GitHub: [https://github.com/Phe0niX12/FTCD](https://github.com/Phe0niX12/FTCD/tree/main/LAB%202/src)

DOCUMENTATION

Symobol Table

I implemented a Symbol Table which is composed of 3 Hash Tables, one for identifiers, one for string constants and one for integer constants. I resolved the collisions issue by using a list for each position of the hash and adding the elements with the same hash code to the list one after the other. The Hash Table is generic.

OPERATIONS:

HashTable:

getCapacity()=> returns the capacity of the hash table

Worse: O(1)

Average: O(1)

Best: O(1)

hash(int key)=> returns the hash code of the key for an int key

Worse: O(1)

Average: O(1)

Best: O(1)

hash(string key)=> returns the hash code of the key for a string key by adding the ASCII codes of the letters of the word

Worse: O(n)

Average: O(n)

Best: O(1)

getHashValue(T key)=>return the hash position of any type of key by using the other 2 hash functions

Best: O(1)

Average: O(n)

Worse: O(n)

contains(T key)=> returns true if the key is in the hash table and false otherwise

Best: O(1)

Average: O(n)

Worse: O(n)

getPosition(T key) => returns the positon of the given key in the hash

Best: O(1)

Average: O(1)

Worse: O(1)

add(T key) => adds the key to the hash table and return it’s position

Best: O(1)

Average: O(n)

Worse: O(n)

Symbol Table:

addIdentifier(String name) => adds the identifier to the identifier Table

Best: O(1)

Average: O(n)

Worse: O(n)

addIntConst(int constant) => adds the int constant to the int constant Table

Best: O(1)

Average: O(1)

Worse: O(1)

addStringConst(string constant) => adds the string constant to the string constant Table

Best: O(1)

Average: O(n)

Worse: O(n)

getIntConstPos(int const) =>returns the position of an int constant from the int constant Table

Best: O(1)

Average: O(n)

Worse: O(n)

getStringConstPos(string const) => returns the position of a string constant from the string constant Table

Best: O(1)

Average: O(n)

Worse: O(n)

getIdentifierPos(String name) => returns the position of an identifier form the identifier Table

Best: O(1)

Average: O(n)

Worse: O(n)

hasIdentifier(string name) => returns true if there is the identifier in the Identifier Table

Best: O(1)

Average: O(n)

Worse: O(n)

hasConstantInt(string name) => returns true if there is an int constant in the Int Constant Table

Best: O(1)

Average: O(n)

Worse: O(n)

hasConstantString(string name) => returns true if there is the string constant in the String Constant Table

Best: O(1)

Average: O(n)

Worse: O(n)