app.py, scrape.py, query\_data.py, load\_data.py, clean.py, index.html, base.html, and main.css. The 'static' directory contains main.css. The 'app.py' file is open and shows a snippet of Python code for a database connection and cursor handling. The 'main.css' file is selected in the sidebar.

The terminal window displays the output of the application's run command:

```
* C:\Users\lfern\Desktop\JHU MSC\jhu_software_concepts\module_3\venv\Scripts\python.exe "C:\Users\lfern\Desktop\JHU MSC\jhu_software_concepts\module_3\app\app.py"
Loaded 49960 records into applicantData from lm_extend_applicant_data.json.
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8080
* Running on http://192.168.86.33:8080
Press CTRL+C to quit
* Restarting with stat
Loaded 49960 records into applicantData from lm_extend_applicant_data.json.
* Debugger PIN: 108-598-338
1. How many entries do you have in your database who have applied for Fall 2026?: Answer: Applicant count: 6978
2. What percentage of entries are from international students (not American or Other) (to two decimal places?): Answer: Percent International: 44.36
3. What is the average GPA, GRE, GRE V, and GRE AW of applicants who provide these metrics?: Answer: GPA: 3.81, GRE: 204.92, GRE V: 160.42, GRE AW: 8.51
4. What is their average GPA of American students in Fall 2026?: Answer: Average GPA American: 4.07
5. What percent of entries for Fall 2026 are Acceptances (to two decimal places?): Answer: Acceptance percent: 24.32
6. What is the average GPA of applicants who applied for Fall 2026 who are Acceptances?: Answer: Average GPA Acceptance: 3.80
7. How many entries are from applicants who applied to JHU for a masters degree in Computer Science?: Answer: JHU CS Masters Applicants: 6
8. Number of applicants who applied to JHU for MS Computer Science degrees (LLM): Answer: JHU CS Masters Applicants (LLM): 6
8a. Number of 2026 acceptances for CS PhD at Georgetown, MIT, Stanford, Carnegie Mellon (LLM): Answer: 2026 Acceptances for CS PhD at Georgetown, Stanford and Carnegie Mellon (LLM): 2
9. Number of rejected engineering applicants for Fall 2026: Answer: Count of rejected Engineering applicants for Fall 2026: 2507
10. Percent of rejected international engineering applicants for Fall 2026: Answer: Percent of rejected international engineering applicants for Fall 2026: 20.38
127.0.0.1 - - [08/Feb/2026 12:38:54] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [08/Feb/2026 12:38:54] "GET /static/main.css HTTP/1.1" 304 -
```