Lab2

Github -> <https://github.com/cs-ubbcluj-ro/lab-work-computer-science-2024-Gulin7>

# HASHTABLE

CLASS NODE

* Key – key associated with a value
* Value – value associated to a key
* Next – reference to the next Node object in a linked list

Class HASHTABLE

* Size – current maximum size of the hash table
* Count - total count of elements currently stored in the hash table
* List – list used to store the elements inside of the hash table (array of Nodes)
* \_\_init\_\_ - initialize hash table with size=2, count=0, and 2 None elements
* Hash(value) - % size if integer, **DJB2 by Daniel J. Bernstein** for strings
* Insert(key, value) – insert a key-value pair into the hashtable
  + Resize and rehash if there are more elements than the capacity ( load factor >=2)
  + Computes the hash for the key and inserts a new Node into the appropriate position of the linked list at given index
* Get(key) – retrieves the value associated with a given key
* resizeAndRehash – called in insert if load factor >= 2
  + doubles the size, creates a copy of all the old elems, resets the count and list and then insert all the previous elemenets using the insert method