

CPSC 335 – Programming Assignment 4

Pseudocode

Java's Hash Function

//Input: a string s and length of string s len

//Output: Hash value

tablesize \leftarrow 17

value \leftarrow s[len - 0 - 1]

value \leftarrow value % tablesize

power \leftarrow 1

if value < 0

 value \leftarrow value + tablesize

if len == 1

 return value

for i \leftarrow 1 to len - 1

 temp = s[len - i - 1]

 power \leftarrow power of 31

 power \leftarrow power % tablesize

 if power < 0

 power \leftarrow power + tablesize

 value \leftarrow value + temp * power

 value \leftarrow value % tablesize

 if value < 0

 value \leftarrow value + tablesize

return value

Cuckoo Insert Function

//Input: A string s, a 2-D table t, and function f that hashes a string using first or second hash function according to the index

//Output: table number pos and index where the string is stored

tablesize \leftarrow 17

index \leftarrow 0

placed \leftarrow false

temp \leftarrow s

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pos  $\leftarrow$  f(s, index)
count  $\leftarrow$  0
while placed == false and counter < 2 * tablesize
    if t[pos][index] is empty
        Output pos and index
        Placed  $\leftarrow$  true
        return
    else
        swap t[pos][index] and temp
        index  $\leftarrow$  index ? 1 : 0
        pos  $\leftarrow$  f(temp, index)
        counter  $\leftarrow$  counter + 1
```

Table

	Table T1 – Index 0	Table T2 – Index 1
[0]	Online algorithms	
[1]		Some related problem
[2]	Self-Stabilization	Monge Properties
[3]	are known	Fullerton
[4]	Quantum Nature of Universe	Server Problem
[5]	In physics and	College of Engineering
[6]	One of the greatest	Optimal Tree Construction
[7]		
[8]		
[9]	Cuckoo Hashing	
[10]		
[11]	Algorithm Engineering	Matrix Searching
[12]	Science	
[13]		and Computer Science
[14]	Department of Computer	Dynamic Programming
[15]	emphasis on	mysteries in science
[16]	String Matching	California State University