CITS2200 Project

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Shallows:

My implementation of Subsidiaries involves a nested loop, which processes multiple conditional statements in order to calculate the result of the queries. These loops iterate through each query search, comparing the values of the payer and payee with the owners array, until the first match is found either between each other, otherwise returning -1 to indicate no companies own both in the query. Since this implementation requires the traversal of each query and the indexes of the owners, a time complexity of O(N Q) is used, where N is the number of companies and Q is the number of queries in a given case. This implementation will always return the smallest company who owns both payer and payee, however, with larger cases of queries and owners it will take a greater amount of time, therefore a lowest common ancestor algorithm using a sparse table or n-ary tree traversal.