Assignment -08 Java Collections

Instructions:

a.Share your complete screen
b.Record your screen for live lab
c.Upload your work in the drive

Q1. Write a program to traverse (or iterate) ArrayList.

```
import java.util.ArrayList;
import java.util.Iterator;

public class TraverseArrayList {
   public static void main(String[] args) {
      // Creating an ArrayList
      ArrayList<String> arrayList = new ArrayList<>();

      // Adding elements to the ArrayList
      arrayList.add("JS");
      arrayList.add("Python");
      arrayList.add("C++");

      // Traversing or iterating ArrayList using Iterator
      System.out.println("Traversing ArrayList using Iterator:");
      Iterator<String> iterator = arrayList.iterator();
      while (iterator.hasNext()) {
         System.out.println(iterator.next());
      }
   }
}
```

Output:

```
Traversing ArrayList using Iterator:
JS
Python
C
```

Q2 Write a program to convert List to Array.

```
public class ListToArray {
    public static void main(String[] args) {
        // Creating a List
        List<String> list = new ArrayList<>();
        list.add("Apple");
        list.add("Banana");
        list.add("Orange");

        // Converting List to Array
        String[] array = list.toArray(new String[0]);

        // Displaying the Array
        System.out.println("Array from List:");
        for (String fruit : array) {
            System.out.println(fruit);
        }
    }
}
```

Output:

```
Array from List:
Apple
Banana
Orange
```

Q3.Write a program to traverse(or iterate) HashSet?

Hint:You can traverse the HashSet using an iterator or without using an iterator as well.

```
import java.util.HashSet;
import java.util.Iterator;

public class TraverseHashSet {
    public static void main(String[] args) {
        // Creating a HashSet
        HashSet<String> hashSet = new HashSet<>();

        // Adding elements to the HashSet
        hashSet.add("Red");
        hashSet.add("Green");
        hashSet.add("Blue");

        // Traversing or iterating HashSet using Iterator
        System.out.println("Traversing HashSet using Iterator:");
        Iterator<String> iterator = hashSet.iterator();
        while (iterator.hasNext()) {
            System.out.println(iterator.next());
        }
    }
}
```

Output:

Traversing HashSet using Iterator:

Red

Blue

Green

Q4 Given an element, write a program to check if element(value) exists in ArrayList?

```
import java.util.ArrayList;

public class CheckElementInArrayList {
   public static void main(String[] args) {
      // Creating an ArrayList
      ArrayList<String> arrayList = new ArrayList<>();

      // Adding elements to the ArrayList
      arrayList.add("Java");
      arrayList.add("Python");
      arrayList.add("C++");

      // Given element to check
      String elementToCheck = "Java";

      // Checking if element exists in ArrayList
      boolean exists = arrayList.contains(elementToCheck);

      // Displaying the result
      if (exists) {
         System.out.println(elementToCheck + " exists in the ArrayList.");
      } else {
         System.out.println(elementToCheck + " does not exist in the ArrayList.");
      }
   }
}
```

Output:

Java exists in the ArrayList.

Q5 Given an element, write a program to check if an element exists in HashSet?

Hint:You can check if element(value) exists in HashSet using the contains() method.

```
import java.util.HashSet;

public class CheckElementInHashSet {
    public static void main(String[] args) {
        // Creating a HashSet
        HashSet<String> hashSet = new HashSet<>();

        // Adding elements to the HashSet
        hashSet.add("Red");
        hashSet.add("Green");
        hashSet.add("Blue");

        // Given element to check
        String elementToCheck = "Green";

        // Checking if element exists in HashSet using contains() method
        boolean exists = hashSet.contains(elementToCheck);

        // Displaying the result
        if (exists) {
            System.out.println(elementToCheck + " exists in the HashSet.");
        } else {
            System.out.println(elementToCheck + " does not exist in the HashSet.");
        }
    }
}
```

Output:

Green exists in the HashSet.