

Big O:

File	ADT#	Insert	Delete	Series of Inserts	Series of Deletions	Entire File
1(In)	1(LinkedList)	1	0	$n$	0	$n$
2(In/Del)	1	1	$n$	$n$	$n^2$	$n^2$
3(In/Delrev)	1	1	1	$n$	$n$	$n$
4(rand)	1	1	$n$	$n$	$n^2$	$n^2$
1	2(CursorList)	1	0	$n$	0	$n$
2	2	1	$n$	$n$	$n^2$	$n^2$
3	2	1	1	$n$	$n$	$n$
4	2	1	$n$	$n$	$n^2$	$n^2$
1	3(StackAr)	1	0	$n$	0	$n$
2	3	1	1	$n$	$n$	$n$
3	3	1	1	$n$	$n$	$n$
4	3	1	1	$n$	$n$	$n$
1	4(StackLi)	1	0	$n$	0	$n$
2	4	1	1	$n$	$n$	$n$
3	4	1	1	$n$	$n$	$n$
4	4	1	1	$n$	$n$	$n$
1	5(QueueAr)	1	0	$n$	0	$n$
2	5	1	1	$n$	$n$	$n$
3	5	1	1	$n$	$n$	$n$
4	5	1	1	$n$	$n$	$n$
1	6(SkipList)	$\log n$	0	$n \log n$	0	$n \log n$
2	6	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
3	6	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
4	6	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
1(In)	7(Binary Search Tree)	$n$	0	$n^2$	0	$n^2$
2(In/Del)	7	$n$	1	$n^2$	$n$	$n^2$
3(In/Delrev)	7	$n$	$n$	$n^2$	$n^2$	$n^2$
4(rand)	7	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
1	8(AVL Tree)	$\log n$	0	$n \log n$	0	$n \log n$
2	8	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
3	8	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
4	8	$\log n$	$\log n$	$n \log n$	$n \log n$	$n \log n$
1	9(Splay Tree)	1	0	$n$	0	$n$

2	9	1	$n$ (amortized ed $\log n$ )	$n$	$n \log n$ (amortized)	$n \log n$ (amortized) $N^2$ (big o)
3	9	1	1	$n$	$n$	$n$
4	9	$\log n$	$\log n$	$N \log n$	$N \log n$	$N \log n$
1	10 (B+ Tree M=3;L=1)	$\log_3 n$	0	$N * (\log_3 n)$	0	$N * (\log_3 n)$
2	10	$(\log_3 n)$	$(\log_3 n)$	$N * \log_3 n$	$N * (\log_3 n)$	$N * (\log_3 n)$
3	10	$\log_3 n$	$\log_3 n$	$N * \log_3 n$	$N * \log_3 n$	$N * (\log_3 n)$
4	10	$\log_3 n$	$\log_3 n$	$N * \log_3 n$	$N * \log_3 n$	$N * (\log_3 n)$
1	10(3;200)	$\log_3 n$ * 200	0	$n * \log_{1000} n$ * 200	0	$n * \log_{1000} n$ * 200
2	10	$\log_3 n$ * 200	$\log_3 n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200
3	10	$\log_3 n$ * 200	$\log_3 n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200
4	10	$\log_3 n$ * 200	$\log_3 n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200	$n * \log_{1000} n$ * 200
1	10(1000;2)	$\log_{1000} n$ * 2	0	$n * \log_{1000} n$ * 2	0	$n * \log_{1000} n$ * 2
2	10	$\log_{1000} n$ * 2	$\log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2
3	10	$\log_{1000} n$ * 2	$\log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2
4	10	$\log_{1000} n$ * 2	$\log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2	$n * \log_{1000} n$ * 2
1	10(1000; 300)	$\log_{1000} n$ * 300	0	$n * \log_{1000} n$ * 300	0	$n * \log_{1000} n$ * 300
2	10	$\log_{1000} n$ * 300	$\log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300
3	10	$\log_{1000} n$ * 300	$\log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300
4	10	$\log_{1000} n$ * 300	$\log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300	$n * \log_{1000} n$ * 300
1	11(Separate Chaining Hash $\lambda = .5$ )	1	0	$n$	0	$n$
2	11	1	1	$n$	$n$	$n$
3	11	1	1	$n$	$n$	$n$
4	11	1	1	$n$	$n$	$n$
1	11(Separate Chaining Hash $\lambda = 1$ )	1	0	$n$	0	$n$

2	11	1	1	$n$	$n$	$n$
3	11	1	1	$n$	$n$	$n$
4	11	1	1	$n$	$n$	$n$
1	11(Separate Chaining Hash $\lambda = 10$ )	1	0	$n$	0	$n$
2	11	1	$10, O(1)$	$n$	$10n$ (Big O is $n$ )	$n$
3	11	1	$10, O(1)$	$n$	$10n$ ^see above	$n$
4	11	1	$10, O(1)$	$n$	$10n$ ^see above	$n$
1	11(Separate Chaining Hash $\lambda = 100$ )	1 (worst case $O(100)$ )	1	$n$	0	$n$
2	11	1	100	$n$	$100n$ (Big O is $n$ )	$n$
3	11	1	100	$n$	$n$	$n$
4	11	1	100	$n$	$n$	$n$
1	11(Separate Chaining Hash $\lambda = 1000$ )	1 (worst case $O(1000)$ )	0	$n$	0	$n$
2	11	1	$1000, O(1)$	$n$	$n$	$n$
3	11	1	1000	$n$	$n$	$n$
4	11	1	1000	$n$	$n$	$n$
1	12(Quadratic Probing Hash $\lambda = 2$ )	1	0	$n$	0	$n$
2	12	1	$2, O(1)$	$n$	$2n$ (Big O is $n$ )	$n$
3	12	1	2	$n$	$n$	$n$
4	12	1	2	$n$	$n$	$n$
1	12(Quadratic Probing Hash $\lambda = 1$ )	1	0	$n$	0	$n$
2	12	1	1	$n$	$n$	$n$
3	12	1	1	$n$	$n$	$n$
4	12	1	1	$n$	$n$	$n$
1	12(Quadratic Probing Hash $\lambda = .5$ )	1	0	$n$	0	$n$
2	12	1	1	$n$	$n$	$n$

3	12	1	1	$n$	$n$	$n$
4	12	1	1	$n$	$n$	$n$
1	12(Quadratic Probing Hash $\lambda = .25$ )	1	0	$n$	0	$n$
2	12	1	1	$n$	$n$	$n$
3	12	1	1	$n$	$n$	$n$
4	12	1	1	$n$	$n$	$n$
1	12(Quadratic Probing Hash $\lambda = .1$ )	1	0	$n$	0	$n$
2	12	1	1	$n$	$n$	$n$
3	12	1	1	$n$	$n$	$n$
4	12	1	1	$n$	$n$	$n$
1	13 Binary Heap (min)	1	0	$n$	0	$n$
2	13	1	$\log n$	$n$	$N \log n$	$N \log n$
3	13	1	$\log n$	$n$	$N \log n$	$N \log n$
4	13	$\log n$	$\log n$	$N \log n$	$N \log n$	$N \log n$
1	14(Quadratic Probing Pointer Hash $\lambda = 2$ )	1	0	$n$	0	$n$
2	14	1	2	$n$	$n$	$n$
3	14	1	2	$n$	$n$	$n$
4	14	1	2	$n$	$n$	$n$
1	14(Quadratic Probing Pointer Hash $\lambda = 1$ )	1	0	$n$	0	$n$
2	14	1	1	$n$	$n$	$n$
3	14	1	1	$n$	$n$	$n$
4	14	1	1	$n$	$n$	$n$
1	14(Quadratic Probing Pointer Hash $\lambda = .5$ )	1	0	$n$	0	$n$
2	14	1	1	$n$	$n$	$n$
3	14	1	1	$n$	$n$	$n$
4	14	1	1	$n$	$n$	$n$
1	14(Quadratic Probing Pointer Hash $\lambda = .25$ )	1	0	$n$	0	$n$

	.25)					
2	14	1	1	$n$	$n$	$n$
3	14	1	1	$n$	$n$	$n$
4	14	1	1	$n$	$n$	$n$
1	14(Quadratic Probing Pointer Hash $\lambda = .1$ )	1	0	$n$	0	$n$
2	14	1	1	$n$	$n$	$n$
3	14	1	1	$n$	$n$	$n$
4	14	1	1	$n$	$n$	$n$