

Lab Six

Shannon Cordoni

Shannon.Cordoni@Marist.edu

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1 PROBLEM ONE: CRAFTING A COMPILER 8.1

There are advantages and disadvantages to using binary search trees and hash tables to implement symbol tables. The advantages of using a binary search tree is there simple and widely known implementation. The disadvantage is that average-case performance does not hold for symbol tables, meaning that programmers don't name variables at random causing lookup time to be more $O(n)$ instead of $O(\log n)$. The advantages of using a hash table is that it is widely used and that with a good enough implementation insertion and retrieval can be done in constant time. The disadvantage of a hash table is that it is challenging to get a good enough implementation such as this, and that anything with a large enough number of entries can become challenging.