Worksheet-3

Student Name: Arpit Anand
UID: 23BCS12710
Branch: BE-CSE
Section/Group: KRG-3(A)
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Subject Name: DAA **Subject Code: 23CSH-301**

1. Aim:
Evaluate the complexity of the developed program to find frequency of elements in a given array

2. Objective:
To develop a Java program that counts and displays the frequency of each element in a given array using a Hash Map.

3. Requirements (Hardware/Software):
Online Java compiler.

4. Algorithm:
1. Start
2. Create an array with some numbers.
3. Create an empty map to store frequency.
4. Loop through each element in the array
   a. If the number is already in the map, increase count.
   b. If it's not in the map, add it with count= 1
5. Get all the keys (unique numbers) from the map
6. Loop through the keys and print the frequencies.
7. End.

5. Procedure:

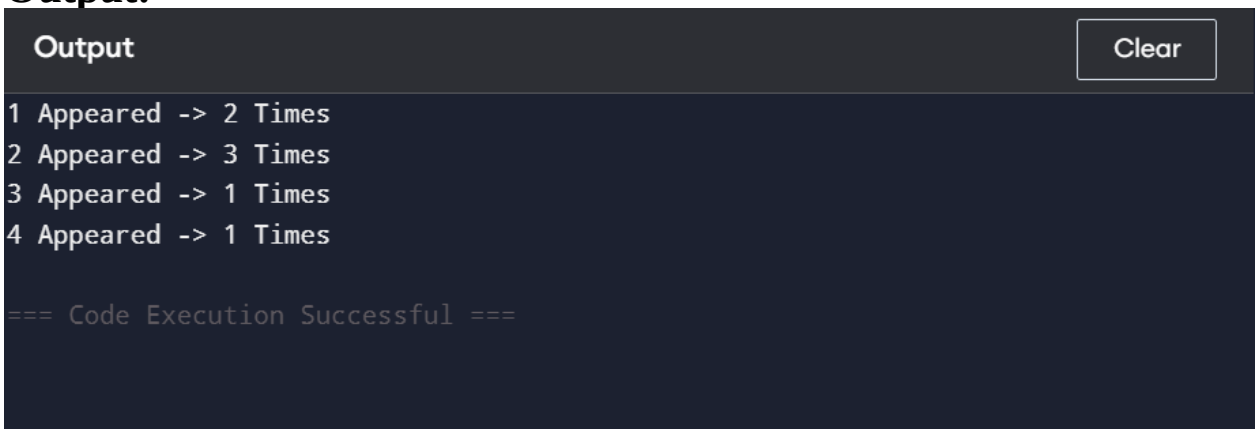
```
Import java.util.*;
Public class frequency Counter{
   Public static void main(String[] args){
```

```
        int[]arr ={1,2,2,3,1,4,2};
        HashMap<Integer,Integer>map=new
    HashMap<>();
        for(inti=0;i<arr.length;i++){ int key
            = arr[i];
            if (map.containsKey(key))
                map.put(key,map.get(key)+1);
            else
                map.put(key,1);
        }
        Object[]keys=map.keySet().toArray(); for
        (int i = 0; i < keys.length; i++) {
            int key = (int) keys[i];
            System.out.println(key+"Appeared->"+
    map.get(key)+"Times");
        }
      }
    }
```

Time Complexity: O(n)

Space complexity: O(n)

Output:



Learning Outcomes:

1. Understood Hash Map Usage.
2. Deeper understanding of Looping with Arrays.
3. Learned about Frequency Counting Logic.