GTU Department of Computer Engineering
CSE 222/505 - Spring 2021
Homework #5 Report

Part-1

Ömer Faruk Bitikçioğlu
161044010

1. PROBLEM SOLUTION APPROACH

To be able to write a custom iterator, I needed the keys of the hash map data structure since we iterate over it. So, I decided to create a new CustomHashMap which extends the original HashMap. It's actually the HashmapOpen implementation of the book. I added the iterator class to it.

I hold the index information of iterator. It indicates the index of the key which will iterated over with next() method.

Since the some part of the table will be null, I created another special array that holds only the keys which we iterate over.

I also hold a Boolean array to determine which index is iterated over. If the index is iterated, then the corresponding value of isIterated array will become true.

If the iterator is created with no parameter, then the index will be selected randomly. If the key value is given, it starts to iterate from that key if it exists. If not, then the index value again will be selected randomly.

hasNext() method checks all the indices of isIterated array to find a false to determine if there are any indices left not-iterated.

Next() method takes the key from the index and returns it. Increments the index value by 1. If it is at the end of the array, it goes to the first index. And marks the current index as iterated.

Prev() method first goes back 1 index and returns that key there. If the index is 0, it goes to the last item in the array. Sets the index as iterated.

I wrote the previous method and its logic but could not use it since I use Iterator interface as a carrier. I could not figure it out how to solve this problem yet.

2. TEST CASES

- Put randomly generated key value pairs to the HashMap and iterate over with the custom iterator
- Put some key value pairs and check if you see these keys
- Use the iterator's constructor with key to start iterating over that key. Selected key is "34"

3. RUNNING AND RESULTS

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