

6. Writing a program in Java to verify implementations of maps

```
import java.util.HashMap;
import java.util.Map;

public class MapDemo {
    public static void main(String[] args) {
        // Creating a HashMap
        Map<String, Integer> map = new HashMap<>();

        // Adding some key-value pairs to the map
        map.put("john", 25);
        map.put("mary", 30);
        map.put("Charlie", 35);

        // Printing the map
        System.out.println("Map: " + map);

        // Checking if the map contains a particular key
        String key = "mary";
        if (map.containsKey(key)) {
            System.out.println(key + " is present with value " + map.get(key));
        } else {
            System.out.println(key + " is not present in the map.");
        }

        // Removing a key-value pair from the map
        String removeKey = "Charlie";
        int removedValue = map.remove(removeKey);
        System.out.println(removeKey + " was removed with value " + removedValue);
    }
}
```

```

// Printing the map again
System.out.println("Map after removal: " + map);

// Iterating over the keys of the map
System.out.println("Keys:");
for (String k : map.keySet()) {
    System.out.println(k);
}

// Iterating over the values of the map
System.out.println("Values:");
for (int v : map.values()) {
    System.out.println(v);
}

// Iterating over the entries of the map
System.out.println("Entries:");
for (Map.Entry<String, Integer> entry : map.entrySet()) {
    System.out.println(entry.getKey() + " - " + entry.getValue());
}
}

```

OUTPUT:

Map: {Charlie=35, mary=30, john=25}mary is present with value 30Charlie was removed with value 35Map after removal: {mary=30, john=25}Keys:maryjohnValues:3025Entries:mary - 30john - 25