

# Lab Six

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shuhan Dong

shuhan.dong1@Marist.edu

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## 1 CRAFTING A COMPILER

### EXERCISE 8.1 (BINARY SEARCH TREES AND HASH TABLES)

Binary search trees are the way to the implemented symbol table. It implements symbol tables due to their  $O(n)$  time complexity. The advantages of binary search trees are Less space is required as large array allocation is not needed. And it easy to implement. The Disadvantage of binary search trees Insertion and lookup takes comparatively more time. Both take  $O(\log n)$  time for the average case.

The Hash table is used to implement the symbol table in the scope because the hash can inform the compiler that the variable is redeclared in the same content. The hash table uses an indexed array from zero to all these entries act as pointers and indicate the name of the symbol table. The average time complexity of the hash table is  $O(1)$ . The advantages of the hash table are Insertion and lookup can be performed in constant time. And quick search is possible. The Disadvantage of the hash table is Implementation is difficult. And running speed of the program will be significantly reduced.

## 2 DRAGON

READ CHAPTERS 2.7 AND 6.3.1