C343 Project 5 - Hash Tables in Compression

Due 11:59pm, November 11, 2016

1 Assignment Description

This week we return to our string compression program, but using our own implementation of a hash table.

2 Your Task

We have given you a complete solution for Project 4, except that we have replaced the uses of Java HashMaps with uses of the HashTableImp class, defined in `HashTableImp.java`. That class has stubs for all of the methods that you need to implement:

1. `V get(K key)` - return the value associated with the `key`.
2. `V put(K key, V value)` - associates the `value` with the `key` within the hashtable.
3. `V remove(K key)` - remove the key-value item as specified by `key`.
4. `Set<K> keySet()` - return a set containing all the keys in the hashtable.
5. `boolean containsKey(K key)` - returns true if the hashtable contains a mapping for the specified key.
6. `boolean isEmpty()` - returns true if the hashtable contains no key-value mappings.

We recommend that you implement hashtables using the chaining method of collision avoidance and table doubling to control the load factor and space consumption of the hash table.

3 Running Your Code

The same instructions for the DNA compression project.

4 Deliverables

Your repo folder should contain all the files from the zip. These are the ones you need to modify:

- `HashTableImp.java` - containing your hash table implementation and unit tests

5 Testing

The same instructions for the DNA compression project.