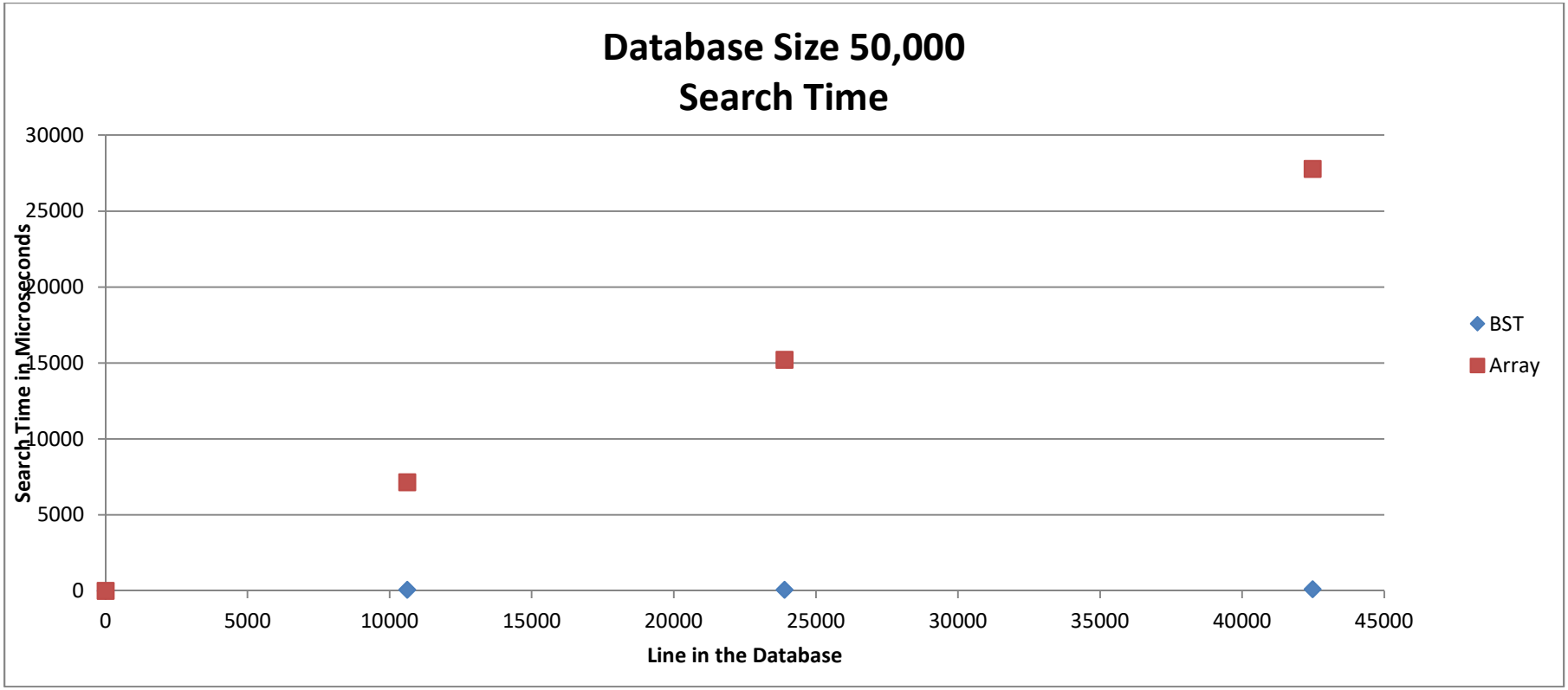
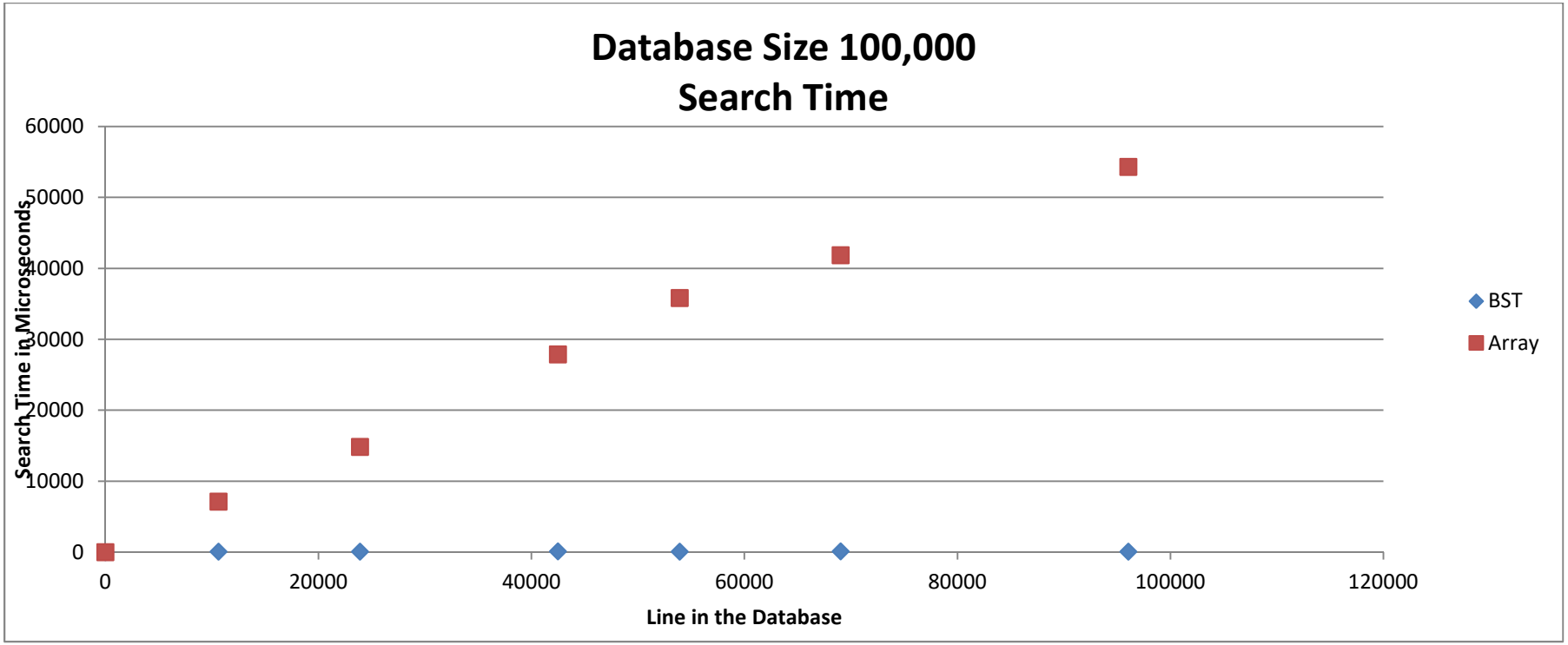
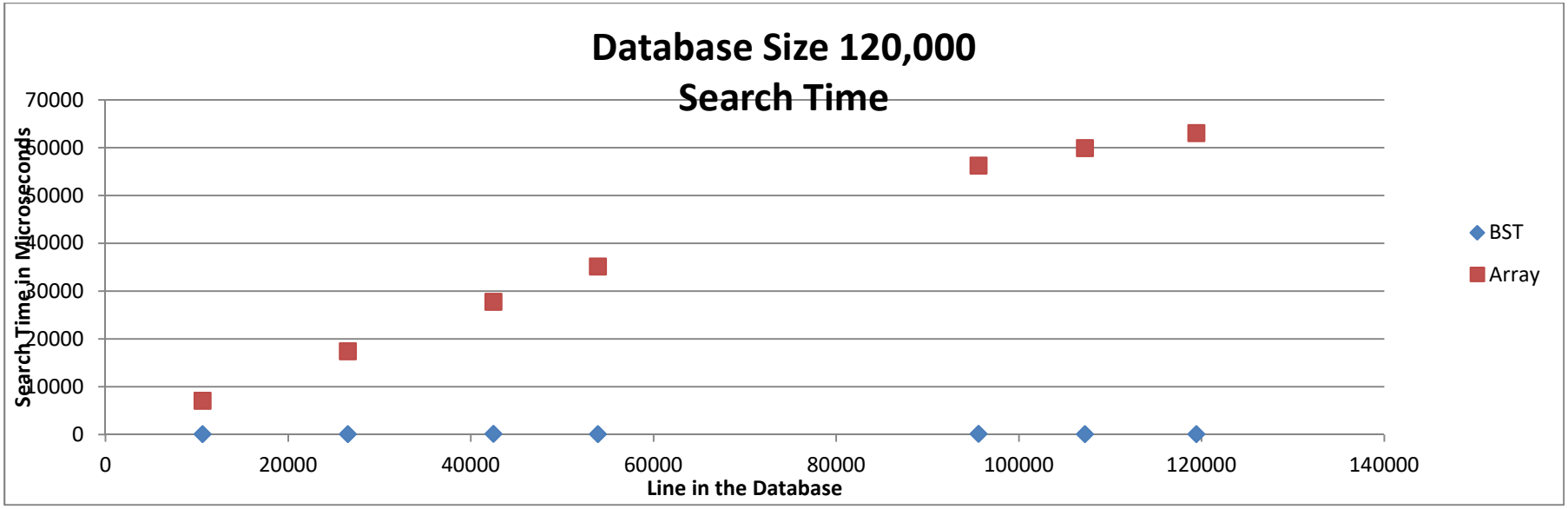
Data size 50,000					
BST					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
701197194311	5	8	8	8	8
799439078727	10,624	65	66	66	65.66666667
4605922001812	23,898	81	81	80	80.66666667
886970578424	42,478	104	103	103	103.3333333
Array					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
701197194311	5	7	6	7	6.666666667
799439078727	10,624	7134	7218	7089	7147
4605922001812	23,898	15281	15235	15130	15215.33333
886970578424	42,478	27349	28086	27890	27775


Database Size 50,000
Search Time
Search Time in Microseconds
30000
25000
20000
15000
10000
5000
0
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
Line in the Database
BST
Array

Data Size 100,00					
BST					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
701197194311	5	8	8	9	8.333333333
799439078727	10,624	66	86	65	72.33333333
4605922001812	23,898	81	81	81	81
886970578424	42,478	76	103	103	94
662102111321	53,920	55	54	55	54.66666667
35826072672	69,038	150	109	110	123
352688190925	96,057	77	78	78	77.66666667
Array					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
701197194311	5	7	7	8	7.333333333
799439078727	10,624	7153	7145	7103	7133.666667
4605922001812	23,898	15104	14314	15092	14836.66667
886970578424	42,478	28006	27979	27618	27867.66667
662102111321	53,920	36225	36516	34755	35832
35826072672	69,038	42317	40377	42887	41860.33333
352688190925	96,057	55448	53229	54230	54302.33333


Database Size 100,000
Search Time
60000
50000
40000
30000
20000
10000
0
Search Time in Microseconds
0
20000
40000
60000
80000
100000
120000
Line in the Database
BST
Array

Data Size 120,000					
BST					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
799439078727	10,624	65	65	78	69.33333333
751492439181	26,551	49	50	49	49.33333333
886970578424	42,478	104	104	105	104.3333333
662102111321	53,920	57	55	55	55.66666667
603899051650	95,572	92	91	116	99.66666667
7051057658877	107,224	95	95	65	85
79118004132	119,423	72	71	70	71
Array					
UPC Code	Line # in Database	Test 1	Test 2	Test 3	Average Time
799439078727	10,624	7028	7165	7020	7071
751492439181	26,551	17309	17500	17342	17383.66667
886970578424	42,478	27731	27635	27917	27761
662102111321	53,920	35015	36070	34254	35113
603899051650	95,572	57937	51934	58877	56249.33333
7051057658877	107,224	62740	55446	61530	59905.33333
79118004132	119,423	62440	64693	61982	63038.33333



As shown in during the tests, the Binary Search Tree and the Array have about the same performance when searching for an item in a small dataset (or when searching for an item near the front in a large dataset). However, as the item being searched for gets further back in the dataset, the Binary Search Tree becomes much more efficient than the Array at finding items. The extreme example of this in this test is the Binary Search Tree taking an average of 19 microseconds to find 79118004132, while the Array takes an average of 10552.5 microseconds to find it. This is to be expected, since the complexity of searching through a Binary Search Tree is O(log(n)), while the complexity of searching through an Array is O(n). Changing the size of the data set does not seem to have a consequential effect on the search times.