CO322 Data Structures & Algorithms

Lab – Hashing

Task 1

Implement a double-hashing hash table in Java with the necessary helper methods. This hash table has the hash function $h(k) = k \,\%\, N$, where *k* is the key and *N* is the capacity of the hash table. The collisions are handled using double hashing with the probe function,
$p(k, i) = i * \{1 + k\%(N - 1)\}$ where *i* is the iteration.

The key is an integer and the value inserted is a string. Write a main method to show the function of all implemented operations of the hash table.

Task 2

Implement a hash table that uses separate chaining using the Java LinkedList class. You are free to choose the number of slots (N) in the hash table and the hash function should be, $h(k) = k \,\%\, N$ where *k* is the integer key. The value inserted is a string.

Demonstrate the insertion and removal of the {key,value} pairs using a main method.