**Assignment - 44 A Job Ready Bootcamp in C++, DSA and IOT**

**set**

1. Find the total number of elements of the set container.

Sol – 1.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int,greater<int>>s;

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

s.insert(50);

s.insert(10);

set<int,greater<int>>::iterator it;

for(it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

return 0;

}

1. Using inbuilt function and insert an element to the set container.

Sol – 2.

Same as 1

1. Erase an element from a set.

Sol – 3.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int>s;

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

s.insert(50);

s.insert(10);

set<int>::iterator it,it1,it2;

it1=s.begin();

it2=s.end();

it2--;

it2--;

s.erase(it1,it2);

for(it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

return 0;

}

1. Checks whether the set is empty or not.if it is empty insert 5 elements in the set

Sol – 4.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int>s;

if(s.empty())

{

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

cout<<"Elements in set are : ";

for(auto it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

}

else

{

cout<<"Set is not empty"<<endl;

}

return 0;

}

1. Make a c++ program to insert unique element in set

Sol – 5.

Same as 1

1. How to find the lower bound of any desired element from the set.

Sol – 6.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int>s;

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

cout<<"Elements in set are : ";

for(auto it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

cout<<endl;

int n;

cout<<"Enter a no. to check lower bound : ";

cin>>n;

auto it=s.lower\_bound(n);

it--;

if(it!=s.end())

{

cout<<"The lower bound is "<<\*it<<endl;

}

else

cout<<"This is smallest element in the set"<<endl;

return 0;

}

1. how to find the upper bound of any desired element from the set.

Sol – 7.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int>s;

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

cout<<"Elements in set are : ";

for(auto it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

cout<<endl;

int n;

cout<<"Enter a no. to check lower bound : ";

cin>>n;

auto it=s.upper\_bound(n);

if(it!=s.end())

{

cout<<"The upper bound is "<<\*it<<endl;

}

else

cout<<"This is greatest element in the set"<<endl;

return 0;

}

8. Create a function to search the element in the set.

Sol – 8.

#include<bits/stdc++.h>

using namespace std;

int main()

{

set<int>s;

s.insert(40);

s.insert(30);

s.insert(60);

s.insert(20);

s.insert(50);

cout<<"Elements in set are : ";

for(auto it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

cout<<endl;

int n;

cout<<"Enter an element to found : ";

cin>>n;

if(s.find(n)!=s.end())

{

cout<<"Element found!"<<endl;

}

else

cout<<"Element not found!"<<endl;

return 0;

}

9. Converting String into Set in C++ STL

Sol – 9.

#include<bits/stdc++.h>

using namespace std;

int main()

{

string name="Gurudev Singla";

set<char>s(begin(name),end(name));

cout<<"Elements in set using constructor are : ";

for(auto it=s.begin();it!=s.end();it++)

{

cout<<\*it<<" ";

}

cout<<endl;

set<char>sname;

for(auto i:name)

sname.insert(i);

cout<<"Elements in set using insert function are : ";

for(auto i:sname)

cout<<i<<" ";

cout<<endl;

return 0;

}

10. You have a set of integer s, which originally contains all the numbers from 1 to n.

Unfortunately, due to some error, one of the numbers in s got duplicated to another

number in the set, which results in repetition of one number and loss of another

number.You are given an integer array nums representing the data status of this set

after the error.Find the number that occurs twice and the number that is missing and

return them in the form of an array.

Sol – 10.

#include<bits/stdc++.h>

using namespace std;

int main()

{

int a[]={1,3,2,4,4,6};

int count=1,n=sizeof(a)/sizeof(a[0]);

sort(a,a+n);

for(int i=0;i<n;i++)

{

if(count!=a[i])

{

cout<<"Missing no. : "<<count<<" and rep no : "<<a[i]<<endl;

break;

}

count++;

}

return 0;

}