Bill Yang Due: 3/13/19

Homework 6a

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a)

In Seconds

	Load Time		Query 1		Query 2		Query 3	
Data Generator	I	II	I	II	I	II	I	II
physical organization								
1	746.5	799.9	.2823	.3901	.2533	.3319	.1858	.3156
2	870.9	1216.6	.0215	.0192	.2185	6.4575	.0136	.017
3	886.2	971.2	.225	3.1577	.0199	.0242	.0119	.0138
4	1017.8	1593.1	.0279	.0213	.0211	.0289	.0137	.0146

b)

	Load Time		Query 1		Query 2		Query 3	
Data Generator	I	II	I	II	I	II	I	II
physical organization								
1	1	1.072	1	1.382	1	1.310	1	1.699
2	1.167	1.630	.076	.068	.863	25.493	.073	.091
3	1.187	1.301	.797	11.186	.079	.096	.064	.074
4	1.363	2.134	.099	.075	.083	.114	.074	.079

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For loading, a sequential load outperforms random insertion by a significant factor; even the queries benefit from the sequential load as well. Adding more indexes increases the insertion time for any data generator. Having an index greatly increases the speed in which queries execute if the condition of the query contains the attribute with an index. If there is no index for that attribute, but there exists another index on a different attribute, this may actually slow down the overall query eg. (Query 1, Data Generator 2, physical organization 3) and (Query 2, Data Generator 2, physical organization 2). These two setups and queries have a condition on attribute A and B, Random Generator, and indexes on B and A respectively.