

Ques1: Write a program for the following

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

Source Code

```
package Lab11;
import java.util.ArrayList;
import java.util.Iterator;
import java.util.*;

public class ArrayList1 {
    public static void main(String args[]){
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        ArrayList<String> list=new ArrayList<String>();
        list.add("A");
        list.add("B");
        list.add("C");
        list.add("D");
        // Traversing list through Iterator
        Iterator itr = list.iterator();
        while(itr.hasNext()){
            System.out.print(itr.next()+" ");
        }
        System.out.println();
        // List clone
        ArrayList<String> arrayListClone = (ArrayList<String>)
list.clone();
        System.out.println("Clone List: "+arrayListClone);
        Collections.reverse(arrayListClone);
        ArrayList<String> array = new ArrayList<String>();
        // Reverse List
        for(int i = list.size() - 1 ; i >= 0 ; i--) {
            array.add(list.get(i));
        }
        System.out.println(array);
        // Traversing Reverse list through Iterator
        System.out.print("Elements after reversing: ");
        Iterator itr1 = arrayListClone.iterator();
        while(itr1.hasNext()){
            System.out.print(itr1.next()+" ");
        }
    }
}
```

Name: Hitendra Sisodia
Sap id: 500091910

Lab 11

Output

```
Console x
<terminated> ArrayList1 (1) [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 28, 2022, 10:48:11 AM – 10:48:11 AM) [pid: 2672]
Hitendra Sisodia
500091910
A B C D
Clone List: [A, B, C, D]
[D, C, B, A]
Elements after reversing: D C B A
```

Ques2: 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

Source Code

```
package Lab11;

import java.util.*;
import java.util.Map.Entry;
public class HashMap1 {
    public static void main(String[] args) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        HashMap<Integer, String> hash_map = new HashMap<Integer,
String>();
        // Mapping string values to int keys
        hash_map.put(10, "A");
        hash_map.put(15, "B");
        hash_map.put(20, "C");
        hash_map.put(25, "D");
        hash_map.put(30, "E");
        // Displaying the HashMap
        System.out.println("Mappings are: " + hash_map);

        // Checking for the key_element '20'
        System.out.println("Is the key '20' present: " +
hash_map.containsKey(20));
        // Checking for the value present or not
        System.out.println("Is the value 'F' present: " +
hash_map.containsValue("F"));
        // get keys from given hashmap
        System.out.print("keys are: ");
        for(Integer key: hash_map.keySet()){
            System.out.print(key+" ");
        }
        System.out.println();
        // get all keyvalue pair as entry object
        for(Entry<Integer, String> temp: hash_map.entrySet()) {
            System.out.println(temp.getKey() + " "+ temp.getValue());
        }
    }
}
```

Name: Hitendra Sisodia
Sap id: 500091910

Lab 11

Output

```
Console x
<terminated> HashMap1 [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 28, 2022, 11:05:04 AM – 11:05:04 AM) [pid: 13128]
Hitendra Sisodia
500091910
Mappings are: {20=C, 25=D, 10=A, 30=E, 15=B}
Is the key '20' present: true
Is the value 'F' present: false
keys are: 20 25 10 30 15
20 C
25 D
10 A
30 E
15 B
<
```

Ques3: Write a program for the following HashSet

- copy another collection object to HashSet object.
- delete all entries at one call from HashSet
- search user defined objects from HashSet

Source Code

```
package Lab11;
import java.util.*;
public class HashSet1 {
    public static void main(String args[]) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        ArrayList<String> list=new ArrayList<String>();
        list.add("A");
        list.add("B");
        list.add("C");
        list.add("A");
        HashSet<String> set = new HashSet(list);
        System.out.println("An initial Set of elements: "+set);
        if(set.contains("g")) {
            System.out.println("Yes Set contains 'F' String");
        }
        else {
            System.out.println("No Set do not contains 'F'
String");
        }
        set.clear();
        System.out.println("After clear(): "+set);
    }
}
```

Output

```
Console x
<terminated> HashSet1 [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 28, 2022, 11:12:44 AM – 11:12:45 AM) [pid: 6924]
Hitendra Sisodia
500091910
An initial Set of elements: [A, B, C]
No Set do not contains 'F' String
After clear(): []
```