DS Conceptual Session-02 Week-6

1. https://www.hackerrank.com/challenges/cpp-sets/problem

```cpp
#include<bits/stdc++.h>
using namespace std;

int main()
{
    int t;
    cin >> t;
    set<int> s;
    while(t--){
        int a, b;
        cin >> a >> b;
        if(a == 1){
            s.insert(b);
        }
        else if(a == 2){
            s.erase(b);
        }
        else if(a == 3){
            if(s.count(b)){
                cout << "Yes" << endl;
            }
            else{
                cout << "No" << endl;
            }
        }
    }
    return 0;
}
```

2. https://www.hackerrank.com/challenges/cpp-maps/problem

```cpp
#include<bits/stdc++.h>
using namespace std;

int main()
{
    int t;
    cin >> t;
    map<string, int> mp;
    while(t--){
        int a;
        string b;
        cin >> a >> b;
        if(a == 1){
            int marks;
            cin >> marks;
            // if (mp.count(b))
            // {
                mp[b] +=marks;
            // }
            // else
            // {
            //     mp[b] = marks;
            // }
        }
        else if(a == 2){
            mp[b] = 0;
        }
        else{
            cout << mp[b] << endl;
        }
    }
    return 0;
}
```

3. Frequency related :

```cpp
#include <bits/stdc++.h>
using namespace std;

int main()
{
    int n;
    cin >> n;
    map<int, int> mp;
    for (int i = 0; i < n; i++)
    {
        int a;
        cin >> a;
        mp[a]++;
    }
    // cout << mp.size() << endl;
    for (auto i : mp)
    {
        cout << i.first << endl;
        // if(i.second > 1){
        //     cout << "duplicate value ache";
        //     break;
        // }
    }
    return 0;
}
```

4. Special Problem Solution

```cpp
#include <bits/stdc++.h>
using namespace std;
class Student
{
public:
    string name;
```

```cpp
    int roll;
    int marks;
    Student(string name, int roll, int marks)
    {
        this->name = name;
        this->roll = roll;
        this->marks = marks;
    }
};

// 1. jodi duijon student er marks same hoy sekhetre
apni roll jar smaller setar uport base kore sort korben
// 2. marks jar beshi tar upor base kore sort korben.

class cmp
{
public:
    bool operator()(Student a, Student b)
    {
        if (a.marks == b.marks)
        {
            return a.roll > b.roll; // smaller value se
sobar age thakbe
        }
        return a.marks < b.marks; // bigger value sobar
age thakbe
    }
};

 int main()
{
    int n;
    cin >> n;
    priority_queue<Student, vector<Student>, cmp> pq;
```

```cpp
    for (int i = 0; i < n; i++)
    {
        string name;
        int roll, marks;
        cin >> name >> roll >> marks;
        pq.push(Student(name, roll, marks));
    }
    // while (!pq.empty())
    // {
    //     // cout << pq.top().name << " " <<
pq.top().roll << " " << pq.top().marks << endl;
    //     pq.pop();
    // }
    int q;
    cin >> q;
    // 10^9
    while(q--){
        char a;
        cin >> a;
        if(a == 'A'){
            cout << pq.top().name << endl; // o(1)
        }
        else{
            pq.pop();
        }
    }
    return 0;
}

// map<string, int>
// map<string, pair<int,int>>
// map -- automatic count  , lexicographical order
automatic vabe
```

```
// priority_queue -- pair niye kaj korte, count korte
hoy, lex

// 2
// this is my rahim karim fahim rahim rahim karim karim
-->kahim
// my friends taj taj rokon rokon rokon --> rokon
```