In order for developers to be able to contribute to the Peergrading Project, they must have a local copy of the existing code up and running in localhost. Only then can they understand how the different parts of the code function together to produce the functionality of the product.

While I tried to get the code locally running, I in particular faced two hardships:

- 1. Requirements.txt installation
- 2. PostgreSQL installation

1. Requirements.txt installation

This is done by running the command pip install -r requirements.txt

The command is run in the same directory where the GitHub Repository of Peergrading Project has been cloned.

During the run, there is something called "building the wheels" as can be seen in the following screenshot:

So, in order for the system to be able to build wheels for the various Python Libraries, make sure that you have Microsoft Visual Studio 2022 installed. Keep in mind, this is NOT Microsoft Visual Studio Code - the favorite IDE for editing and running code.

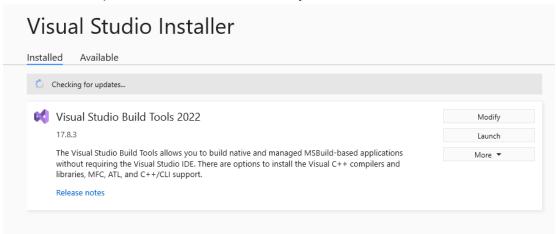
To show the difference as for as symbol is concerned, this is how Microsoft Visual Studio Code's Symbol looks like:



And this is how Microsoft Visual Studio 2022's Symbol looks like:



And this is how the Installer Interface of Microsoft Visual Studio 2022 looks like: The "Installed" tab shows the installed applications. Here, we have Visual Studio Build Tools 2022, which helps to build the wheels of the Python Libraries.

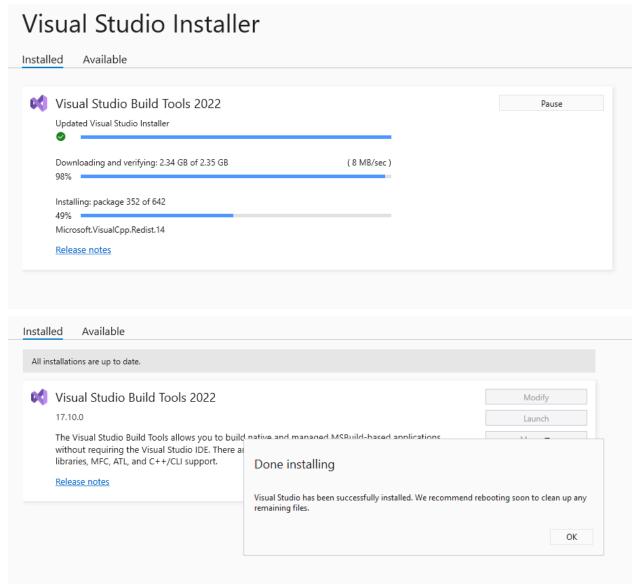


Despite having it installed, still the build was not successful:

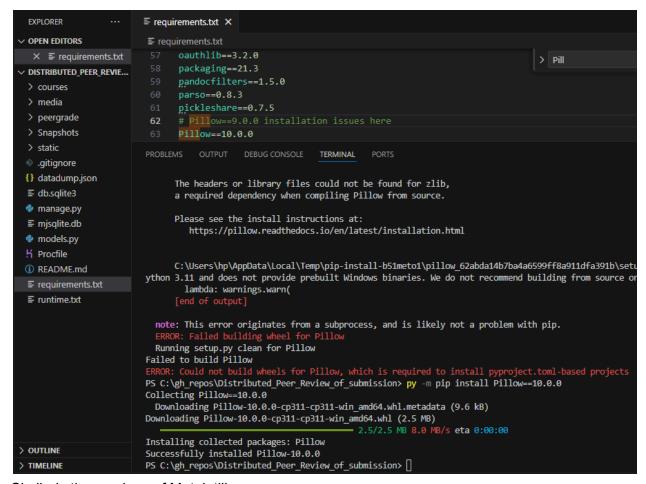
```
error: command 'C:\\Program Files (x86)\\Microsoft Visual Studio\\2022\\BuildTools\\VC\\Tools\\MSVC\\14.38.33130\\b
xe' failed with exit code 2
        [end of output]

note: This error originates from a subprocess, and is likely not a problem with pip.
ERROR: Failed building wheel for pyzmq
Building wheel for tornado (setup.py) ... done
Created wheel for tornado: filename=tornado-6.1-cp311-win_amd64.whl size=419557 sha256=d062196af31c8c27c4c7225dce
b
Stored in directory: c:\users\hp\appdata\local\pip\cache\wheels\f2\59\06\appcase5c7b17ec0fc9b1e2ae0c59e3d39255d5c0a38492e3
Successfully built cffi django-allauth kiwisolver MarkupSafe numpy psycopg2 pyrsistent tornado
Failed to build matplotlib Pillow pyzmq
ERROR: Could not build wheels for matplotlib, Pillow, pyzmq, which is required to install pyproject.toml-based projects
```

So what I tried is I went to the Installer, and checked the VS Build Tools 2022. I found that an update was required. So I clicked on "Update" and it went on as shown:



Turns out, there is no issue with MS VS 2022. The issue is with Pillow version.



Similarly the versions of Matplotlib:

```
46 MarkupSafe==2.0.1
47 # matplotlib==3.5.1 installation issues
48 # matplotlib==3.9.0 more issues
49 matplotlib # let pip decide the best version
50 matplotlib-inline==0.1.3
```

and pyzmg:

```
81     pytz==2021.3
82     # pyzmq==22.3.0 installation issues
83     pyzmq==26.0.3
```

are changed. The issues were discovered based on the error messages in the terminal. In the future, if you happen to face installation issues, you should do this:

1. Check the terminal message carefully. If required, copy-paste the terminal message to some chatbot like ChatGPT so that the work of identifying those critical lines which speak the most about the issue at hand is done for you. But be warned, do not copy-paste the whole error message lest the chatbot may not respond properly! Also, even before execution is over, error messages may appear in between. Be alert, and as soon as those intermediate error messages appear on the terminal, copy them and for the time being paste them to a notepad file. You can generate prompts to chatbot like

- that. This is because the output message on the terminal is so large that the top lines including the error message get cropped and only the bottom (few thousand lines) are visible. So part of the context is missed.
- 2. Once the critical error lines are identified, tweak the versions of the libraries like I have shown above. Usually, we use the latest version. But sometimes that also does not work. Then, we let pip decide the best version rather than explicitly specifying.
- 3. Most importantly, do all this in a virtual environment so that there are no dependency conflicts elsewhere. This is a must.

Finally, you should see something like this:

```
Installing collected packages: webencodings, wcwidth, Send2Trash, pywin32, pytz, pyasn1, pickleshare, mistune, json5, jpython-genutils, django-js-asset, dj-da tabase-unl, distlib, certifi, backcall, whitenoise, websocket-client, unllib3, tzdata, traitlets, tornado, toml, testpath, sqlparse, sniffio, six, rsa, pyzmq, pywinpty, pyrsistent, pyparsing, PyJWT, Pygments, pycparser, pycodestyle, pyasn1-modules, psycopg2, prompt-toolkit, prometheus-client, platformdirs, Pillow, parso, pandocfilters, oauthlib, numpy, nest-asyncio, MarkupSafe, kiwisolver, idna, gunicorn, fonttools, filelock, entrypoints, django-crispy-forms, defusedxml, decorator, debugpy, cycler, colorama, charset-normalizer, Babel, attrs, asgiref, WiForms, virtualenv, terminado, requests, python3-openid, pytton-dateutil, packaging, matplotlib-inline, jupyterlab-pygments, jupyter-core, jsonschema, Jinja2, jedi, Django, contourpy, cffi, captcha, autopep8, anyio, requests-oauthlib, hofformat, matplotlib, jupyter-server, nbclassic, jupyterlab-server, jupyterlab.

Successfully installed Babel-2.9.1 Django-4.0.2 Jinja2-3.0.3 MarkupSafe-2.0.1 Pillow-10.0.0 PyJWT-2.3.0 Pygments-2.11.2 Send2Trash-1.8.0 WiForms-2.3.3 anyio-3.4.0 argon2-cffi-121.3.0 argon2-cffi-indings-21.2.0 asgiref-3.5.0 attrs-21.4.0 autopep8-1.6.0 backcall-0.2.0 bleach-4.1.0 captcha-0.3 certifi-2021.10.8 cffi-1.15.0 charset-normalizer-2.0.10 colorama-0.4.4 contourpy-1.2.1 cryptography-36.0 cycler-a.11.0 debugy-1.5.1 decorator-5.1.1 defusedxml-0.7.1 distlib-0.3.4 dj-database-url-0.5.0 django-allauth-0.49.0 django-crispy-forms-1.14.0 django-heroku-0.3.1 django-js-asset-1.2.2 entrypoints-0.3 filelock-3.5.1 fonttools-4.28 .5 gunicorn-2.0.1.0 idna-3.3 ipykernel-6.6.1 ipython-7.31.0 ipython-7.31.0 ipython-daeutils-0.2.0 jevide-1.0.1 inython-7.31.0 ipyther-core-4.9.1 ipython-7.31.0 ipython-7.31.0 ipython-0.1.2 ipython-0.1.2 ipython-0.1.3 mistune-0.8.3 ipython-1.3.2 pytash-0.8.3 pyckleshare-0.7.5 phatformdirs-2.5.0 prometheus-client-0.1.2 ipython-0.1.3 mistune-0.8.3 pyckper-2.0.3 pyash-0.4.8 pysan1-mo
```

2. PostgreSQL Installation

I was facing difficulty here primarily because my previous attempts, over a year before attempting again this time, were messy. Even though I had run the uninstaller, which is supposed to have removed all files, still, it should be noted that the uninstaller DOES NOT remove all files, especially from folders which are hidden from view.

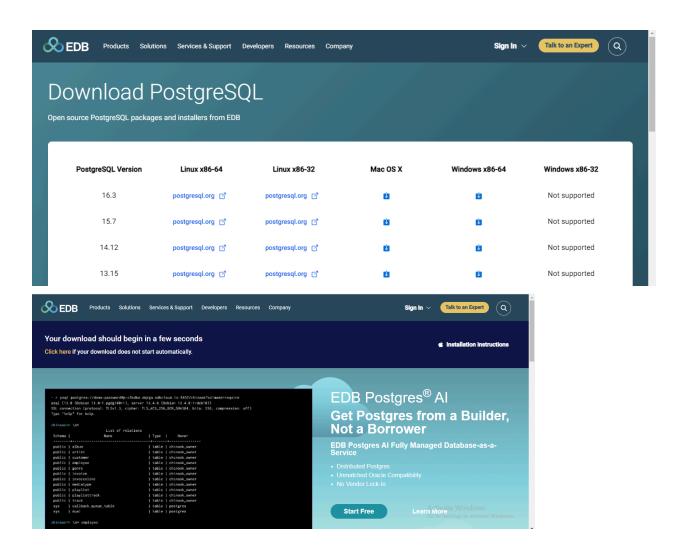
Let's go from Step 1 of the installation:

Step 1: Go to https://www.postgresgl.org/download/

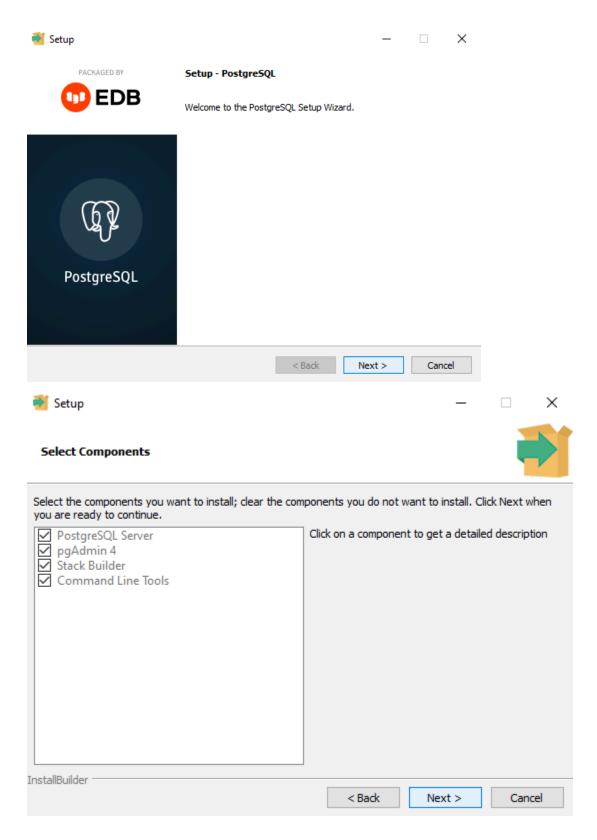
Step 2: This guide is based on Windows. So, click on Windows. Although I have not tried it, the procedure should be similar for other OSs like Mac, Linux, BSD, etc.

Step 3: Now, click on "Download the installer". You will be redirected to https://www.enterprisedb.com/downloads/postgres-postgresql-downloads

Step 4: Download the latest version in accordance with your computer's OS (Linux, Mac or Windows). Check first if your computer is 64-bit architecture (most modern computers are), or 32-bit architecture (most old computers are).



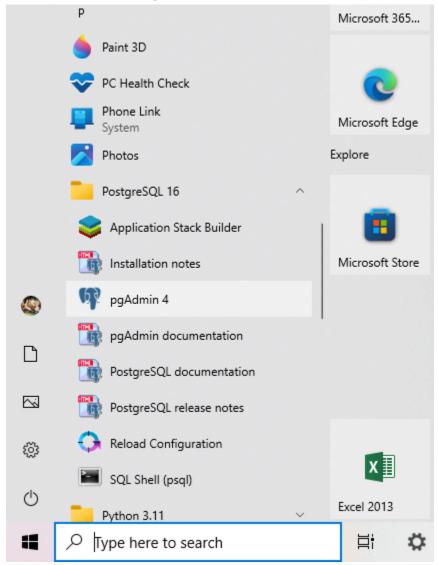
Step 5: Follow the installation steps by the installer



Next, mention the directory where PostgreSQL and components should be installed. I chose the D drive as it had more space.

Keep clicking on "Next" keeping the defaults. Finally, install. It should take a few minutes.

Step 5: Now, Launch pgAdmin4



My problem: Even after doing a fresh installation, I faced issue like this: pgAdmin Runtime Environment

Python Path: "D:\College Applications\PostgreSQL\16\pgAdmin 4\python\python.exe" Runtime Config File: "C:\Users\hp\AppData\Roaming\pgadmin\runtime_config.json" pgAdmin Config File: "D:\College Applications\PostgreSQL\16\pgAdmin 4\web\config.py"

Webapp Path: "D:\College Applications\PostgreSQL\16\pgAdmin 4\web\pgAdmin4.py"

pgAdmin Command: "D:\College Applications\PostgreSQL\16\pgAdmin 4\python\python.exe -s D:\College Applications\PostgreSQL\16\pgAdmin 4\web\pgAdmin4.py"

Environment:

- ALLUSERSPROFILE: C:\ProgramData

- APPDATA: C:\Users\hp\AppData\Roaming

This appears in a window, while trying to launch pgAdmin4.

A characteristic which lets us predict if this error window is going to open or not is that the loading time is long, and says that "Taking longer time to load...", something like that.

So what to do???

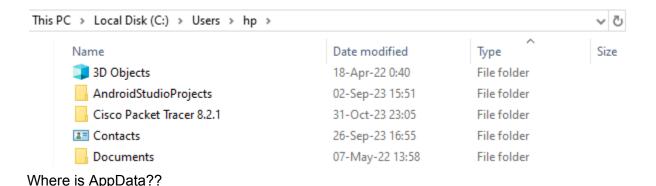
Step 5a: First, close pgAdmin4. Terminate Any Running pgAdmin or PostgreSQL Processes Ensure no other instances of pgAdmin or PostgreSQL are running, which might be locking the database file.

To ensure that this action is thoroughly performed, do this:

- Open Task Manager:
- Press Ctrl + Shift + Esc to open the Task Manager.
- Look for any processes named pgAdmin, postgres, or similar.
- Select each of these processes and click End Task to terminate them.

Step 5b: Backup and Delete Existing Database Files Locate and back up the existing SQLite database file, then delete it to allow pgAdmin to recreate it afresh.

- Navigate to the pgAdmin Data Directory:
- Open File Explorer.
- Navigate to C:\Users\hp\AppData\Roaming\pgAdmin\.
- If you don't see AppData, it might be hidden. You can enable viewing hidden files by clicking on the View tab in File Explorer and checking Hidden items.





Check the "Hidden items" checkbox which can be found in the "View" tab.

This PC > Local Disk (C:) > Users > hp >

Name	Date modified	Type
3D Objects	18-Apr-22 0:40	File folder
AndroidStudioProjects	02-Sep-23 15:51	File folder
AppData	18-Apr-22 0:40	File folder
Cisco Packet Tracer 8.2.1	31-Oct-23 23:05	File folder
2 Contacts	26-Sep-23 16:55	File folder

Aha!

Next, go to "Roaming" folder.

> Local Disk (C:) > Users > hp > AppData >

Name

Date modified

Type

Local

LocalLow

25-May-24 13:47

File folder

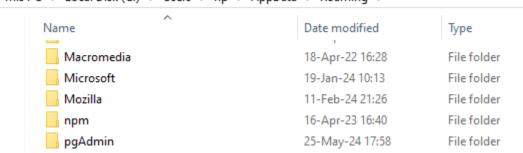
Roaming

02-Apr-24 1:24

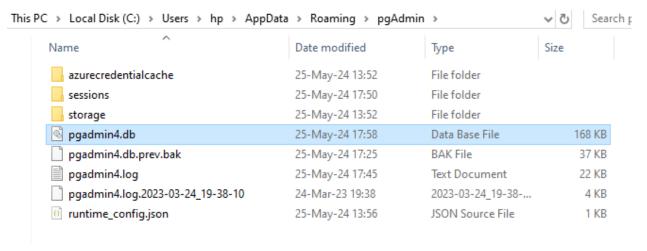
File folder

Now, go to "pgAdmin" folder.

This PC > Local Disk (C:) > Users > hp > AppData > Roaming >



You will find:



You may take backup of the highlighted file, or just delete it. This file is what is causing the problem.

Step 5c: Clear Cache and Temp Files

Clear temporary files that might interfere with the installation process.

Use Disk Cleanup:

- Type Disk Cleanup in the Windows search bar and open it.
- Select the drive where temporary files are stored (usually C:) and click OK.
- Check the boxes for Temporary files and other categories you wish to clean.
- Click OK and then Delete Files.

Manually Delete Temp Files:

- Navigate to C:\Users\hp\AppData\Local\Temp.
- Select all files and folders in this directory and delete them.

Alternately, I suggest you to not "Select all files and folders in this directory and delete them". What if some of the files are important for some other application? Here's what I suggest:

This PC > Local Disk (C:) > Users > hp > AppData > Local > Temp		✓ Ö Sear	
Name	Date modified	Туре	Size
bc608eeb-359b-4c46-a9b7-a94510fe79eb.	25-May-24 19:01	TMP File	0 KB
34d1f1e6-a572-4f11-b114-cfe47c5f87e9.t	. 25-May-24 18:55	TMP File	11,769 KB
☐ JET1C65.tmp	25-May-24 18:50	TMP File	0 KB
installbuilder_installer.log	25-May-24 18:49	Text Document	5 KB
a46aecbb-c06c-4ab7-8a49-ecedabeec37a	25-May-24 18:47	TMP File	0 KB

Click on the "Date modified" to sort it according to descending order - the most recent files appear first. Delete the files of just a few days back, maybe, say, 3 days back. Now, try opening the application again.

Step 5d: Retry opening the application



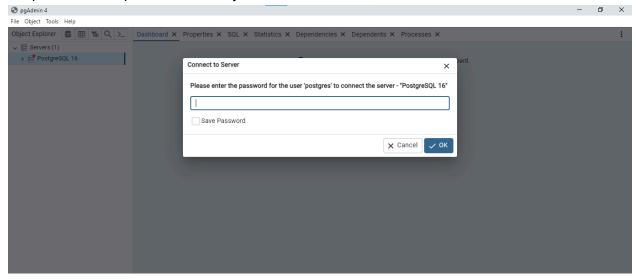
Two things you should notice while the pgAdmin 4 is starting:

- 1. It is much faster, and phrases like "Taking a long time..." won't appear.
- 2. Most importantly, the message as shown above "pgAdmin 4 started" appears. Even if it takes a long time, don't worry. But this second message must appear.

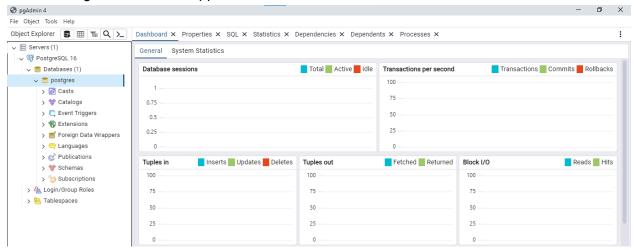
Step 6: The UI



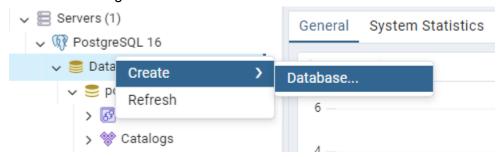
Step 7: Enter the password which you mentioned at the time of installation.



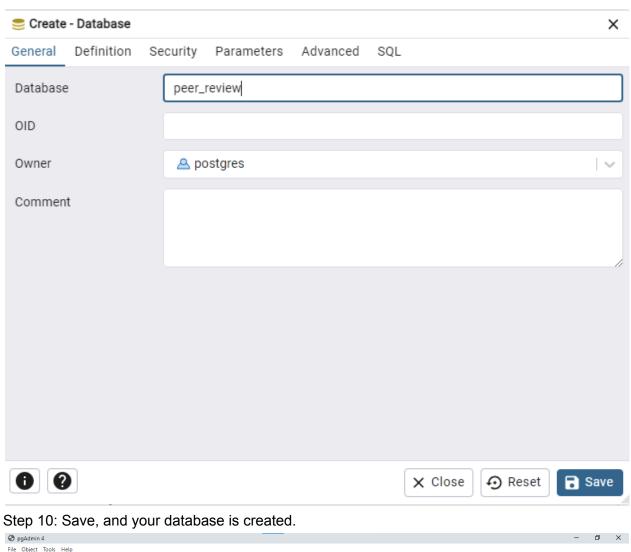
The following screen should appear:



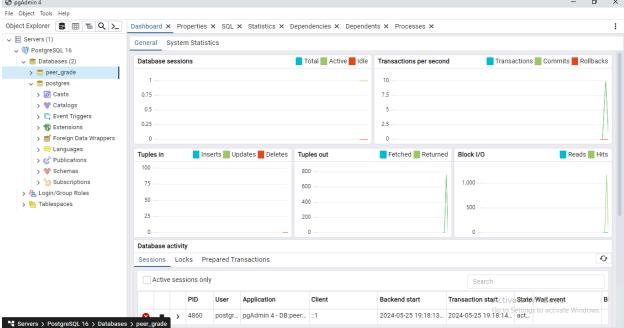
Step 8: Create the peer_review database by right-clicking on "Databases" on the left-hand-side tree and selecting "Create Database".



Step 9: Enter details like Name.



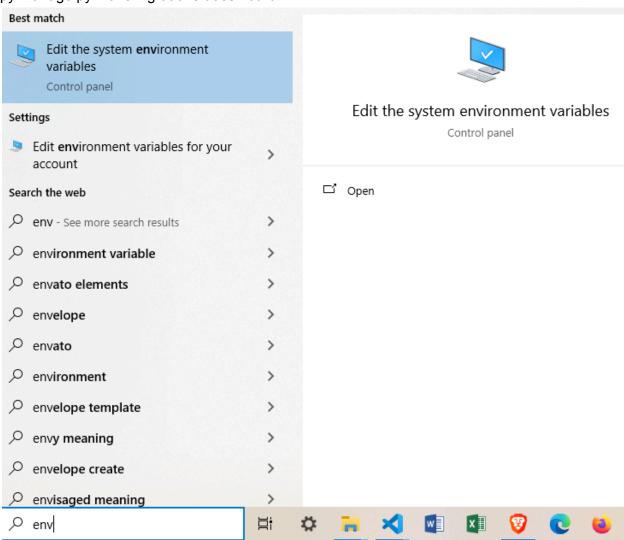




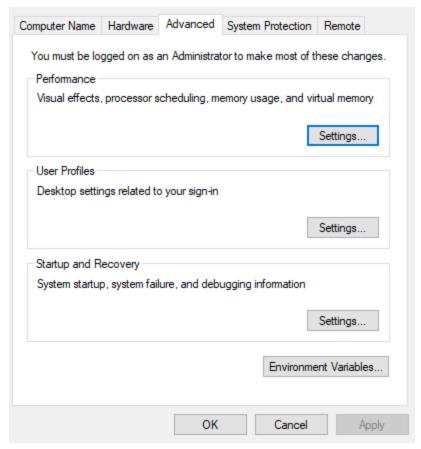
Despite all this,

Oh no!

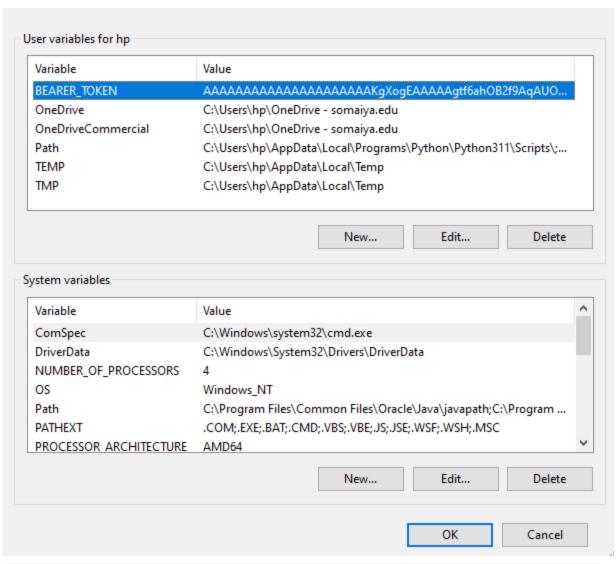
py manage.py makemigrations does not run!

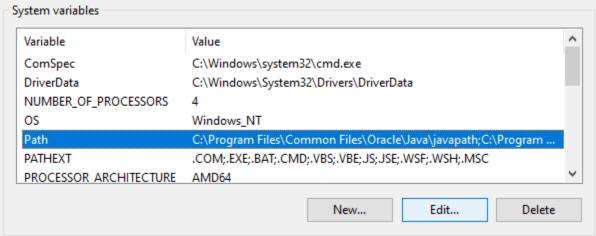




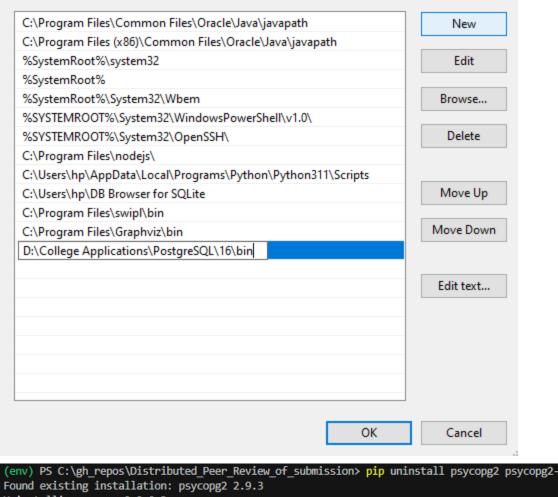


Environment Variables X





Edit environment variable



```
(env) PS C:\gh repos\Distributed Peer Review of submission> pip uninstall psycopg2 psycopg2-binary
Uninstalling psycopg2-2.9.3:
 Would remove:
   c:\gh repos\distributed peer review of submission\env\lib\site-packages\psycopg2-2.9.3.dist-info\*
   c:\gh repos\distributed peer review of submission\env\lib\site-packages\psycopg2\*
Proceed (Y/n)? Y
 Successfully uninstalled psycopg2-2.9.3
WARNING: Skipping psycopg2-binary as it is not installed.
(env) PS C:\gh repos\Distributed Peer Review of submission> pip install psycopg2-binary
Collecting psycopg2-binary
 Obtaining dependency information for psycopg2-binary from https://files.pythonhosted.org/packages/25,
dc1de686/psycopg2_binary-2.9.9-cp311-cp311-win_amd64.whl.metadata
 Downloading psycopg2_binary-2.9.9-cp311-cp311-win_amd64.whl.metadata (4.6 kB)
Downloading psycopg2_binary-2.9.9-cp311-cp311-win_amd64.whl (1.2 MB)
                                          - 1.2/1.2 MB 1.8 MB/s eta 0:00:00
Installing collected packages: psycopg2-binary
Successfully installed psycopg2-binary-2.9.9
```

```
(env) PS C:\gh_repos\Distributed_Peer_Review_of_submission> py manage.py makemigrations
C:\gh_repos\Distributed_Peer_Review_of_submission\env\Lib\site-packages\django\core\management\commands\makemigrations.py:105: RuntimeWarning: Got an error checking a consistent migration history performed for database connection 'default': connection to server at "localhost" (::1), port 5432 failed: FATAL: database "ppergradeview-system" does not exist

warnings.warn(
Migrations for 'auth':
env\Lib\site-packages\django\contrib\auth\migrations\0013_alter_user_email.py
- Alter field email on user
(env) PS C:\gh_repos\Distributed_Peer_Review_of_submission>

Activate Windows.
```

Solution:

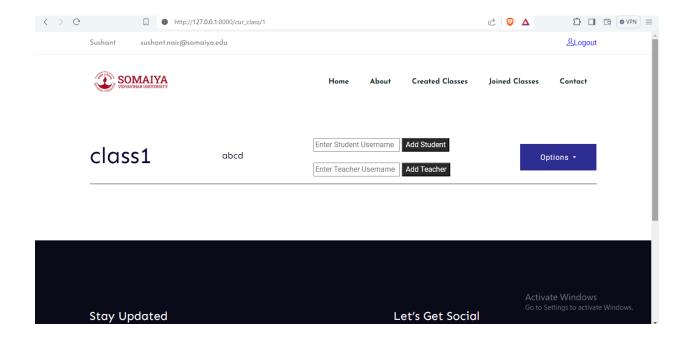
```
(env) PS C:\gh repos\Distributed Peer Review of submission> py manage.py migrate
Operations to perform:
 Apply all migrations: account, admin, auth, contenttypes, courses, sessions, sites, socialaccount
Running migrations:
 Applying contenttypes.0001_initial... OK
 Applying auth.0001 initial... OK
 Applying account.0001 initial... OK
 Applying account.0002 email max length... OK
 Applying admin.0001 initial... OK
 Applying admin.0002 logentry remove auto add... OK
 Applying admin.0003 logentry add action flag choices... OK
 Applying contenttypes.0002 remove content type name... OK
 Applying auth.0002_alter_permission_name_max_length... OK
 Applying auth.0003_alter_user_email_max_length... OK
 Applying auth.0004_alter_user_username_opts... OK
 Applying auth.0005 alter user last login null... OK
 Applying auth.0006 require contenttypes 0002... OK
 Applying auth.0007_alter_validators_add_error_messages... OK
 Applying auth.0008_alter_user_username_max_length... OK
 Applying auth.0009 alter user last name max length... OK
```

- peergrade/settings.py: This entry tells Git to ignore the specific file settings.py located in the peergrade directory. As a result, any changes made to peergrade/settings.py will not be tracked by Git. This is often done to avoid committing sensitive information like database credentials, API keys, or configuration settings that are specific to your local environment and should not be shared or exposed in the repository.
- 2. env/: This entry tells Git to ignore the entire env directory and all its contents. Typically, env/ is used for virtual environments in Python projects, where all the project-specific dependencies are installed. Ignoring this directory prevents the large number of files in the virtual environment from being tracked by Git. It also ensures that each developer

can create their own virtual environment locally without causing conflicts or bloat in the repository.

Finally,

py manage.py runserver



Phew! So gratifying that it ran $\ensuremath{\mbox{\ }}$.