Common Data Structure Operations

Data Structure	Time Complexity								Space Complexity
	Average				Worst				Worst
	Access	Search	Insertion	Deletion	Access	Search	Insertion	Deletion	
Array	θ(1)	θ(n)	$\theta(n)$	Θ(n)	0(1)	0(n)	0(n)	0(n)	0(n)
<u>Stack</u>	θ(n)	θ(n)	0(1)	Θ(1)	0(n)	0(n)	0(1)	0(1)	0(n)
Queue	θ(n)	θ(n)	Θ(1)	Θ(1)	0(n)	0(n)	0(1)	0(1)	0(n)
Singly-Linked List	θ(n)	θ(n)	Θ(1)	Θ(1)	0(n)	0(n)	0(1)	0(1)	0(n)
Doubly-Linked List	θ(n)	θ(n)	Θ(1)	0(1)	0(n)	0(n)	0(1)	0(1)	0(n)
Skip List	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	0(n)	0(n)	0(n)	0(n)	0(n log(n))
Hash Table	N/A	θ(1)	0(1)	Θ(1)	N/A	0(n)	0(n)	0(n)	0(n)
Binary Search Tree	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	0(n)	0(n)	0(n)	0(n)	0(n)
Cartesian Tree	N/A	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	N/A	0(n)	0(n)	0(n)	0(n)
B-Tree	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	O(log(n))	0(log(n))	0(log(n))	0(log(n))	0(n)
Red-Black Tree	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	O(log(n))	O(log(n))	0(log(n))	0(log(n))	0(n)
Splay Tree	N/A	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	N/A	O(log(n))	0(log(n))	0(log(n))	0(n)
AVL Tree	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	0(log(n))	0(log(n))	0(log(n))	0(log(n))	0(n)
KD Tree	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	$\theta(\log(n))$	0(n)	0(n)	0(n)	0(n)	0(n)