|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Linked List Average Big Oh’s | Add to Head | Add to Tail | Remove Head | Remove Tail | Find Node | Free List |
| Singly Linked List  (storing just head pointer) | O(1) | O(N) | O(1) | O(N) | O(N) | O(N) |
| Doubly Linked List  (storing just head pointer) | O(1) | O(N) | O(1) | O(N) | O(N) | O(N) |
| Singly Linked List (storing head and tail pointer) | O(1) | O(1) | O(1) | O(N) | O(N) | O(N) |
| Doubly Linked List (storing head and tail pointer) | O(1) | O(1) | O(1) | O(1) | O(N) | O(N) |
| Circular Singly Linked List | O(1) | O(1) | O(1) | O(N) | O(N) | O(N) |
| Circular Doubly Linked List | O(1) | O(1) | O(1) | O(1) | O(N) | O(N) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Push (add head) | Pop (remove head) | Top (look at head) |
| Stack (FILO) | O(1) | O(1) | O(1) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Enqueue (add tail) | Dequeue (remove head) | Peek (look at head) |
| Queue with singly linked list (storing head and tail pointers)  (FIFO) | O(1) | O(1) | O(1) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Add Node | Remove Node | Find Node |
| BST worst case | O(N) | O(N) | O(N) |
| BST average case | O(log(N)) | O(log(N)) | O(log(N)) |
| BST Best case | O(log(N)) | O(1) | O(1) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Add Node | Remove Node | Find Node |
| AVL Tree worst case | O(log(N)) | O(log(N)) | O(log(N)) |
| AVL Tree average case | O(log(N)) | O(log(N)) | O(log(N)) |
| AVL Tree best case | O(log(N)) | O(1) | O(1) |