IS 452A
FInal Narrative
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Research Topic: How would posting time affect the results of receiving 'like' on Facebook, and how can we estimate the best moment to post?
ReadmeFile - Please see my readme file posted on a public Github post here:
https://github.com/elysewang25/IS452A_FinalProject/blob/master/readme.md

Introduction
Based on a report written by Smith. A and Anderson. M named "Social Media Use in 2018" (Pew Research Center, 2018) the statistical fact shows that Facebook and Youtube lead the largest portion pf the social media usage markets. As a 9 years' Facebook user, I realized that people watch each other, observe humanity, and build relationships on this platform. This phenomenon made me think about a possibility: can we optimize our social behavior and obtain the most effective consequences by analyzing how people react to each of my social media posts?

For understanding this the possibility, this project is designed to focus on possible chronological impacts versus how time alter the results of responses on social media work. The data will be obtained from the author's personal profile, so the data-mining experiment will not effect anyone's privacy. Based on the obtained and analyzed results, the report will show whether time is one of a critical condition that people who cares about their social media operations have to consider about if they want the posted consequences to fit their assessment.

Program Design
My program to this project is separated into two part: Facebook API work (Final_GetData.py) and Outputted data work (Final_Analysis.py). For the first sector, which is about the methodology of utilizing social media (Facebook) API, I started from receiving my Facebook information by access token, and then print it. Afterward, I made a for loop to get the first 25 results (Due to the limitation, I can only gather 25 results once) and then duplicate the work for more data. In order to make my results more reliable, I output 75 of my post information, and outfile the result as an .txt file.

The second part is about analyzing data that I have obtained from the first part, and then make a readable graph that can show the consequence. I started with reading the target file name from parameter.txt, and then open the file with a changed json format, which can make my work easier because the original data format is easy for human beings to understand the content but not easy for computers to analyze as a large string. After this, I used dictionary to store the result as {**'comments'**: [0, 0, 0], **'likes'**: [0, 0, 0]} format, and then calculate the total comments that separate into three time period: morning(0-8), afternoon(8-16), evening(16-24), of a day. The final sector of the file is to make a graph as a result, and save it as a .png file so that it would be easier for me and readers to understand the obtained consequence.

### Outputted consequence/graph analysis
Based on the graph I have receive, we can see that there are gigantic differences between difference time period. I gathered about 75 posts information so that I believe the amount of samples should make the consequence reliable.

We can see that most of the 'like' and 'commend' comes from the morning post rather than evening and afternoon, whereas the afternoon result is better than evening. Thus, I can say that

if I would like to post something and would like to receive more reaction, a morning post would be much more effective than an afternoon post or an evening post.

-What makes the result like this?
I was a little bit surprise to what I have gotten. Nonetheless, I realized that time equation may alter the result. As a person who comes from Asia, most of my facebook relationships behave within a totally different time zone than me. Because of this, I can predict that the longer I stay in the US, which means that I might know more people who live in the US, the best time for me to post something on my Facebook should be re-considered.
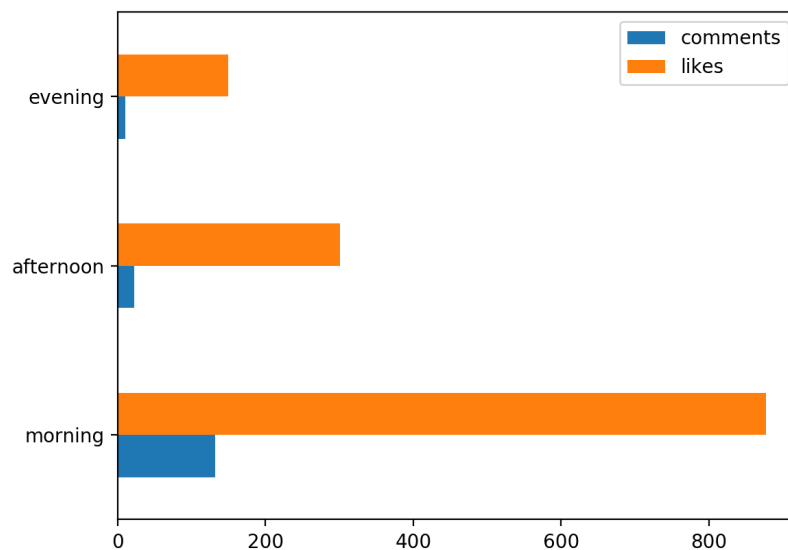
Encountered problems/difficulties

Even though I spent amount of time exploring an approach which can queries data that not only fit the Facebook privacy policy but also meet my needs, I still encountered some difficulties during the process. My original thought was that I might able to obtain the list of users who like and response to my post. However, due to the policy, I can only query data such as the amount of like", time of the post, and the amount of the responses. Another challenging part of this project is that Facebook has its own request limit, which is about 600 objects per time. After reaching the request limit, I will have to wait for a while (at least twenty to thirty minutes long) to re-request the data. In addition, the required 'token' will make my program not able to run after a few hours, which means if I would like to run this program again, I might need to access a new token.

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Traceback (most recent call last):
  File "/Users/kerouwang/Desktop/IS_452/Final/Checkin/Final.py", line 18, in <module>
    likes_info = graph.get_object(post['id']+'/likes', summary=True)
  File "/Users/kerouwang/.conda/envs/IS452/lib/python3.6/site-packages/facebook/__init__.py", line 126, in get_object
    return self.request("{0}/{1}".format(self.version, id), args)
  File "/Users/kerouwang/.conda/envs/IS452/lib/python3.6/site-packages/facebook/__init__.py", line 313, in request
    raise GraphAPIError(result)
facebook.GraphAPIError: (#4) Application request limit reached
```

Conclusion and future work

According to the result, we can conclude that Posting Time may alter the effectiveness of a post on social media. On the other hand, due to the difficulties I have encountered during the process, I believe studying difference social medias' privacy policy would be a good research topic, especially might benefit social media developers. I understand that as a real-name system social media platform, Facebook has the responsibility to protect user's personal information, but for developers who want to research further and even make the whole system effective, the restricted policy might effect its development. I think I will keep working on the social media related research in the future, but next time I would like to try a more flexible platform, probably a non-real-name system.

Reference

Smith. A, Anderson. M "Social Media Use in 2018" (Pew Research Center, 2018)