

# **JAVA ASSIGNMENT-7**

## **Collections in Java**

1. Write a Java program to append the specified element to the end of a hash set.

**CODE:-**

```
import java.util.HashSet;

public class AppendToHashSet {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        int elementToAdd = 42;

        try {
            hashSet.add(elementToAdd);
            System.out.println("Element added to HashSet: " +
elementToAdd);
        } catch (Exception e) {
            System.out.println("An error occurred: " + e.getMessage());
        }
    }
}
```

**OUTPUT:-**

Element added to HashSet: 42

2. Write a Java program to iterate through all elements in a hash list.

**CODE:-**

```
import java.util.HashSet;

public class IterateHashSet {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(1);
        hashSet.add(2);
        hashSet.add(3);

        for (Integer element : hashSet) {
```

```

        System.out.println(element);
    }
}

```

**OUTPUT:-**

```

1
2
3

```

3. Write a Java program to get the number of elements in a hash set.

**CODE:-**

```

import java.util.HashSet;

public class CountHashSetElements {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(1);
        hashSet.add(2);
        hashSet.add(3);

        int count = hashSet.size();
        System.out.println("Number of elements in HashSet: " + count);
    }
}

```

**OUTPUT:-**

Number of elements in HashSet: 3

4. Write a Java program to empty an hash set.

**CODE:-**

```

import java.util.HashSet;

public class EmptyHashSet {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(1);
        hashSet.add(2);
        hashSet.clear();
        System.out.println("HashSet is now empty: " + hashSet.isEmpty());
    }
}

```

```
    }  
}
```

**OUTPUT:-**

HashSet is now empty: true

5. Write a Java program to test a hash set is empty or not.

**CODE:-**

```
import java.util.HashSet;  
  
public class TestHashSetEmpty {  
    public static void main(String[] args) {  
        HashSet<Integer> hashSet = new HashSet<>();  
  
        // Check if the HashSet is empty  
        boolean isEmpty = hashSet.isEmpty();  
  
        if (isEmpty) {  
            System.out.println("HashSet is empty.");  
        } else {  
            System.out.println("HashSet is not empty.");  
        }  
    }  
}
```

**OUTPUT:-**

HashSet is empty.

6. Write a Java program to clone a hash set to another hash set.

**CODE:-**

```
import java.util.HashSet;  
  
public class CloneHashSet {  
    public static void main(String[] args) {  
        HashSet<Integer> originalHashSet = new HashSet<>();  
        originalHashSet.add(1);  
        originalHashSet.add(2);  
  
        HashSet<Integer> clonedHashSet = new  
HashSet<>(originalHashSet);
```

```

        System.out.println("Original HashSet: " + originalHashSet);
        System.out.println("Cloned HashSet: " + clonedHashSet);
    }
}

```

**OUTPUT:-**

Original HashSet: [1, 2]  
Cloned HashSet: [1, 2]

7. Write a Java program to convert a hash set to an array.

**CODE:-**

```

import java.util.HashSet;

public class HashSetToArray {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(1);
        hashSet.add(2);

        Integer[] array = hashSet.toArray(new Integer[0]);

        for (Integer element : array) {
            System.out.println(element);
        }
    }
}

```

**OUTPUT:-**

1  
2

8. Write a Java program to convert a hash set to a tree set.

**CODE:-**

```

import java.util.HashSet;
import java.util.TreeSet;

public class HashSetToTreeSet {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(3);
        hashSet.add(1);
    }
}

```

```

        hashSet.add(2);

        TreeSet<Integer> treeSet = new TreeSet<>(hashSet);

        System.out.println("TreeSet: " + treeSet);
    }
}

```

**OUTPUT:-**

TreeSet: [1, 2, 3]

9. Write a Java program to convert a hash set to a List/ArrayList.

**CODE:-**

```

import java.util.ArrayList;
import java.util.HashSet;

public class HashSetToArrayList {
    public static void main(String[] args) {
        HashSet<Integer> hashSet = new HashSet<>();
        hashSet.add(1);
        hashSet.add(2);
        hashSet.add(3);

        ArrayList<Integer> arrayList = new ArrayList<>(hashSet);

        for (Integer element : arrayList) {
            System.out.println(element);
        }
    }
}

```

**OUTPUT:-**

1  
2  
3

10. Write a Java program to compare two hash set.

**CODE:-**

```

import java.util.HashSet;

```

```
public class CompareHashSets {  
    public static void main(String[] args) {  
        HashSet<Integer> set1 = new HashSet<>();  
        set1.add(1);  
        set1.add(2);  
        set1.add(3);  
  
        HashSet<Integer> set2 = new HashSet<>();  
        set2.add(2);  
        set2.add(3);  
        set2.add(4);  
  
        boolean equal = set1.equals(set2);  
  
        System.out.println("Are the HashSets equal? " + equal);  
    }  
}
```

**OUTPUT:-**

Are the HashSets equal? false