

Assignment 2

1. Prove correctness of SequentialSearch
2. Give worst, average, and best case runtime analysis of SequentialSearch
3. State and prove correct the iterative UpperBound algorithm
4. Give a complete runtime analysis for iterative UpperBound
5. Explain why “short circuit bailout” in any of the binary search algorithms is not cost effective
6. Give a non-recursive procedure that reverses a singly linked list of size n that has $\Theta(n)$ runtime and $+\Theta(1)$ runspace [Exercise 10.2-7 on p. 209].
7. Give a non-recursive algorithm that performs an inorder tree traversal [Exercise 12.1-3 on p. 256].
8. Devise an algorithm that uses a Deque for control and such that using PushBack implements depth-first search and changing to PushFront implements breadth-first search