

OOP Lab: Experiment 10

Submitted By: Aryan Saxena

Batch: B1

SAP Id: 500082431

Roll No.: R214220274

Exercise 1: Write a program for the following

- Read all elements from ArrayList by using Iterator.
- Create duplicate object of an ArrayList instance.
- Reverse ArrayList content.

Code:

```
import java.util.*;

public class ArrayListIterator
{
    public static void main(String[] args)
    {
        ArrayList<Integer> arr = new ArrayList<Integer>();
        arr.add(10);
        arr.add(20);
        arr.add(30);
        Iterator<Integer> Itr = arr.iterator();
        while(Itr.hasNext())
        {
            System.out.println(Itr.next());
        }
        System.out.println(arr);
        ArrayList<Integer> SecondArray = (ArrayList<Integer>) arr.clone();
        System.out.println(SecondArray);
        Collections.reverse(arr);
        System.out.println(arr);
    }
}
```

Output:

```
Note: ArrayListIterator.java uses unchecked or unsafe operations.
```

```
Note: Recompile with -Xlint:unchecked for details.
```

```
10
```

```
20
```

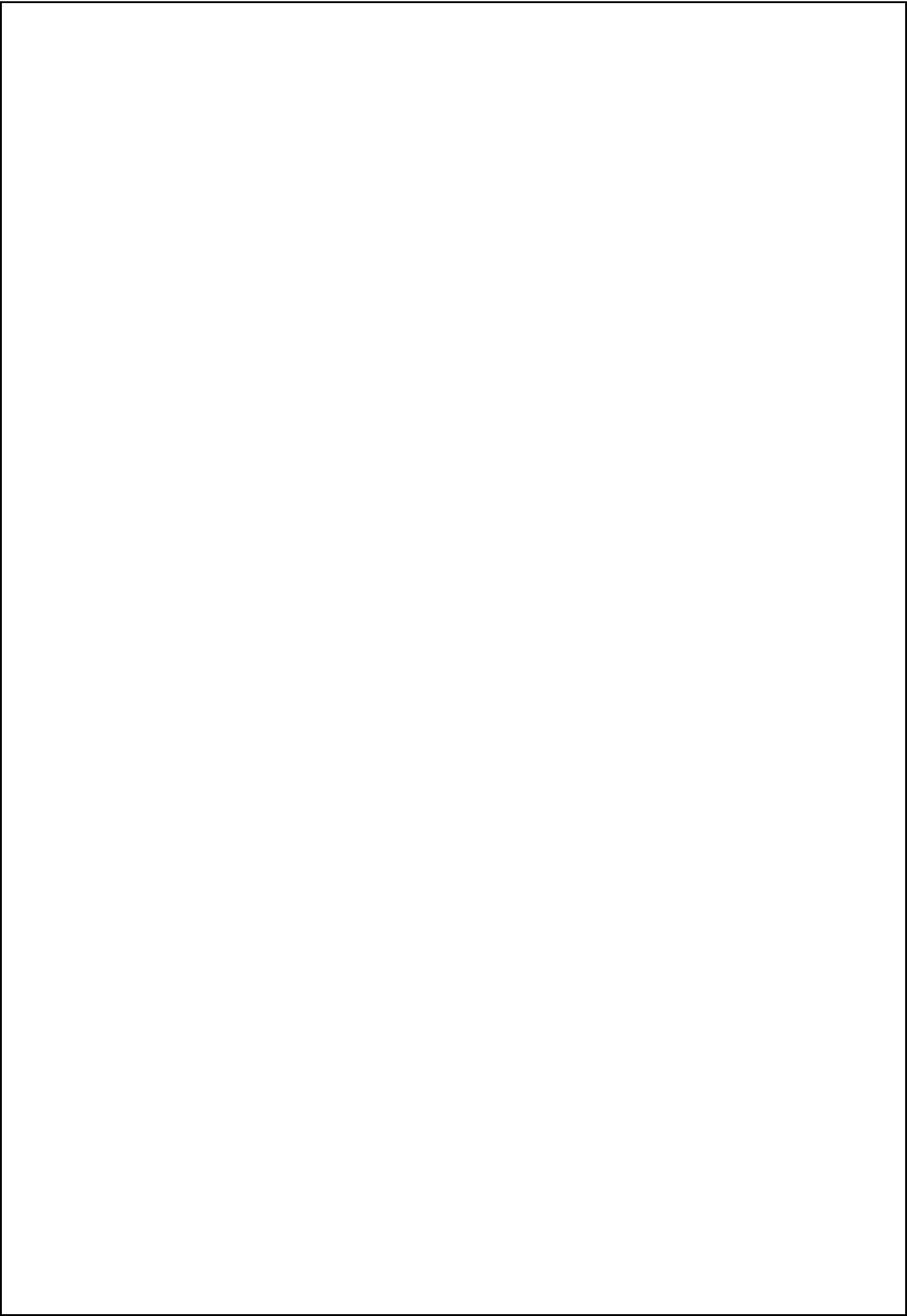
```
30
```

```
[10, 20, 30]
```

```
[10, 20, 30]
```

```
[30, 20, 10]
```

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 10> █
```



Exercise 2: Write a program for the following HashMap

- find whether specified key exists or not.
- find whether specified value exists or not
- get all keys from the given HashMap
- get all key-value pair as Entry objects

Code:

```
import java.util.*;
public class HashHash
{
    public static void main(String[] args)
    {
        Scanner SC1 = new Scanner(System.in);
        HashMap<Integer, String> map = new HashMap<Integer, String>();
        map.put(99, "Ninty Nine");
        map.put(100, "Hundred");
        map.put(200, "Two Hundred");
        System.out.println(map);

        System.out.print("Enter Key: ");
        int k = SC1.nextInt();
        if(map.containsKey(k))
            System.out.println("Key present!");
        else
            System.out.println("Key not present!");
        System.out.print("Enter Value: ");
        String v = SC1.next();
        if(map.containsValue(v))
            System.out.println("Value Present!");
        else
            System.out.println("Value not present!");
        System.out.println("\nAll Keys-");
        for(Integer m: map.keySet())
        {
            System.out.println(m);
        }
        System.out.println("\nKey-Value Pairs-");
        for(Map.Entry<Integer, String> m: map.entrySet())
        {
            System.out.println(m.getKey() + ": " +m.getValue());
        }
    }
}
```

Output:

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP> cd "f:\UPES\Academics
if ($?) { javac HashHash.java } ; if ($?) { java HashHash }
{99=Ninty Nine, 100=Hundred, 200=Two Hundred}
Enter Key: 99
Key present!
Enter Value: Hundred
Value Present!

All Keys-
99
100
200

Key-Value Pairs-
99: Ninty Nine
100: Hundred
200: Two Hundred
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 10> |
```

Exercise 3:

Code:

```
import java.util.*;
public class HashSetSet
{
    public static void main(String[] args)
    {
        int UserInput;
        HashSet<Integer> OriginalSet = new HashSet<Integer>();
        HashSet<Integer> CopySet = new HashSet<Integer>();
        OriginalSet.add(15);
        OriginalSet.add(30);
        OriginalSet.add(45);
        CopySet.add(60);
        CopySet.add(75);
        OriginalSet.addAll(CopySet);
        System.out.println("Set: "+OriginalSet+"\n");
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Object: ");
        UserInput= sc.nextInt();
        Integer i = Integer.valueOf(UserInput);
        if(OriginalSet.contains(i))
            System.out.println("Present!");
        else
            System.out.println("Not Present");
        OriginalSet.clear();

        OriginalSet.clear();
        System.out.println("All Entries deleted! ");
        System.out.println("\nSet: "+OriginalSet);
    }
}
```

Output:

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP> cd "f:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 10"
if ($?) { javac HashSetSet.java } ; if ($?) { java HashSetSet }
Set: [75, 60, 45, 30, 15]

Enter Object:
45
Present!
All Entries deleted!

Set: []
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 10>
```