HASHMAP

import java.util.\*;  
  
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class HashMap<K,V> {  
 class Entity{  
 K key;  
 V val;  
 Entity(K key, V val){  
 this.key=key;  
 this.val=val;  
 }  
 }  
 int n;//number if entities  
 int N;//size of buckets  
 LinkedList<Entity> Buckets[];  
 float lf=2.0f;  
 public HashMap(){  
 this.N=4;  
 this.Buckets=new LinkedList[4];  
 for(int i=0;i<N;i++){  
 this.Buckets[i]=new LinkedList<>();  
 }  
 }  
 public int HashFunc(K key){  
 int BI=Math.*abs*(key.hashCode()%N);  
 return BI;  
 }  
  
 public int searchlist(int BI,K key){  
 LinkedList<Entity> list=Buckets[BI];  
 for(int i=0;i<list.size();i++){  
 if(key==list.get(i).key){  
 return i;  
 }  
 }  
 return -1;  
 }  
  
 public void put(K key, V val){  
 int BI=HashFunc(key);  
 int listindex=searchlist(BI,key);  
 if(listindex==-1){  
 Buckets[BI].add(new Entity(key,val));  
 n++;  
 }  
 else{  
 Entity e=Buckets[BI].get(listindex);  
 e.val=val;  
 }  
  
 float a=(float)n/(float)N;  
 if(a>lf){  
 reHash();  
 }  
 }  
 public V get(K key){  
 int BI=HashFunc(key);  
 LinkedList<Entity> list=Buckets[BI];  
 for(Entity e:list){  
 if(e.key.equals(key)){  
 return e.val;  
 }  
 }  
  
 return null;  
 }  
 public void remove(K key){  
 int BI=HashFunc(key);  
 int listindex=searchlist(BI,key);  
 if(listindex==-1){  
 System.*out*.println("not present");  
 }  
 else{  
 System.*out*.println("removing "+Buckets[BI].remove(listindex).key);  
 n--;  
  
 }  
 }  
 public boolean containKey(K key){  
 int BI=HashFunc(key);  
 int ListIndex=searchlist(BI,key);  
 if(ListIndex==-1){  
 return false;  
 }  
 else{  
 return true;  
 }  
 }  
  
 public ArrayList<K> keySet(){  
  
 ArrayList<K> alist=new ArrayList<>();  
 for(int i=0;i<Buckets.length;i++){  
 LinkedList<Entity> ll=Buckets[i];  
 for(Entity e:ll){  
 alist.add(e.key);  
 }  
 }  
  
 return alist;  
 }  
  
 private void reHash() {  
 LinkedList<Entity> old[]=Buckets;  
 Buckets=new LinkedList[N\*2];  
 for(int i=0;i<N\*2;i++){  
 Buckets[i]=new LinkedList<>();  
 }  
  
 for(int i=0;i<old.length;i++){  
 LinkedList<Entity> ll=old[i];  
 for(Entity e:ll){  
 put(e.key,e.val);  
 }  
 }  
  
 }  
}  
  
  
public class Main {  
 public static void main(String[] args) {  
 HashMap<String,Integer> map=new HashMap<>();  
 map.put("india",120);  
 map.put("china",200);  
 map.put("nepal",15);  
 map.put("Srilnak",22);  
// map.remove("nepal");  
// System.out.println(map.get("nepal"));  
// System.out.print(map.keySet());  
  
 ArrayList<String> list=map.keySet();  
 for(int i=0;i<list.size();i++){  
 System.*out*.println(list.get(i)+" "+map.get(list.get(i)));  
 }  
  
 }  
 }

}