**Assignment - 36 A Job Ready Bootcamp in C++, DSA and IOT**

**STL: array**

1. Using STL Array gets and sets a reference to an element based on a given index.

Sol – 1.

#include<iostream>

#include<array>

using namespace std;

int main()

{

array<int,5> values{10,20,30,40,50};

for(int i=0;i<6;i++)

cout<<"Element at index "<<i<<" : "<<values[i]<<endl;

values[0]=100;

values[4]=500;

cout<<"All elements : "<<endl;

for(int i : values)

{

cout<<i<<" ";

}

cout<<endl;

return 0;

}

1. Using STL Array returns the total number of elements in the array.

Sol – 2.

#include<iostream>

#include<array>

using namespace std;

int main()

{

int c=0;

array<int,5> a{10,20,30,40,50};

for(auto i=a.begin();i!=a.end();i++)

{

c++;

}

cout<<"The length of given array : "<<c<<endl;

return 0;

}

1. Find the first and last element using the STL array.

Sol – 3.

#include<iostream>

#include<array>

using namespace std;

int main()

{

int c=0;

array<int,5> a{10,20,30,40,50};

cout<<"First element : "<<a[0]<<endl;

cout<<"Last element : "<<a[a.size()-1]<<endl;

cout<<"First : "<<a.front()<<" Last : "<<a.back();

return 0;

}

1. Returns the element from the given index using the STL array.

Sol – 4.

#include<iostream>

using namespace std;

#include<array>

#include<tuple>

int main()

{

int c=0;

array<int,5> a{10,20,30,40,50};

cout<<"First element : "<<a.at(0)<<endl;

cout<<"Third element : "<<a[2]<<endl;

cout<<"Fifth element : "<<get<4>(a)<<endl;

return 0;

}

5. C++ STL program to demonstrate example of array::rbegin() and array::rend()

Functions

Sol – 5.

#include<iostream>

using namespace std;

#include<array>

int main()

{

int c=0;

array<int,5> a{10,20,30,40,50};

cout<<"Elements : "<<endl;

for(auto itr=a.rbegin();itr!=a.rend();itr++)

{

cout<<\*itr<<" ";

}

cout<<endl;

for(auto itr=a.rend()-1;itr!=a.rbegin()-1;itr--)

{

cout<<\*itr<<" ";

}

return 0;

}

1. Using STL to check whether an array is empty or not.

Sol – 6.

#include<iostream>

using namespace std;

#include<array>

int main()

{

array<int,0>a1{};

array<int,5>a2{};

array<int,5>a3{10,20,30};

array<int,5>a4{10,20,30,40,50};

cout<<"a1 is empty : "<<a1.empty()<<endl;

cout<<"a2 is empty : "<<a2.empty()<<endl;

cout<<"a3 is empty : "<<a3.empty()<<endl;

cout<<"a4 is empty : "<<a4.empty()<<endl;

return 0;

}

1. Sort an array in ascending order using sort() function in C++ STL

Sol – 7.

#include<iostream>

using namespace std;

#include<algorithm>

int main()

{

int a[]={10,40,20,50,30};

int size=sizeof(a)/sizeof(int);

sort(a,a+size);

cout<<"Sorted elements are : "<<endl;

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

cout<<a[i]<<" ";

return 0;

}

1. Sort an array in descending order using sort() function in C++ STL

Sol – 8.

#include<iostream>

using namespace std;

#include<array>

#include<algorithm>

int main()

{

array<int,5>a{10,40,20,50,30};

sort(a.begin(),a.end(),greater<>());

cout<<"Sorted elements are : "<<endl;

for(int i=0;i<5;i++)

cout<<a[i]<<" ";

return 0;

}

9. C++ program to find the integers which come an odd number of times in an array

using C++ STL.

Sol – 9.

#include<iostream>

using namespace std;

#include<array>

int OddInteger(array<int,5>a)

{

int result=0;

for(int i=0;i<a.size();i++)

{

result=result^a[i];

}

return result;

}

int main()

{

array<int,5>a{50,80,20,50,80};

cout<<"Result : "<<OddInteger(a)<<endl;

return 0;

}

10. Given an integer array nums , return an array answer such that answer[i] is equal to

the product of all the elements of nums except nums[i] .

Sol – 10. CP2