

## Sets – Solution to sheet of exercises:

### Ex1:

```
#include <bits/stdc++.h>
using namespace std;
int main () {
    int n;
    cin>>n;
    set<char>s;
    while (n--) {
        char c;
        cin>>c;
        s.insert(c);
    }
    cout<<s.size()<<endl;
    return 0;
}
```

### Ex2:

```
#include <bits/stdc++.h>
using namespace std;
int main () {
    int tc;
    cin>>tc;
    while (tc--) {
        int n;
        cin>>n;
        set<int>s;
        while (n--) {
            int x;
            cin>>x;
            s.insert(x);
        }
        int y,k;
        cin>>y>>k;
        if (s.size()%k==0) cout<<s.size()/k*y<<endl;
        else cout<<s.size()/k*y+y<<endl;
    }
    return 0;
}
```

Ex3:

```
#include <bits/stdc++.h>
using namespace std;
int main () {
    int n;
    cin>>n;
    set<int>s;
    while (n-->0) {
        int x;
        cin>>x;
        s.insert(-x);
    }
    int k;
    cin>>k;
    set<int>::iterator itr=s.upper_bound(-k);
    if (itr==s.end()) cout<<"saddy birthday"<<endl;
    else cout<<"happy birthday " <<-*itr<<endl;
    return 0;
}
```