Experiment 1.3

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1. Aim/Overview of the practical: Code to find frequency of elements in a given array in O(n) time complexity..

2. Task to be done/ Which logistics used:

Find Frequency of elements using unordered map.

3. Algorithm/Flowchart (For programming based labs)**:**

Step 1: Take a vector of size n with some values
Step 2: Declare an unordered_map freq
Step 3: Iterate over vector and for every key increment its value
Step 4: Print all the keys and their frequency in map Step
5: Finish

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
int a[] = {2, 4, 5, 1, 3, 3, 3, 5, 4, 3, 5, 4, 7};
    unordered_map<int, int> freq;
for (int i = 0; i < 13; i++)
 freq[a[i]]++;
    for (auto it : freq)
    {
```

4. Steps for experiment/practical/Code:

```
        cout << "Frequency of " << it.first << ": " << it.second <<
endl;
    }



return 0;
}
```

5. Observations/Discussions/ Complexity Analysis:

Time Complexity:- O(n)

6. Result/Output/Writing Summary:

```
Frequency of 7: 1
Frequency of 3: 4
Frequency of 1: 1
Frequency of 5: 3
Frequency of 4: 3
Frequency of 2: 1
```

Learning outcomes (What I have learnt):

1. To find frequency of all the numbers present in an array