**CPSC 335 – Programming Assignment 4**

**Pseudocode**

**First Hash Function - place\_in\_hash\_tables()**

temporary\_value 🡨 table[position][index]

table[position][index] 🡨 temporary\_s

temporary\_s 🡨 temporary\_value

if index is 1

index 🡨 0

else

index 🡨 1

position 🡨 f(temporary\_s, index)

counter 🡨 counter + 1

**Second Hash Function**

value 🡨 character\_string[length – 0 – 1]

value 🡨 value % tablesize

if value is less than 0

value += tablesize

if length is 1

return value

loop 1 to length of character string

temp = character\_string[length – i – 1

power 🡨 power of 31

power 🡨 power % tablesize

if power is less than 0

power 🡨 power + tablesize

value 🡨 value + temp \* power

value 🡨 value % tablesize

if value is less than 0

value 🡨 value + tablesize

return value

**Cuckoo Look-up Function**

**procedure** lookup(x)

**return** table1[f1(x)] = x or table2[f2(x)] = x

**end**

**Cuckoo Insert Function**

**procedure** insert(x)

**if** table1[f1(x)] = x **or** table2[f2(x)] = x **then return**

position 🡨 f1(x);

**loop** *n* **times**

**if** table1[position] = NULL

**then** {table1[position] 🡨 x

**return**

x 🡨🡪 table1[position;

**if** position = f1(x)

then position 🡨 f2(x)

**else** position 🡨 f1(x);

}

rehash(); insert(x)

**end**

**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 |