Elijah Tai CS197 HW1

Part 1: Web App

Code correctness

Check out my app deployed to Google App Engine here! Sometimes GTP-3 fails to produce any meaningful changes, so please give it a few tries in that case.

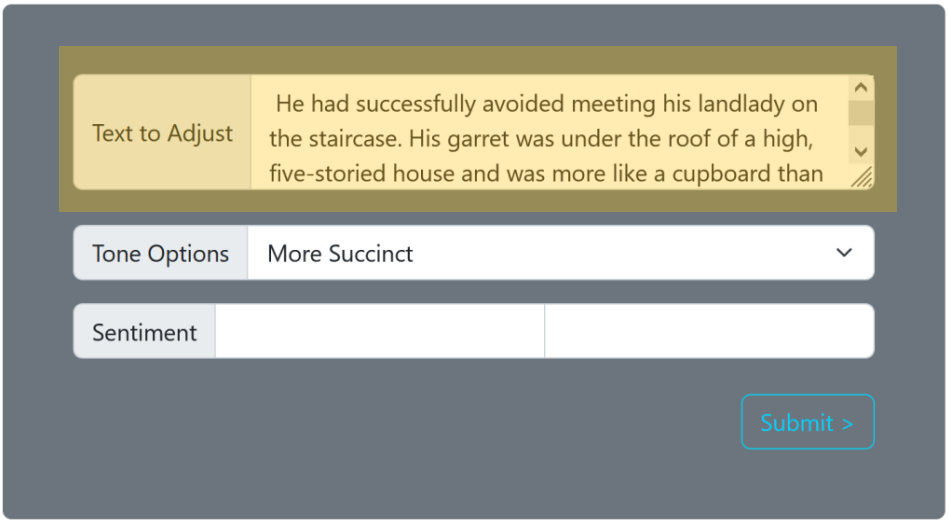
Pitch

Have you spent hours perfecting the same email, tweaking the words to get across the right feeling? Do you often finish writing an essay, just to realize that the word count is not quite met, or you have gone way over! If so, check out my Tone Changer based on GTP-3. The idea is to provide a tool that can quickly change the sentiment and length of a piece of text.

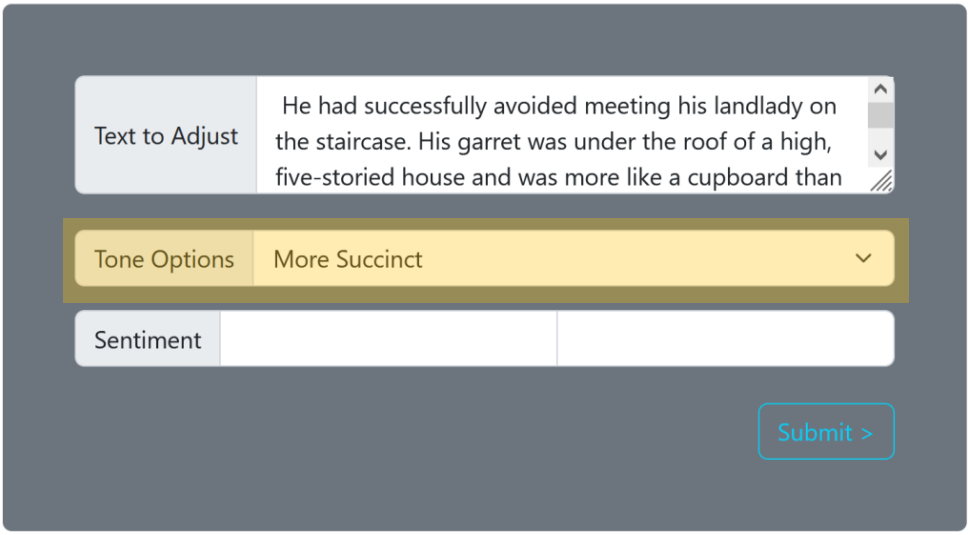
Instructions

The flow of the app is very simple:

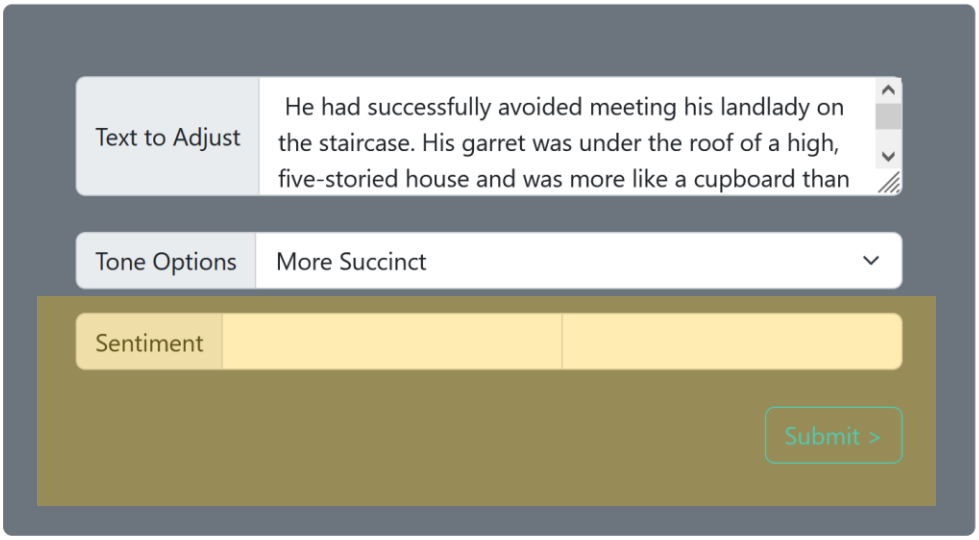
1. *Write copy and paste in the text you would like to adjust*



2. *Select whether you'd like the text to be more succinct or more verbose*



3. *Type in at most two adjectives to describe the sentiment you'd like to shift towards. Then hit submit and give the page a while to load*



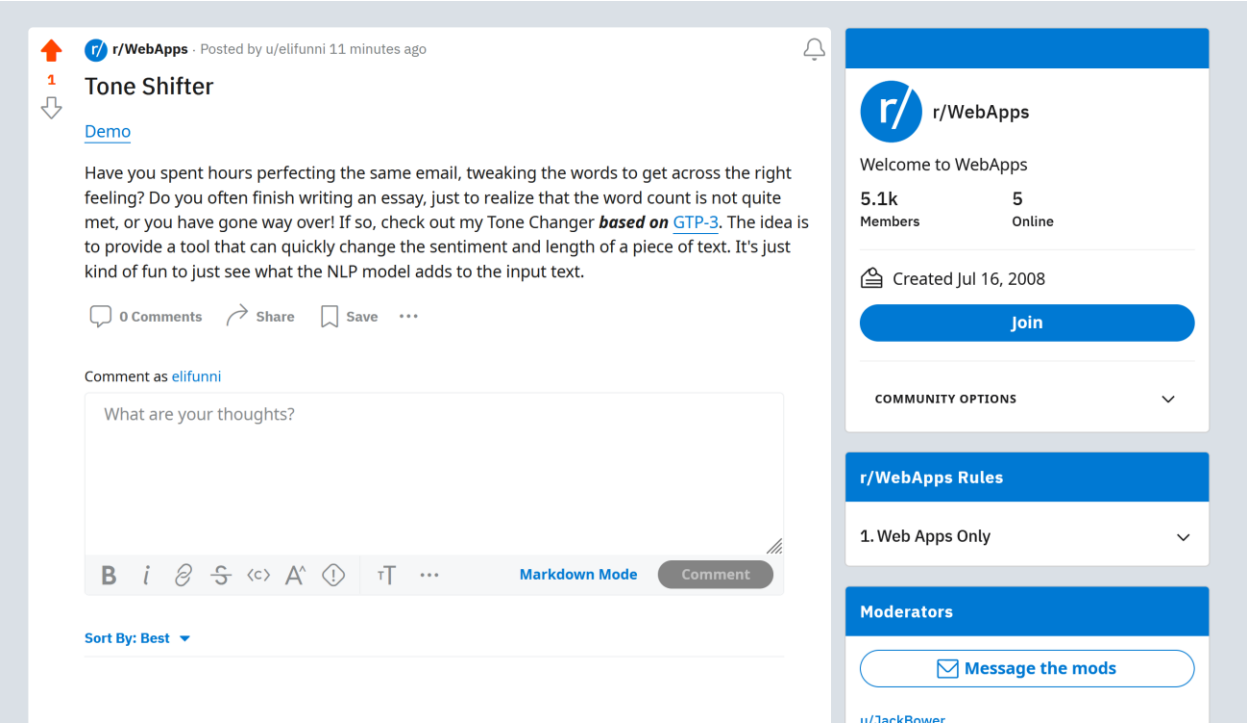
4. *The output sometimes looks like this. The grey will be the original text, and the green is the altered text. For example, this is more verbose with added excitement.*

He had successfully avoided meeting his landlady on the staircase. His garret was under the roof of a high, five-storied house and was more like a cupboard than a room. The landlady who provided him with garret, dinners, and attendance, lived on the floor below, and every time he went out he was obliged to pass her kitchen, the door of which invariably stood open. And each time he passed, the young man had a sick, frightened feeling, which made him scowl and feel ashamed. He was hopelessly in debt to his landlady, and was afraid of meeting her.

He had successfully avoided meeting his landlady on the staircase. His garret was under the roof of a high, five-storied house and was more like a cupboard than a room. The landlady who provided him with garret, dinners, and attendance, lived on the floor below, and every time he went out he was obliged to pass her kitchen, the door of which invariably stood open. And each time he passed, the young man had a sick, frightened feeling, which made him scowl and feel ashamed. He was hopelessly in debt to his landlady, and was afraid of meeting her. He had not yet been to the Institute for his examination. He did not even go to his room any more. He lived at the Hôtel des Princes with a painter, whom he had met in the street, and who had asked him to share his room, which was large enough for two. The painter had taken his portrait several times and each time had complimented him on his likeness to Razumov.

Extra credit attempt:

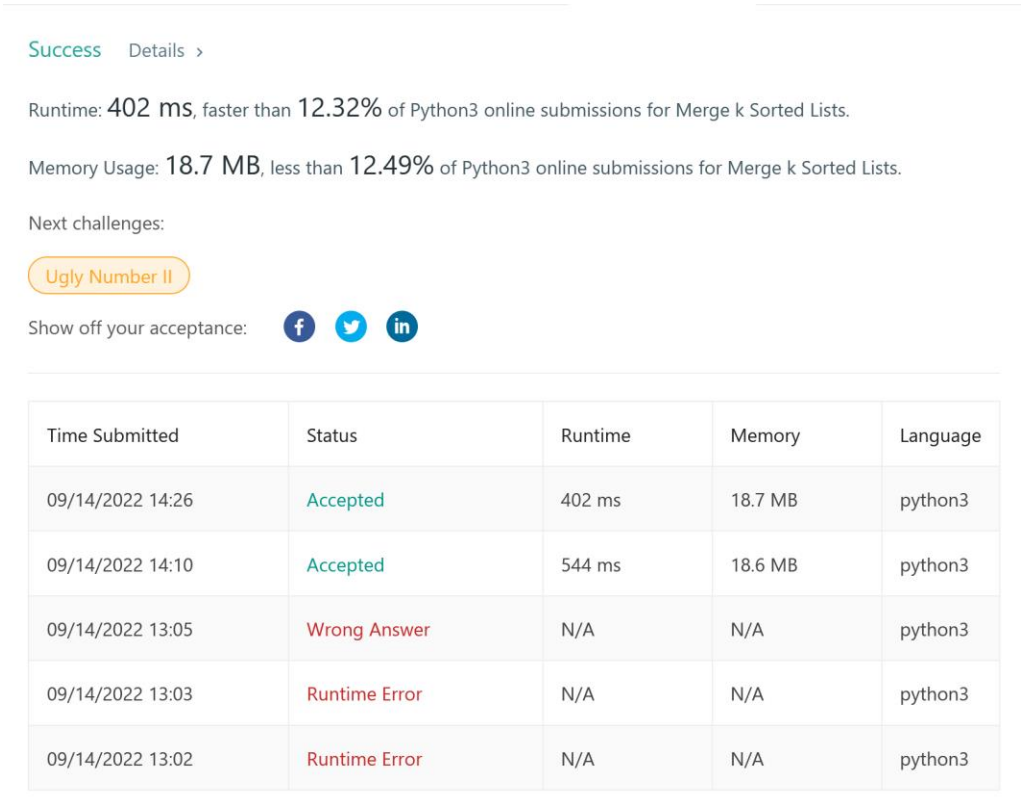
I don’t have twitter, so I posted the live app demo in a few subreddits such as r/WebApps and r/InternetIsBeautiful a few minutes ago!



Part 2: Algorithm Debug

Correctness

I cannot say for sure that the code is correct, but it passes the LeetCode test cases.



Success Details ›

Runtime: 402 ms, faster than 12.32% of Python3 online submissions for Merge k Sorted Lists.

Memory Usage: 18.7 MB, less than 12.49% of Python3 online submissions for Merge k Sorted Lists.

Next challenges:

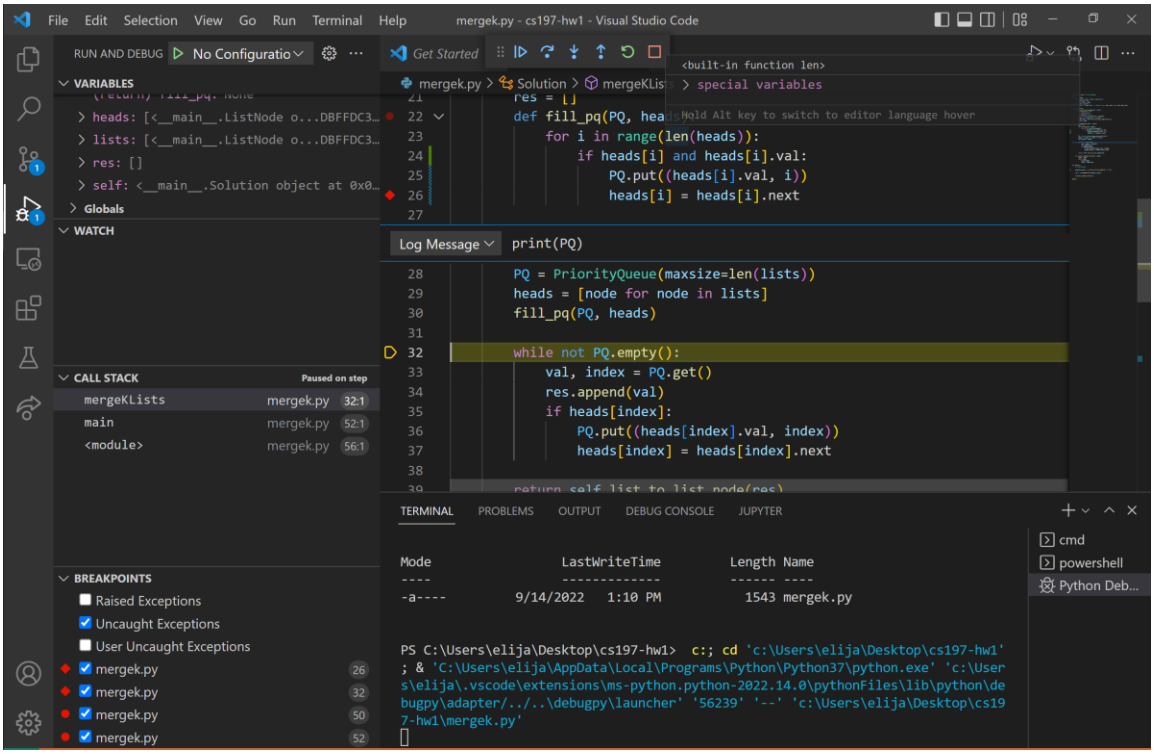
Ugly Number II

Show off your acceptance:

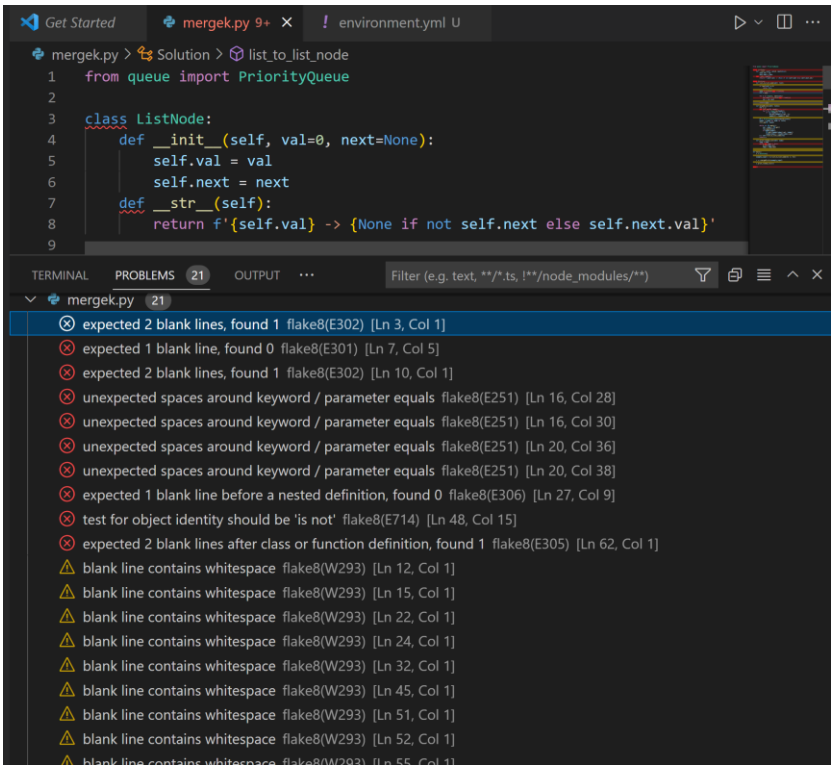
Time Submitted	Status	Runtime	Memory	Language
09/14/2022 14:26	Accepted	402 ms	18.7 MB	python3
09/14/2022 14:10	Accepted	544 ms	18.6 MB	python3
09/14/2022 13:05	Wrong Answer	N/A	N/A	python3
09/14/2022 13:03	Runtime Error	N/A	N/A	python3
09/14/2022 13:02	Runtime Error	N/A	N/A	python3

Use of Debugging and Linting

I used log points and break points to help me fix a bug where my code failed on empty input! I stepped into the function and examined the logs and global variables.



I also linted with Flake8.



Use of Git and Conda

I was working in the newly created *cs197-hw1* environment

```
(base) C:\Users\elija>conda activate cs197-hw1

(cs197-hw1) C:\Users\elija>conda env list
# conda environments:
#
base                     C:\ProgramData\Anaconda3
cs197-hw1             *  C:\Users\elija\AppData\Local\conda\conda\envs\cs197-hw1
python-practice-env      C:\Users\elija\AppData\Local\conda\conda\envs\python-practice-env


(cs197-hw1) C:\Users\elija>
```

To generate the *environment.yml* I tried to run the command from class and from the notes, but unfortunately ran into an error. So I ended up using the other method you showed in class which was piping the export directly to a *.yml* file.

```
(cs197-hw1) C:\Users\elija\Desktop\cs197-hw1>conda env export --from-history --file environment.yml
usage: conda-env [-h] {attach,create,export,list,remove,upload,update} ...
conda-env: error: unrecognized arguments: --from-history
```

```
(cs197-hw1) C:\Users\elija\Desktop\cs197-hw1>
(cs197-hw1) C:\Users\elija\Desktop\cs197-hw1>conda env export > environment.yml
```

For git, here are my git logs. Since it is just me, I did not branch and pull request.

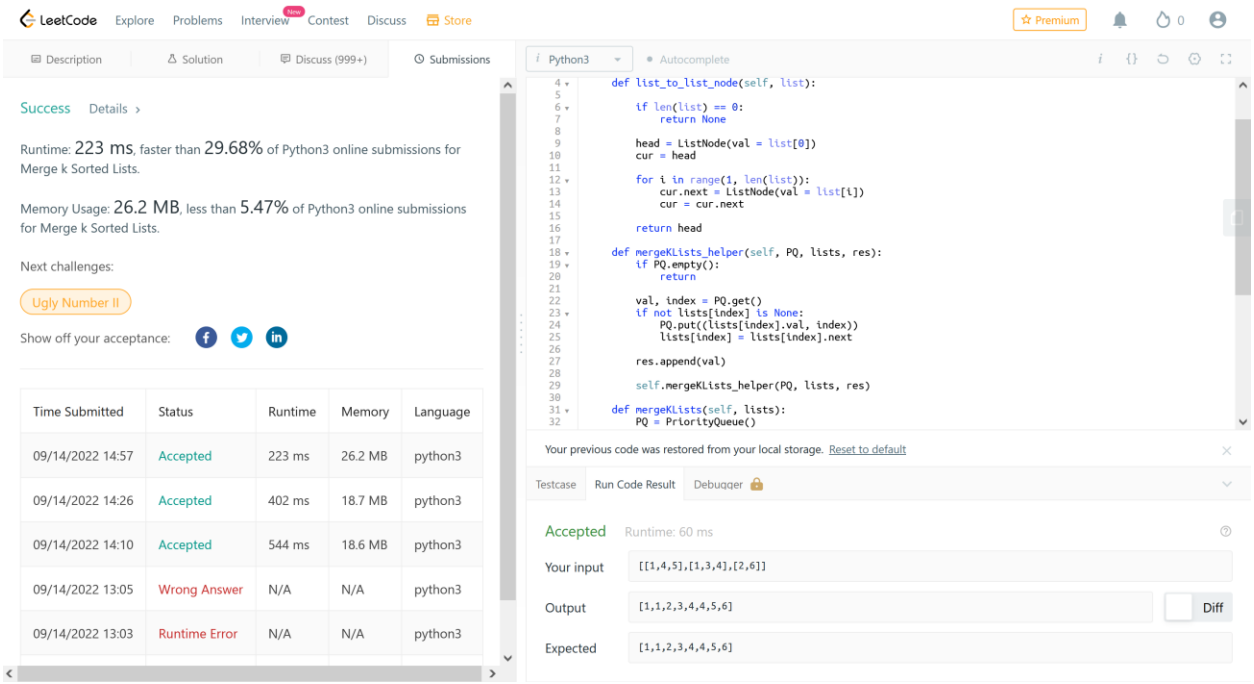
```
PS C:\Users\elija\Desktop\cs197-hw1> git log > git_log.txt
PS C:\Users\elija\Desktop\cs197-hw1> cat git_log.txt
commit c517ee752bfd318393f51a3a0faaf9a9fc38accc
Author: elijahtai14 <43102561+elijahtai14@users.noreply.github.com>
Date:   Wed Sep 14 14:11:16 2022 -0400

    Applying this commit will make the
    previous priority queue work with empty inputs.

    The idea is that sometimes the user might make a
    mistake and one of the lists could be empty,
    and we want to handle this gracefully. Used debugging
    tools to find my bugs!

commit 6b699ab6bced2f69c14743adf831aa9067b38886
Author: elijahtai14 <43102561+elijahtai14@users.noreply.github.com>
Date:   Wed Sep 14 13:00:57 2022 -0400

    If applied, this commit will have a priority queue
    solution to the problem.

    The reasoning is that a priority queue makes comparisons
    fast. However, the method is very space inefficient with
    a lot of function calls. Is there a better solution?

commit 92adf520b81848c1236f417f2ad7372a5d146ea8
Author: elijahtai14 <43102561+elijahtai14@users.noreply.github.com>
Date:   Wed Sep 14 09:31:32 2022 -0400

    If applied, this commit will give tools for
    testing the code.

    The purpose of this commit is to create a linked
    list for testing, creating a function to print
    lists, and creating linked lists from regular lists.

commit 685a1ede3d073a03cdf281f94642d0a6f34b2c0d
Author: elijahtai14 <43102561+elijahtai14@users.noreply.github.com>
```

I tried my best to follow the style guidelines for these commits as shown in the lecture notes with appropriate spacing and a subject followed by the details and reasoning. You can also check out the repo on GitHub here.

Extra Credit Attempt:

This is a screenshot of the alternative recursive solution passing the LeetCode tests. The recursion occurs in *mergeKLists_helper(self, PQ, lists, res)*. The idea is that I can process one item in *lists,* then recall the *mergeKLists_helper(self, PQ, lists, res),* except the *PQ, lists,* and *res* are mutated. I continually do this until the priority queue *PQ* is empty.

In the regular bottom up approach, I simply pop elements and re-add them in a loop while the priority queue is not empty.



This is the recursive call I was describing.

```python
def mergeKLists_helper(self, PQ, lists, res):
    if PQ.empty():
        return

    val, index = PQ.get()
    if not lists[index] is None:
        PQ.put((lists[index].val, index))
        lists[index] = lists[index].next

    res.append(val)

    self.mergeKLists_helper(PQ, lists, res)
```