

Lab 2 – Documentation

Github link

<https://github.com/cs-ubbcluj-ro/lab-work-computer-science-2024-georgianapetricela/tree/main/1-Mini-Language-And-Scanner/Lab2>

Symbol Table

The Symbol Table uses as a single Hash Table for both identifiers and constants.

Hash Table Data Structure

For collision handling the Hash Table uses separated chaining. It is represented as a list with a fixed number of buckets and each bucket represents a list of values.

Hash Table Class methods:

1. int getCapacity()
 - out: the function returns the fixed number of buckets from the hash table

2. int hashFunction(T key)
 - hash function is represented by the sum of ascii characters modulo capacity
 - in: key to be hashed
 - out: returns the computed index where the value is stored

3. boolean contains(T key)
 - in: key to be found
 - out: returns true if the key was successfully found in the hash table

4. boolean addElement(T key)
 - in: key to be added

- out: returns true if the key was successfully added in the hash table

5. boolean removeElement(T key)

- in: key to be removed
- out: returns true if the key was successfully removed in the hash table

6. Pair<Integer, Integer> getPositionForElement(T key)

- in: the key for which the position needs to be searched
- out: returns the pair consisting of the bucket index and the index from the inner list where the value of placed

7. String toString()

- out: returns the string representation of the hash table