DB Assignment 6

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Table:

Below is the data table created for the point and range queries run for varying data sizes. For each data size was ran with or without indexing and its respective average execute time from ten runs were recorded.

Query Type	Description	Data Size (Records)	Index Type	Execution Time (Microseconds)
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	50,000	Without	232918.2
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	50,000	With Primary Key, (account_type) and (branch_name)	101570.2
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	100,000	Without	396078.4
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	100,000	With Primary Key, (account_type) and (branch_name)	114264.6
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	150,000	Without	637783.3
Point	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND account_type = 'Savings';	150,000	With Primary Key, (account_type) and (branch_name)	121625.8
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	50,000	Without	118268.7
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	50,000	With (branch_name, balance)	11395.0
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	100,000	Without	132841.7
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	100,000	With (branch_name, balance)	31013.1
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	150,000	Without	137309.9
Range	SELECT count(*) FROM accounts WHERE branch_name = 'Downtown' AND balance BETWEEN 5000 AND 100000;	150,000	With (branch_name, balance)	19639.1

Extra Credit:

Here is the evidence that using indexes actually decreases the procedure execution run time. There is more efficient data retrieval when the right indexes are in place. It is able to narrow down the search time allowing the database to locate the subset of rows that fall in the range without a need for full table scans.