DB Assignment 6
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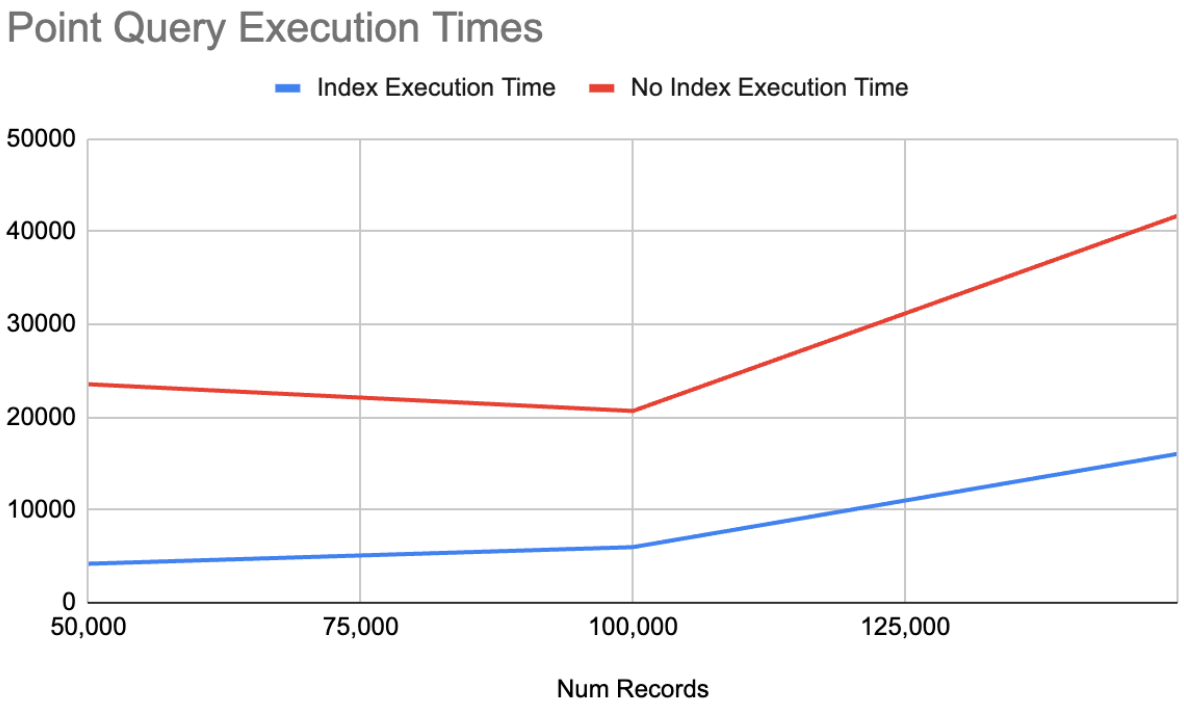
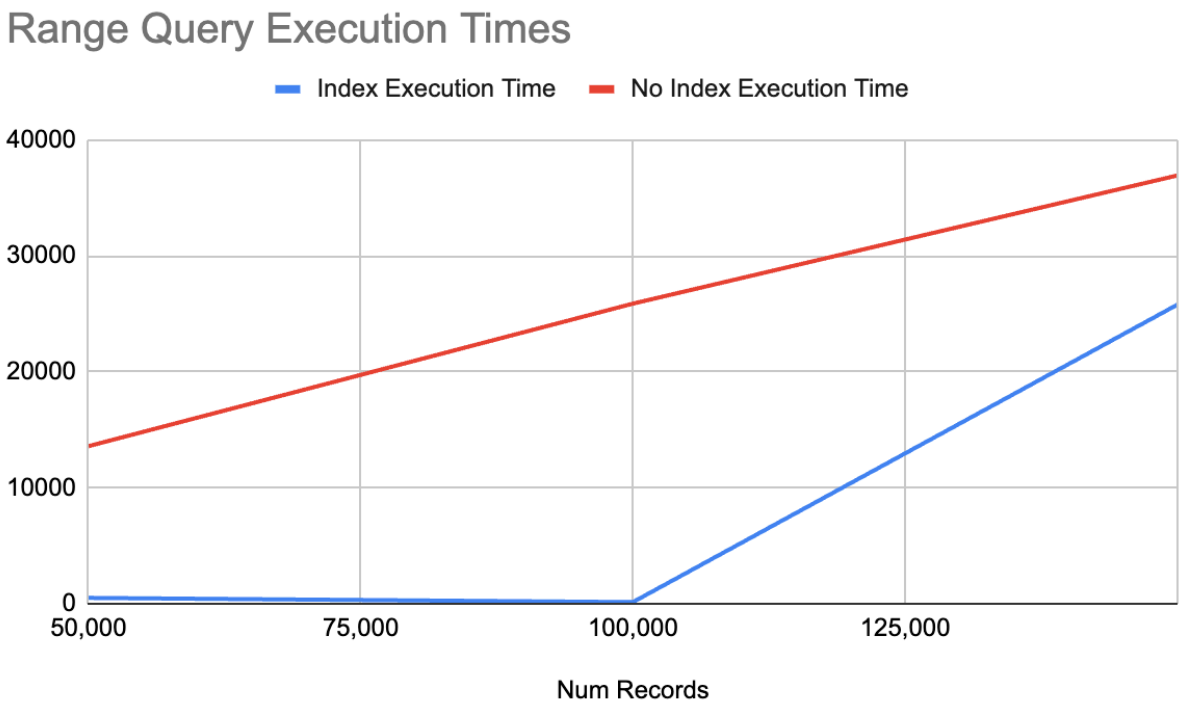
Results:

Query Type	Description	Dataset Size	Index Type	(Microseconds)
Point Query 1	Returns the records of savings accounts at the branch ‘Downtown’	50,000 records	Without indexes	23549.3
			With index (idx_branch_account_name)	4196.9
Point Query 2	Returns records of branch ‘Mianus’	100,000 records	Without indexes	20668.8
			With index (ie.)	5990
Point Query 3	Returns count of checking accounts from either ‘Redwood’ or ‘RoundHill’	150,000 records	Without indexes	41702.2
			With index (idx_branch_account_type)	16039.6
Range Query 1	Returns count of records from the Downtown branch where balance is above $250 but below $1,000	50,000 records	Without indexes	13586.3
			With index (idx_balance_branch_name)	499
Range Query 2	Returns count of checking accounts with a	100,000 records	Without indexes	25880

Query Type	Description	Dataset Size	Index Type	(Microseconds)
	balance between $500,000 and $1,000,000			
			With index (idx_balance_account_type)	135.9
Range Query 3	Returns count of savings accounts at the Perryridge branch with balances between $0 and $60,000	150,000 records	Without indexes	36935.6
			With index (ie.)	25793.5

Summary of Findings:





The findings of the timing analyses prove to be conclusive. The presence of the appropriate indexes seem to have a statistically significant impact on the execution performance of the query. As seen in both graphs above, the execution times of queries that are executed without any indexes are significantly higher than those executed with appropriate indexes. This holds true for both point and range queries.

On average, the point queries executed with indexes were 71.5% faster than those that were executed with no indexes on the queried columns. Conversely, on average, the range queries executed with indexes present on the queried attributes executed roughly 75% faster than the range queries executed with no indexes.

Overall, the significant differences seen in performance efficiency with the presence of indexes compared with the lack of indexes is profound. The use of indexes in this way helps to reduce the time, money, and computational resources needed to execute many queries across large datasets.