

**CSE 222**  
**Homework 5**  
**Problem solution approach**

In part 1 we would implement an MapIterator class which iterates over keys. I decided to use keyset function in the map. With that function all keys was accessible. I converted to Array and I used the array to iterate. To detect any changes on the map I made a method that return true if there is any changes. If there is any changes in the map then the iterator can not be used more. If the user tries to use it then it throws an exception.

In part 2 we would implement the KWHashMap interface by using 3 methods. Firstly I made Entry class for key-value pairs.

For the chaining with the LinkedList I used applied the algorithm in the textbook as you mentioned.

For the chaining with Treemap I extend the Entry class which is EntrySet which is comparable for the treeSet. Because the Tree structure is forces it to be comparable. I used java TreeSet. This class is almost like LinkedListHashTable. They are very similar due to use chaining technic.

For the Coalesced technique the most important method was find(key). Because it returns the index for all put,get,remove operations. So I focused on this method. To find the index of the given key, firstly I calculate the index and go to the index and if its not null go until the next of next is null or the key is found during this traversing I increment an integer variable and I use it to calculate the last next item. The other mechanisms for the other methods were same as mentioned in the textbook. Because the most important thing in here is to find the index.

For the performance tests and also for the method tests I made a class named MapPerformance that takes size of data to randomly created and applied, and data upper bound. Produces an array with the given size and fills it randomly and applies the operations of map(put get ,existing, non-existing) to the hashmap and checks them if there are any problem. With toString method returns the time durations for operations as milliseconds .

That's all I did for this homework. I tried to do best. I hope there are no any problem.

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