DB Assignment 6

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Query Type:	Description:	Dataset Size:	Index Type:	Average Execution Time (Microseconds):
Point Query 1:	SELECT COUNT(*) FROM accounts WHERE branch_name = "Branch_1" AND balance = 50000	50,000	branch_name, account_type, balance	135
			none	18251
Point Query 2:		100,000	branch_name, account_type, balance	147
			none	38516
Point Query 3:		150,000	branch_name, account_type, balance	294
			none	59933
Range Query 1:	SELECT COUNT(*) FROM accounts WHERE branch_name = "Branch_1" AND balance BETWEEN 10000 AND 50000	50,000	branch_name, account_type, balance	11052
			none	24499
Range Query 2:		100,000	branch_name, account_type, balance	16903
			none	40861
Range Query 3:		150,000	branch_name, account_type, balance	32055
			none	65041

Point Queries

1. Point Query 1:

    ○ With Indexing: Execution time was 135 microseconds.

    ○ Without Indexing: Execution time was 18,251 microseconds.

    ○ Indexing reduced the execution time by over 99%.

2. Point Query 2:

    ○ With Indexing: Execution time was 147 microseconds.

    ○ Without Indexing: Execution time was 38,516 microseconds.

    ○ Indexing resulted in a similar reduction of execution time by over 99%.

3. Point Query 3:

    ○ With Indexing: Execution time was 294 microseconds.

    ○ Without Indexing: Execution time was 59,933 microseconds.

    ○ The trend of improved performance with indexing was consistent.

Range Queries

1. Range Query 1:

   ○ With Indexing: Execution time was 11,052 microseconds.

   ○ Without Indexing: Execution time was 24,499 microseconds.

   ○ While the performance improvement was notable (55% reduction), range queries benefit less from indexing compared to point queries due to the need to scan larger portions of data.

2. Range Query 2:

   ○ With Indexing: Execution time was 16,903 microseconds.

   ○ Without Indexing: Execution time was 40,861 microseconds.

   ○ Indexing reduced execution time by approximately 59%, less than point queries.

3. Range Query 3:

   ○ With Indexing: Execution time was 32,055 microseconds.

   ○ Without Indexing: Execution time was 65,041 microseconds.

   ○ Indexing halved the execution time, but the query still exhibited higher execution times compared to point queries.