Assignment 3

Documentation

Implementation

- https://github.com/aalexcampean/flcd-labs.git

Symbol Table

- When choosing one of the variants for implementing this, I decided to go with the second option, presented in the lecture (having a **Unique symbol table** – containing all symbolic names)
- The internal representation is that of a Hash Table:
    - **Fields**:
        - Capacity (max amount of elements it can hold)
        - Size (current number of elements)
        - Buckets (a list of linked lists where each element will be hashed to an index and then added to the linked list corresponding to that index)
    - **Hash function** = S % C:
        - S = the sum of the ASCII codes of each letter in a token
        - C = the capacity of the hash table
    - **Rehashing**:
        - When L >= 0.7
        - L (Load Factor) = Size / Capacity
        - Capacity will be doubled
        - All keys will be rehashed and added to a new Hash Map
    - **Collision resolution**:
        - Separate chaining using an array of linked lists
        - Each node has a key, value pair, and a reference to the next node
    - **Operations**:
        - Insert (key, value)
            - Already existing elements are not readded nor updated
        - Remove(key) -> returns the delete value/none
        - Overwriting the method Contains(key) -> returns true/false
        - Find(key) -> returns the value/none