

# Quorum

1 - Time complexity is  $O(n^2)$  due to having  $n$  squared steps to find the required matching values in csv while iterating over two data sources. If only one data source is suitable complexity will be  $O(n)$ .

Example:

On each legislator, it would have to execute an iteration (for loop) on total votes (vote\_results.csv) searching for the id of the legislator.

Tradeoffs would be memory and speed, storing the csv files in memory would certainly make it faster for value retrieval making it a better option using ORM having memory available, instead of looping each time.

2 - If a co-sponsor entity has its csv file, then the written script would have to iterate again, and match with its ID to get the information requested. The same logic follows for Bill Voted On Date making the  $O(n)$  rely on which file it is pulling information from, if it has to match the ID from another file it will use  $O(n^2)$  otherwise simply  $O(n)$ . Basically I will use iteration until there is a time restriction if there is I would use memory storage to solve it.

3 - I would certainly have the csv header names, if the data is not sorted I would have to iterate through the data provided, being a list or a python dictionary, sorting by matching with the list of header names, and finally write it to the csv file.

4 - 3 hours.