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/*This programme shows how algortihms and functors are used*/


#include<iostream>
#include <algorithm> //To enable the code of using alogrithms
#include <functional> //To enable the code of using functors
#include <vector>
using namespace std;


void main() {



        vector<int> vec{ 0, 5, 2, 4, 3, 6, 5 };

        vector<int> a{ 1, 2 , 8};

        vector<int> b{ 4 , 3 , 6};

        vector<int> c{ 2,0,9 };

        sort(vec.begin(), vec.end()); // Algortihm to sorts elements

        for (unsigned int i = 0; i <= 6; i++) cout << vec[i] << endl;

        auto p = lower_bound(vec.begin(), vec.end(), 5); //Algorithm returns the location of the
first “5” in the vector
        cout <<"the first 5 in the vector is the element number "<< p - vec.begin() << endl;


    // Say we want to do c = a + b, how to do that?
        transform(a.begin(), a.end(), b.begin(), c.begin(), plus<int>()); // "transform" is an
algortihm while "plus<int>()" is a functor


        sort(b.begin(), b.end(), greater<int>()); // Alternative way to sort vectors (using
functors)


        vector <bool> d{ 1,1,0,1,0,1 };

        vector <bool> e{ 0,1,0,0,1,0 };

        vector <bool> f{0, 1, 0, 0, 1, 0};

        // Say we want to do c = d && e, how to do it?
        transform(d.begin(), d.end(), e.begin(), f.begin(), logical_and<bool>()); //
"logical_and<bool>()" is a functor



        system("pause");

};
```