/// In the name of ALLAH

#include<bits/stdc++.h>

using namespace std;

int main ()

{

vector<int> v;

v.push\_back( 1 );

v.push\_back( 2 );

v.push\_back( 3 );

cout << v[0] << " " << v[1] << " " << v[2] << endl; /// 1 2 3

v[1] = 3;

cout << v[0] << " " << v[1] << " " << v[2] << endl; /// 1 3 3

cout << v.size() << endl; /// 3

for ( int i = 0; i < v.size(); i++ ) cout << v[i] << " "; /// 1 3 3

cout << endl;

vector <int> v1 = { 2, 3, 4 };

cout << v1.size() << endl; /// 3

for ( int i = 0; i < v1.size(); i++ ) cout << v1[i] << " "; /// 2 3 4

cout << endl;

v.clear();

cout << v.size() << endl; /// 0

cout << v.empty() << endl; /// 1

cout << v1.empty() << endl; /// 0

v1.resize(5);

cout << v1.size() << endl; /// 5

for ( int i = 0; i < v1.size(); i++ ) cout << v1[i] << " "; /// 2 3 4 0 0

cout << endl;

vector<int> a(5);

cout << a.size() << endl; /// 5

for ( int i = 0; i < a.size(); i++ ) cout << a[i] << " "; /// 0 0 0 0 0

cout << endl;

a = v1;

for ( auto u : a ) cout << u << " "; /// 2 3 4 0 0

cout << endl;

vector<int>::iterator it;

for ( it = a.begin(); it != a.end(); it++ ) cout << \*it << " "; /// 2 3 4 0 0

cout << endl;

a = { 3, 4, 5, 1, 2 };

sort ( a.begin(), a.end() ); ///O(n\*log2(n))

for ( auto u : a ) cout << u << " "; /// 1 2 3 4 5

cout << endl;

sort ( a.rbegin(), a.rend() );

for ( auto u : a ) cout << u << " "; /// 5 4 3 2 1

cout << endl;

a = { 3, 4, 5, 1, 2 };

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

for ( auto u : a ) cout << u << " "; /// 5 4 3 2 1

cout << endl;

a = { 3, 4, 5, 1, 2 };

reverse( a.begin(), a.end() );

for ( auto u : a ) cout << u << " "; /// 2 1 5 4 3

cout << endl;

cout << a.back() << endl; /// 3

a.pop\_back(); /// O(1) complexity.

cout << a.back() << endl; /// 4

a = { 3, 4, 5, 1, 2 };

cout << \*a.begin() << endl; /// 3

a.erase( a.begin() ); /// O(n) complexity.

for ( auto u : a ) cout << u << " "; /// 4 5 1 2

cout << endl;

a.erase( a.begin()+2 );

for ( auto u : a ) cout << u << " "; /// 4 5 2

cout << endl;

a = { 1, 1, 2, 2, 2, 3, 3 };

unique( a.begin(), a.end() );

for ( auto u : a ) cout << u << " "; /// 1 2 3 2 2 3 3

cout << endl;

a = { 1, 1, 2, 2, 2, 3, 3 };

int n = unique( a.begin(), a.end() ) - a.begin();

cout << n << endl; /// 3

for ( int i = 0; i < n; i++ ) cout << a[i] << " "; /// 1 2 3

cout << endl;

a = { 2, 3, 1, 5 };

cout << max\_element( a.begin(), a.end() ) - a.begin() << endl; /// 3

cout << \*max\_element( a.begin(), a.end() ) << endl; /// 5

return 0;

}