1.3. My approach was the second option, in that in my “connect” method, I used a for loop to create a ‘metadata’ file containing the numbers 1-200 each on their own separate line. This file would act as a queue, in that every time ‘post_msg’ was called, the first number from this file would be assigned as the ID to that given message. If a message was removed, the ID of that message would be added to the bottom of that file, thus being available again. I would use “file.readline()” to extract data from each line accordingly, especially when printing. I also separated my data into a file including messages and excluding messages (aka the summary file), as using a summary file made it far easier for my print_summary() method to traverse the necessary data.

Give a single expression for the number of open, read/readline, and write operations (all together) that your program would do for each of

a single call to post_msg
a single call to remove_msg (typo fixed 4/13)
a single call to print_summary("bear")
State your answer in terms of

M, the max number of messages in the system
F, the max number of files used to store messages in the system
p, the number of file open operations
r, the number of read or readline operation (combined)
w, the number of write operations

For example, let’s say you want an expression for multiple calls to post_msg. if your post_msg code opened one file per message and did 5 readline operations, you would write:

post_msg needs $p*M$+5r if called for M messages (edit for clarity 4/15)

Ideally, your design will try to reduce the M and F multipliers on p, r, and w (but small constants, like 5r versus 4r aren’t important). These responses should go in hw5.pdf.

Post-msg: 5 opens, 3 read/readlines, 4 writes => 1/10(p*M + 4r + 4w)
Remove-msg: 5 opens, 9 reads, 3 writes => 1/10(p*M+9r+3w)
Print_summary(“bear”) => 3 read calls, 0 write calls, 1 open call, 1/10p*M + 3r

Task 2.1

1. Placing matching_titles in the class enables it to be called with “self”, essentially making it into a global variable where every subsequent method can access the same information from matching_titles and update the same list. If it were a local variable, only the method it is within could access and mutate it, and it could not be referenced in other methods. Adding an extra parameter just to track that value would be unnecessary as well as both query and progress_page need matching tiles for a reasonable purpose.

2. Search-term is a field in the class for a similar reason as matching_titles, in that both query and process_page need to be able to access the same search term and not making search-term a global variable would bring the need for an extra parameter to track the value.

3. It would heavily complicate the code’s structure and might instead rely on user input which would be far more inefficient than just making it a global whose value can be stored and manipulated across many functions.

4. The cost would be (1/Q)*P, given its one query amongst an potentially infinite number of pages.

Task 2.3

Question	**a phone-based BBS**	**Internet-Scale Search**
Who identifies which information is relevant to the community?	The leaders of the community/founders would make that decision	The creators of the searches and ideas that become most popular would decide that.
Who decides which information represents the community?	The members of the smaller community would be the decisions makers as they are operating under a closed set of beliefs and follow a tighter set of rules	The information that represents the community is largely decided by the people at large rather than a specific group with a defined vision

What were the costs to run the community and who provided them?	It has a lot more limitations on the number of people that can join and communicate in a phone based BBS and that's due to the system constraints itself.	The system is a lot more widespread and thus controlling who can state information and the spread of misinformation and poor communication would be more common
Overall, what are the advantages and disadvantages of this form of organizing information from the perspective of communities?	The information would be far more limited as phone based BBS would be under limited message/communication capacity, however this enables the message and intent of a community to be far more controlled	The amount of people and ideas able to be communicated would be far larger, but with that comes a lot more difference in ideas and the ability to control which ideas rise to the top and gain traction.