**Assignment 5**

**1** Assignmnet 5 :

Do all same all program for linkedlist , hashset, and for hashmap which you did in arraylist.

You have to make a 3 class file to execute all the method with respective linkedlist , hashset, and hashmap.

Problem statement will be same but method will be used as per the linkedlist , hashset, and hashmap.

1. **Hashmap:**

import java.util.\*;

class hashmap

{

public static void main(String args[])

{

HashMap<String,Integer> map = new HashMap<String,Integer>();

map.put("java",1);

map.put("c",20);

map.put("c++",30);

map.put("ada",40);

HashMap<String,Integer> map2=new HashMap<>();

map2.put("c#",50);

map2.put("python",60);

System.out.println("Is the key '5' present? " + map.containsKey(5));

System.out.println("Is the key '5' present? " + map.containsKey(10));

System.out.println("Is the value 'World' present? " + map.containsValue("c"));

System.out.println("Is the map empty? " + map.isEmpty());

System.out.println("The set is: " + map.entrySet());

System.out.println("The Value is: " + map.get(10));

System.out.println("The set is: " + map.keySet());

System.out.println("The size of the map is " + map.size());

map.put("J2SE",15);

HashMap<String,Integer> new\_hash\_map = new HashMap<String,Integer>();

new\_hash\_map.putAll(map);

System.out.println("The cloned map look like this: " + map.clone());

}

}

**Output:**

**Is the key '5' present? false**

**Is the key '5' present? false**

**Is the value 'World' present? false**

**Is the map empty? false**

**The set is: [c++=30, java=1, c=20, ada=40]**

**The Value is: null**

**The set is: [c++, java, c, ada]**

**The size of the map is 4**

**The cloned map look like this: {J2SE=15, c++=30, java=1, c=20, ada=40}**

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1. **Hashset :**

import java.util.\*;

class hashset

{

public static void main(String args[])

{

HashSet<String> arr=new HashSet<String>();

arr.add("collection framework in java:");

arr.add("Arraylist");

arr.add("Vector");

arr.add("List");

HashSet<String> arr2=new HashSet<String>();

arr2.add("Linked List");

arr2.add("Vector");

System.out.println("\nDoes set 1 contains set 2: "+ arr.containsAll(arr2));

System.out.println("Elements in hashset: " +arr);

System.out.println();

boolean value = arr.equals(arr2);

// print the value

System.out.println("Are both set equal: "+ value);

boolean flag = arr.contains("List");

if (flag == true) {

System.out.println("hashset contains element list");

System.out.println();

}else{

System.out.println("hashset doesn't contains element list");

System.out.println();

}

arr.remove(2);

System.out.println("hashset After Removing Element at index 2= " +arr);

System.out.println();

HashSet cloned\_set = new HashSet();

// Cloning the set using clone() method

cloned\_set = (HashSet)arr.clone();

// Displaying the new Set after Cloning;

System.out.println("The new set: " + cloned\_set);

System.out.println("Size of hashset is :" + arr.size());

System.out.println();

Iterator value2 = arr.iterator();

// Displaying the values after iterating through the set

System.out.println("The iterator values are: ");

while (value2.hasNext()) {

System.out.println(value2.next());

}

Object[] object = arr.toArray();

for(int i=0;i<object.length;i++){

System.out.println("Value at index "+i+" of Array coverted from hashset= "+object[i]);

System.out.println();

}

System.out.println("HashCode value: " + arr.hashCode());

boolean flag1 = arr.isEmpty();

if(flag1==true){

System.out.println("ArrayList is Empty");

}

else{

System.out.println("ArrayList is not Empty");

}

System.out.println();

arr.clear();

System.out.println("empty arraylist after using clear method: " +arr);

}

}

**Output:**

**Does set 1 contains set 2: false**

**Elements in hashset: [collection framework in java:, Arraylist, List, Vector]**

**Are both set equal: false**

**hashset contains element list**

**hashset After Removing Element at index 2= [collection framework in java:, Arraylist, List, Vector]**

**The new set: [Arraylist, List, collection framework in java:, Vector]**

**Size of hashset is :4**

**The iterator values are:**

**collection framework in java:**

**Arraylist**

**List**

**Vector**

**Value at index 0 of Array coverted from hashset= collection framework in java:**

**Value at index 1 of Array coverted from hashset= Arraylist**

**Value at index 2 of Array coverted from hashset= List**

**Value at index 3 of Array coverted from hashset= Vector**

**HashCode value: -39563079**

**ArrayList is not Empty**

**empty arraylist after using clear method: []**

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1. **LinkedList :**

import java.util.\*;

class linkedlist

{

public static void main(String args[])

{

LinkedList<String> l1 = new LinkedList<String>();

l1.add("A");

l1.add("B");

l1.addLast("C");

l1.addFirst("D");

l1.add(2, "E");

System.out.println(l1);

l1.remove(3);

l1.removeFirst();

l1.set(1,"F");

for (String str : l1)

System.out.print(str + " ");

LinkedList sec\_list = new LinkedList();

sec\_list = (LinkedList) l1.clone();

System.out.println("Second LinkedList is:" + sec\_list);

System.out.println("The Object that is replaced is: " + l1.set(2, "G"));

System.out.println("The element is: " + l1.get(2));

System.out.println("Does the List contains 'A': " + l1.contains("A"));

l1.push("Z");

System.out.println(l1);

String s = l1.pop();

System.out.println(s);

Collection<String> collect = new ArrayList<String>();

collect.add("A");

collect.add("Computer");

l1.addAll(collect);

System.out.println("The first element is: " + l1.getFirst());

System.out.println("The last element is: " + l1.getLast());

System.out.println("The first element is: " + l1.removeFirst());

System.out.println("The last element is: " + l1.removeLast());

l1.addLast("Last");

l1.add("L");

l1.add("M");

l1.add("N");

System.out.println("The list is as follows:");

ListIterator list\_Iter = l1.listIterator(2);

while(list\_Iter.hasNext()){

System.out.println(list\_Iter.next());

}

System.out.println("The first occurrence of F is at index: " + l1.indexOf("F"));

l1.clear();

System.out.println("List after clearing all elements: " + l1);

}

}

**Output:**

**[D, A, E, B, C]**

**A F C Second LinkedList is:[A, F, C]**

**The Object that is replaced is: C**

**The element is: G**

**Does the List contains 'A': true**

**[Z, A, F, G]**

**Z**

**The first element is: A**

**The last element is: Computer**

**The first element is: A**

**The last element is: Computer**

**The list is as follows:**

**A**

**Last**

**L**

**M**

**N**

**The first occurrence of F is at index: 0**

**List after clearing all elements: []**

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