Java Programming Practical Exam

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Problem 12: Write a Java program
i.   To create a hash set
ii.   Iterate through all elements in a hash list and display it
iii. To test a hash set is empty or not
iv.   Compare two sets and retain elements which are same on both sets
v.   Remove all of the elements from a hash set

CODE: -

```java
import java.util.*;

public class Hashset {
    public static void main(String[] args){
        // Creating First new HashSet
        HashSet<Integer> set1 = new HashSet<Integer>();

        // Add data to HashSet
        set1.add(10);
        set1.add(20);

        // Duplicates not allowed in HashSet, so avoid by HashMap
        set1.add(10);
        set1.add(50);

        // Create a iterator of type integer to iterate HashSet
        Iterator<Integer> it = set1.iterator();

        System.out.println("Iterate HashSet using iterator : ");

        // Iterate HashSet with the help of hasNext() and next() method
        while (it.hasNext()) {
            // Print HashSet values
            System.out.print(it.next()+" ");
        }

        //Printing First HashSet
        System.out.println("\n\nFirst HashSet: "+set1);

        //Check and print if the HashSet is empty or not
        System.out.println("\nIs First HashSet empty? = "+set1.isEmpty());

        // Creating Second new HashSet
        HashSet<Integer> set2 = new HashSet<Integer>();

        // Add data to HashMap
        set2.add(10);
        set2.add(30);
        set2.add(40);
        set2.add(50);

        //Printing Second HashSet
        System.out.println("\nSecond HashSet: "+set2);
```

```java
        //Retain all the same elements of set1 and set2 in set2
        set2.retainAll(set1);

        //Printing set2 retaining only same elements as set1
        System.out.println("Second HashSet(after using retainA() with set1): "+set2);

        //Using clear method to remove all elements from the HashSet2
        set2.clear();

        //Check and print if the HashSet is empty or not
        System.out.println("\nIs First HashSet empty? = "+set1.isEmpty());
        System.out.println("\nIs Second HashSet empty? = "+set2.isEmpty());
    }
}
    }
}
```
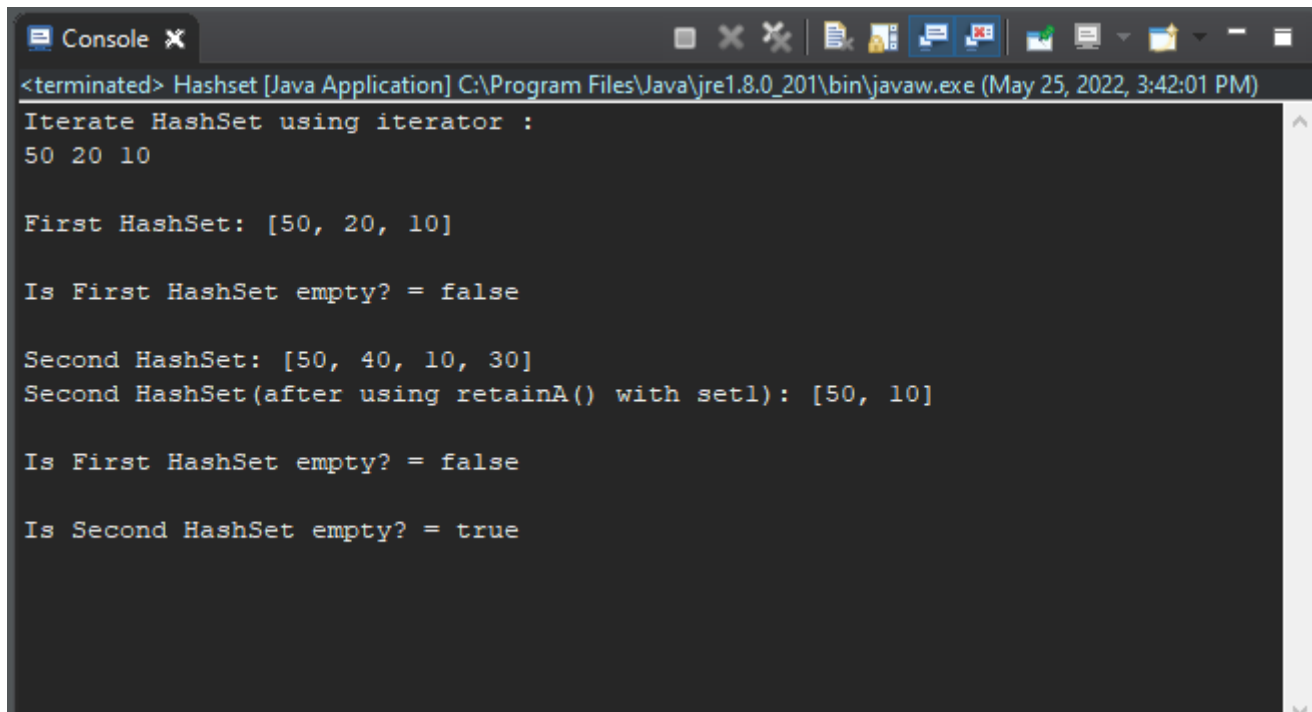
OUTPUT: -


```
Console X
<terminated> Hashset [Java Application] C:\Program Files\Java\jre1.8.0_201\bin\javaw.exe (May 25, 2022, 3:42:01 PM)
Iterate HashSet using iterator :
50 20 10

First HashSet: [50, 20, 10]

Is First HashSet empty? = false

Second HashSet: [50, 40, 10, 30]
Second HashSet(after using retainA() with set1): [50, 10]

Is First HashSet empty? = false

Is Second HashSet empty? = true
```