

ADT Hash Table

Hash Table = { HT={a₁, a₂, a₃, a₄,...,a_i }, i > 0 ∧ i ∈ Z⁺.
i = the array index. HT[i] = (elemente.value)

Construction operations:

*CreateTable : → HashTable

Modifier operations:

*tableInsert: newItem → HashTable

*tableDelete: searchKey → HashTable

Analyzer operations:

*isEmpty: HashTable → boolean

*tableLength: HashTable → Integer

*tableRetrieve: HashTable → HashTable

Create (value)

"Creates an empty table with length passed by parameter"

{ pre: TRUE }

{ post: HashTable.length = value ∧ HashTable[i]=null }

tableInsert(newItem)

"Inserts newItem into a table in its proper sorted order according to the newItem's search key."

{ pre: TRUE }

{ post: HashTable[i] = newItem }

tableDelete(searchKey)

"Removes an element with a given search key from the table."

{ pre: element to be removed is in the HashTable }

{ post: False if the element wasn't removed,
True otherwise }

tableRetrieve(searchKey)

"Retrieves an element with a given search key from the hash table"

{ pre: HashTable[i] != null }

{ post: HashTable[i] if HashTable[i].key() == searchKey,
null otherwise }

isEmpty(HashTable):

"Informs if the HashTable is empty."

{ pre: TRUE }

{ pre: HashTable={a₁, a₂, a₃, a₄,...,a_i }

{ post: False if HashTable[i] != null,
True otherwise }

tableLength(HashTable):

"Returns an integer which represents the Length of the Hash Table."

{ pre: TRUE }

{ post: n | n ∈ Z⁺ }