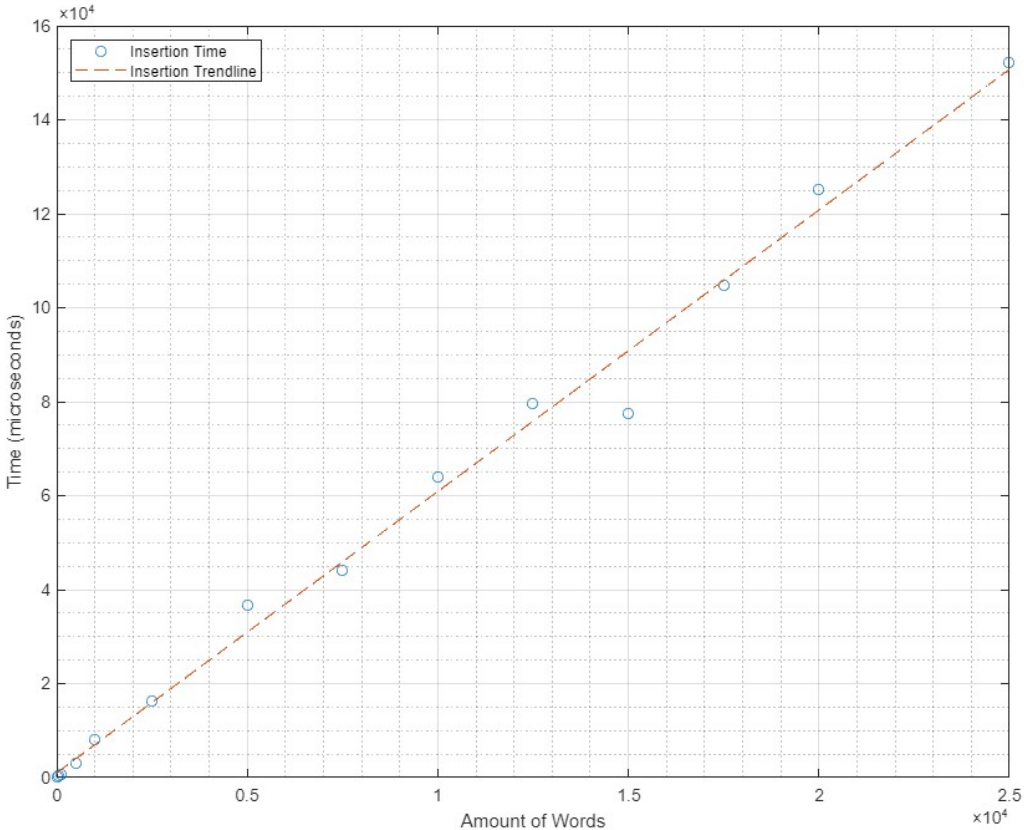


Input Size (words)	Insert Time (uSec)
10	289
	84
	83
50	275
	335
	229
100	681
	866
	516
500	2489
	3243
	3505
1000	7303
	9539
	7367
2500	18611
	18687
	11400
5000	34481
	33595
	42261
7500	32412
	48000
	51621
10000	61487
	66867
	63551
12500	72012
	88025
	78519
15000	87288
	106069
	38911
17500	117147
	92154
	105393
20000	120803
	126578
	127932
25000	165351
	169380
	121713

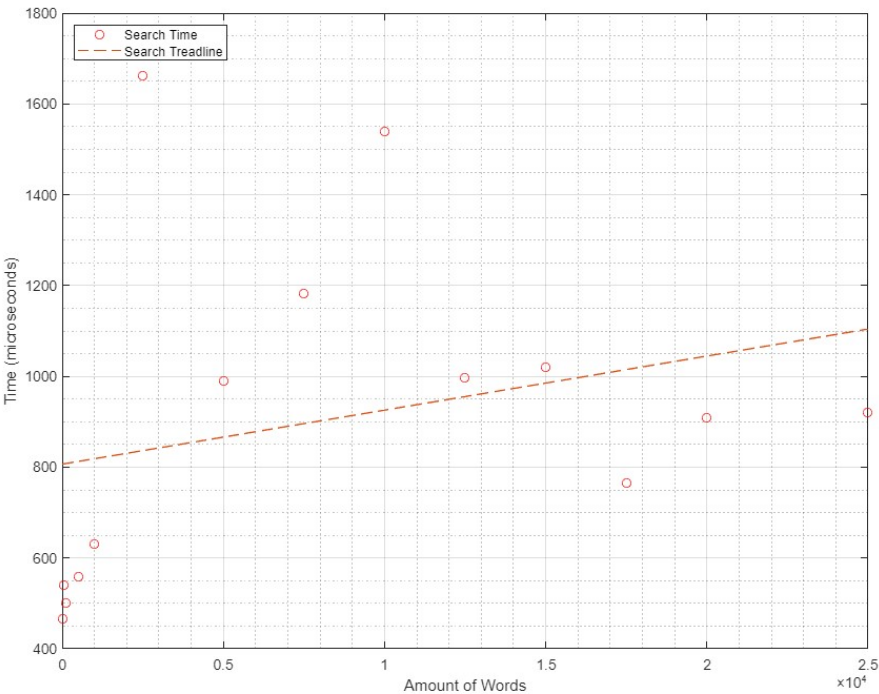
Input Size (Words)	Average Insertion Time (uSec)
10	152
50	280
100	688
500	3079
1000	8070
2500	16233
5000	36779
7500	44011
10000	63968
12500	79519
15000	77423
17500	104898
20000	125104
25000	152148



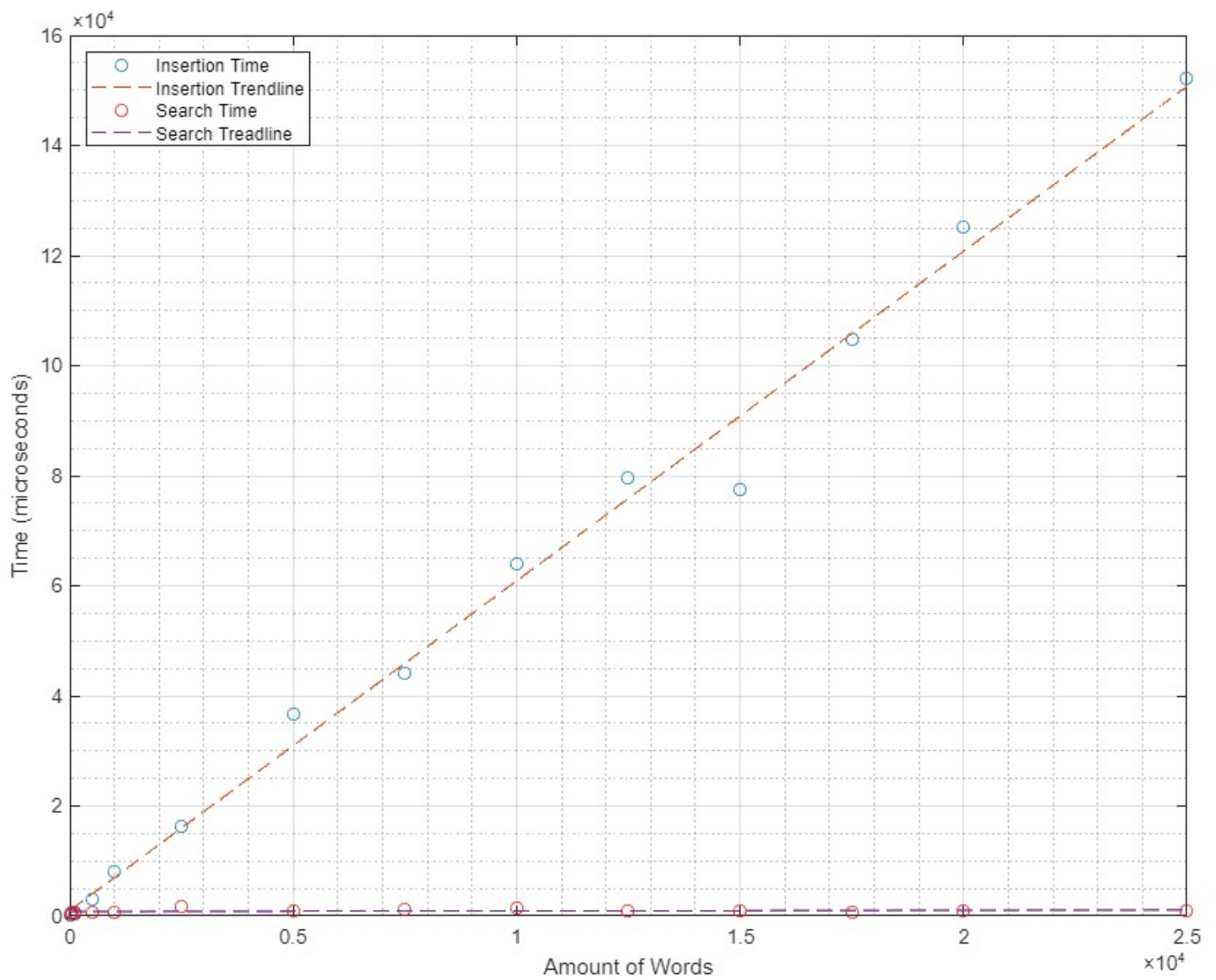
We ran a total of 42 tests at 14 different input sizes to compile the run time for trie insertion. As seen in the above graph, the speed trends linearly over the range of inputs.

Input Size (Words)	Search Time (uSec)			
	Run 1	Run 2	Run3	
10		458	243	260
		310	517	771
		347	920	354
50		277	1046	264
		389	1031	472
		561	375	444
100		392	445	402
		493	774	572
		354	678	397
500		370	444	351
		427	396	399
		1817	251	570
1000		467	387	506
		414	383	437
		2124	650	307
2500		3286	755	824
		1248	675	6327
		621	435	777
5000		595	621	813
		1055	1281	2031
		643	973	902
7500		700	1060	1120
		741	1041	1475
		2373	782	1357
10000		828	818	688
		4344	2438	717
		1093	601	2333
12500		590	761	1524
		1927	659	658
		761	1016	1063
15000		624	630	660
		1725	699	913
		1917	1005	994
17500		741	903	761
		641	744	745
		623	888	836
20000		1366	755	825
		712	1108	739
		1028	752	893
25000		1365	1174	632
		681	581	1600
		519	935	791

Input Size (words)	Average Search Time (uSec)				
	Run 1	Run 2	Run 3		AVG run
10		372	560	462	465
50		409	817	393	540
100		413	632	457	501
500		871	364	440	558
1000		1002	473	417	631
2500		1718	622	2643	1661
5000		764	958	1249	990
7500		1271	961	1317	1183
10000		2088	1286	1246	1540
12500		1093	812	1082	996
15000		1422	778	856	1019
17500		668	845	781	765
20000		1035	872	819	909
25000		855	897	1008	920



We ran a total of 126 tests across 14 different input sizes to determine the search time of the trie. Though there were several outliers in performance throughout the tests, the graph trends linearly



Comparatively, and as expected, the search time is much shorter than insertion time for a given data size since the search time is mostly dependent on the length of the word searched for.