EADS LAB 3

BST & AVL

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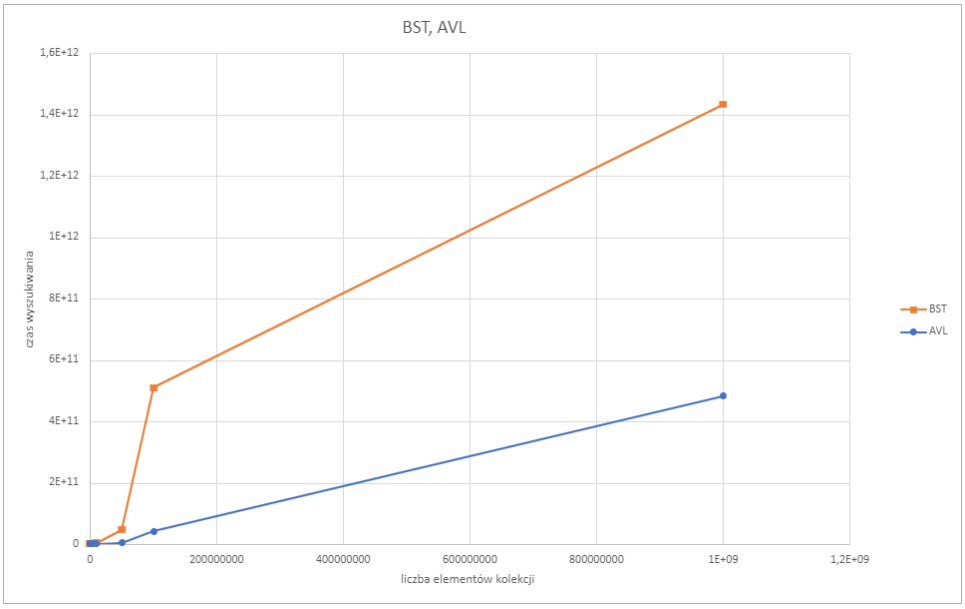
COMPUTATIONAL COMPLEXITY

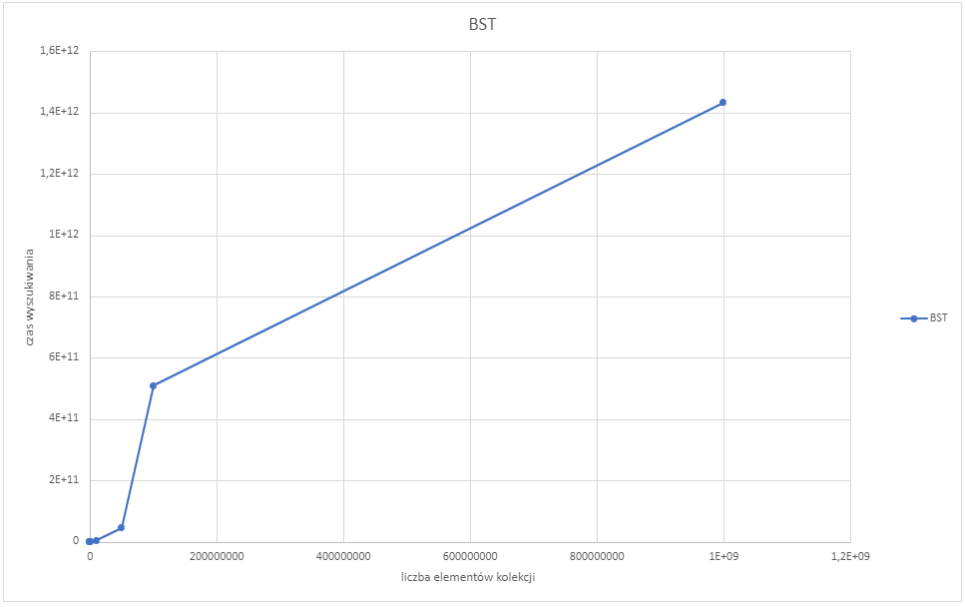
INSERTION

collection size	Insertion time(micro seconds)	
	BST	AVL
1000	2250	640
10000	233900	7254
100000	28074339	233900
1000000	342794626	28074339
10000000	4189327360	342673922
50000000	45917239026	3812237468
100000000	5,09424E+11	42045356168
1000000000	1,4329E+12	4,83245E+11

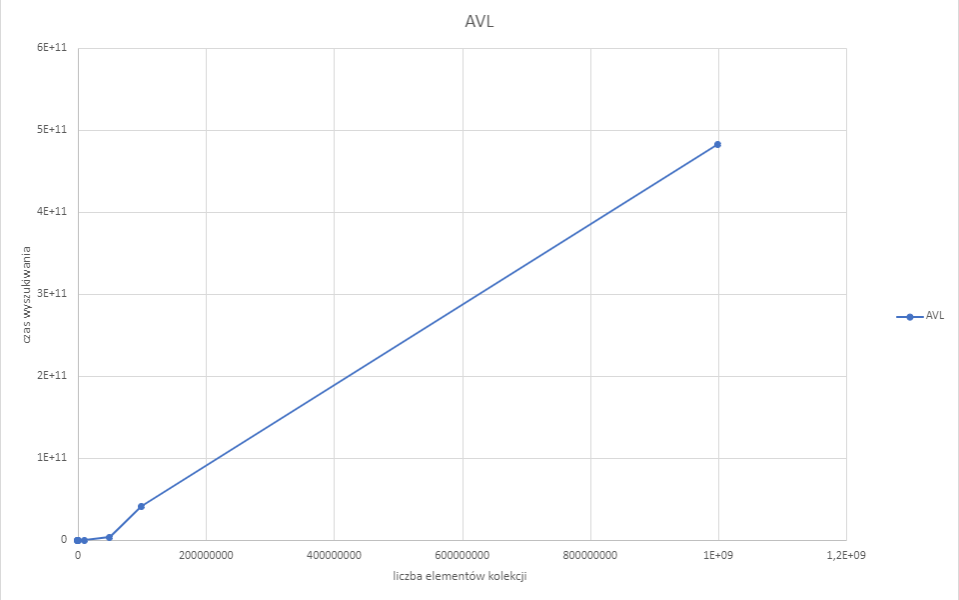
BST vs AVL Insertion



BST Insertion



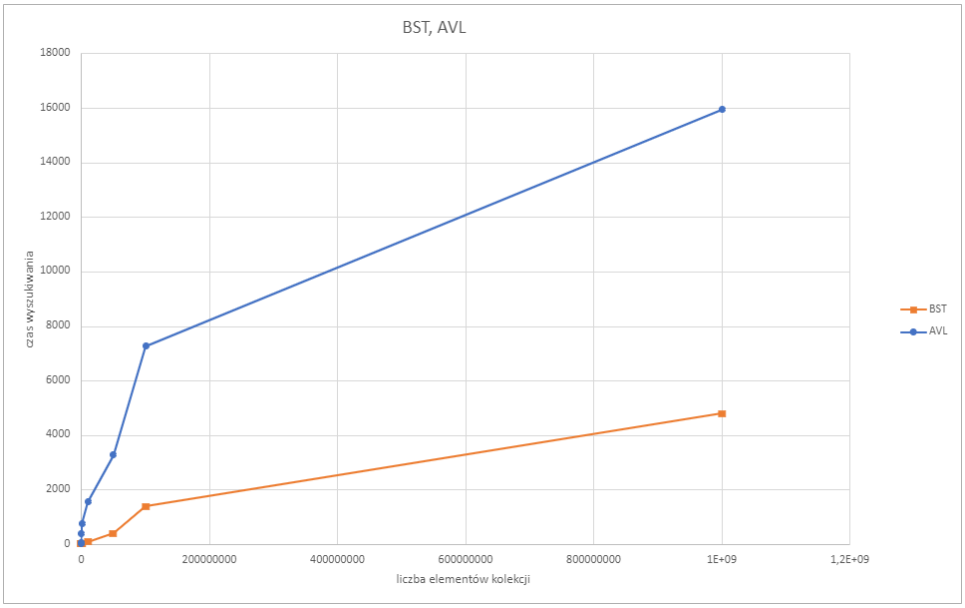
AVL Insertion



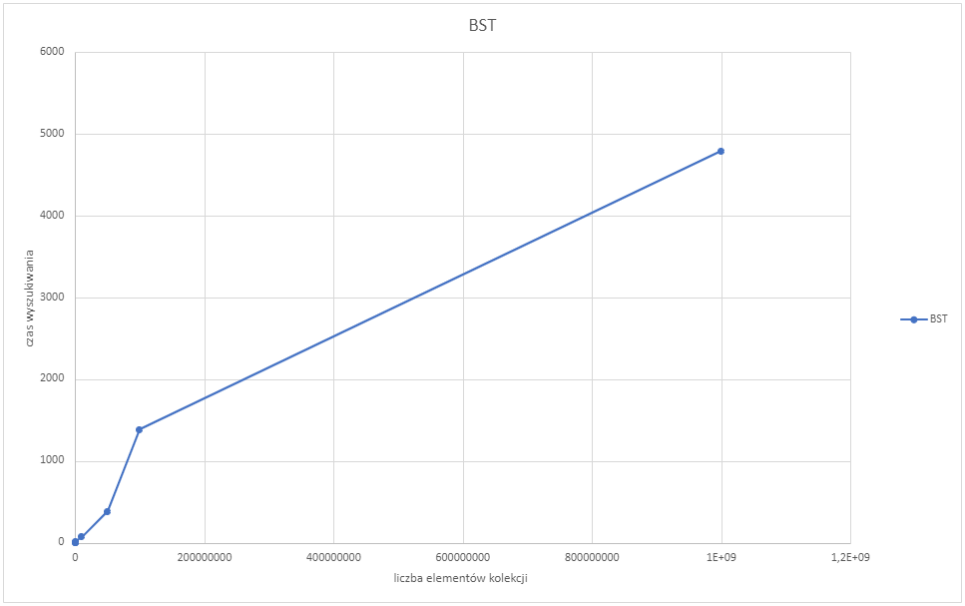
SEARCHING

collection size	Search time(micro seconds)	
	BST	AVL
1000	0	3
10000	4	43
100000	5	390
1000000	17	742
10000000	74	1543
50000000	387	3270
100000000	1390	7256
1000000000	4792	15932

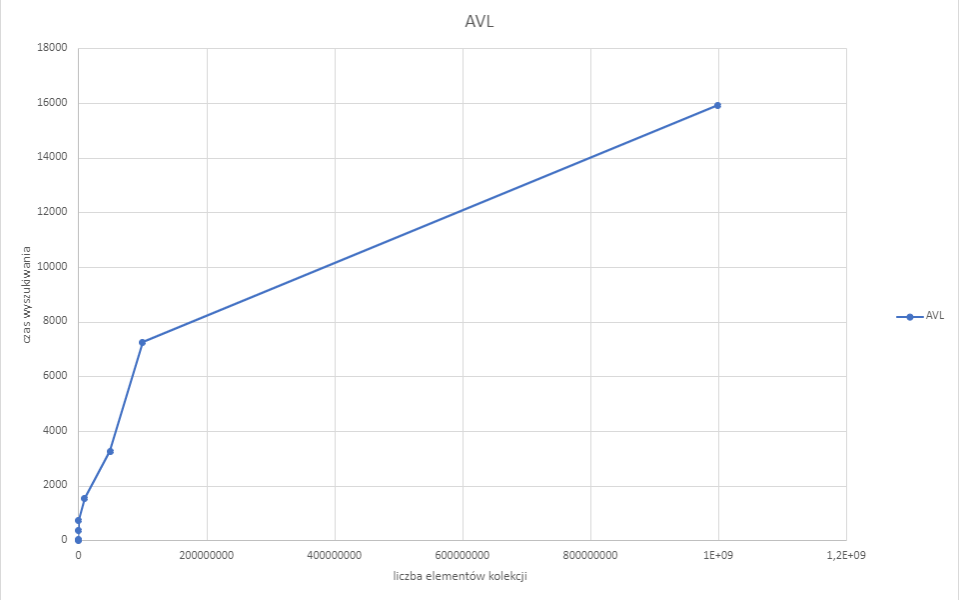
BST vs AVL Searching



BST Searching



AVL Searching



BST Insertion : O(logn) [best case]

O (n) [worst case]

BST Search : O(logn) [best case]

O (n) [worst case]

AVL Insertion : O(logn)

AVL Search : O(logn)

CONCLUSION

Therefore, from the obtained results, a balanced BST and AVL have similar computational complexities, whereas an unbalanced BST performs the worse when compared to AVL.