**Chuong 2**

**//Bai 1**

#include <iostream>

#include <cmath>

using namespace std;

void Inputarr(int \*a, int n){

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

cin >> \*(a+i);

}

}

void Outputarr (int \*a, int &n){

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

cout << \*(a+i)<< " ";

}

cout << endl;

}

//Cau a

void deletetext (int \*a, int &n, int k){

if (k>= 0&&k<n){

for (int i=k; i<n-1; i++){

\*(a+i)= \*(a+i+1);

} n--;

} else {

cout << "Vi tri khong hop le\n";

}

}

//Cau b

void Inserttext (int \*a, int &n, int k){

cout << "Nhap vi tri can chen: ";

cin >> k;

k=k-1;

int x;

cout << "Nhap ki tu can chen ";

cin >> x;

if (k<0 || k>n){

cout << "Loi ";

return;

}

for (int i=n-1; i>= k; i--)

\*(a+i+1)= \*(a+i);

\*(a+k)=x;

n++;

}

Cau c

bool CheckPrime (int num) {

if (num< 2)

return false;

for (int i=2 ; i<= sqrt(num); i++){

if (num%i==0){

return false;

}

}

return true;

}

void DeletePrimes(int\* a, int &n) {

int i=0;

while (i< n){

if (CheckPrime( \*(a+i))){

deletetext(a, n, i);

}

else {

i++;

}

}

}

int main () {

int n, k;

cout << "Nhap so luong ki tu ";

cin >> n;

int \*a= new int[n];

cout << "Nhap mang ";

Inputarr (a, n);

cout << "Chuoi truoc khi xoa ";

Outputarr (a, n);

// Cau a

cout << "k= ";

cin >> k;

k=k-1;

deletetext (a, n, k);

cout << "Chuoi sau khi xoa: ";

Outputarr (a, n);

//Cau b

cout << "Chuoi sau khi chen: ";

Inserttext (a, n, k);

Outputarr (a, n);

//Cau c

cout <<"Chuoi sau khi xoa so nguyen to: ";

DeletePrimes (a, n);

Outputarr (a, n);

delete [] a;

return 0;

}

**//Bai 2**

#include <bits/stdc++.h>

using namespace std;

struct Information{

long long mssv;

string HovaTen;

float dmcb;

float dmcn1;

float dmcn2;

};

//Cau a

void Input(Information \*infor, int n) {

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

cout << "Nhap thong tin sinh vien thu " << i+1 << endl;

cout << "Nhap ma so sinh vien: ";

cin >> (infor + i)->mssv;

cin.ignore();

cout << "Nhap Ho va Ten: ";

getline(cin, (infor + i)->HovaTen);

cout << "Nhap diem mon co ban: ";

cin >> (infor + i)->dmcb;

cout << "Nhap diem mon chuyen nganh 1: ";

cin >> (infor + i)->dmcn1;

cout << "Nhap diem mon chuyen nganh 2: ";

cin >> (infor + i)->dmcn2;

cout << "\n";

}

cout << endl;

}

//Cau b

void Output (Information\* &infor, int n){

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

cout << "Thong tin sinh vien thu " << i+1 << endl;

cout << "Ma so sinh vien: " << (infor + i)->mssv << "\n";

cout << "Ho va Ten: " << (infor+i)->HovaTen << "\n";

cout << "Diem mon co ban: " << (infor + i)->dmcb << "\n";

cout << "Diem mon chuyen nganh 1: " << (infor + i)->dmcn1 << "\n";

cout << "Diem mon chuyen nganh 2: " << (infor + i)->dmcn2 << "\n";

cout << "Diem tong 3 mon: " << (infor+i)->dmcb+ (infor+i)->dmcn1+ (infor+i)->dmcn2 <<"\n";

cout << "\n";

}

cout << endl;

}

//Cau c

void SearchSv(Information\* infor, int n){

bool found= false;

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

if ((infor + i)->dmcb< 5.00|| (infor + i)->dmcn1 <5.00|| (infor + i)->dmcn2 <5.00){

found= true;

cout << "Ma so sinh vien: " << (infor + i)->mssv << "\n";

cout << "Ho va Ten: " << (infor+i)->HovaTen << "\n";

cout << "Diem mon co ban: " << (infor + i)->dmcb << "\n";

cout << "Diem mon chuyen nganh 1: " << (infor + i)->dmcn1 << "\n";

cout << "Diem mon chuyen nganh 2: " << (infor + i)->dmcn2 << "\n";

cout << "Diem tong 3 mon: " << (infor+i)->dmcb+ (infor+i)->dmcn1+ (infor+i)->dmcn2 <<"\n";

cout << "\n";

}

if (!found){

cout << "Khong tim thay!\n";

}

}

}

//Cau d

bool Checkmax(Information\* infor, int n, float& diemmax, int& vtmax){ //vtmax: vi tri cua sinh vien co diem lon nhat, diemmax: tong diem lon nhat

diemmax= 0.00;

vtmax=-1;

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

//tongnow: tong diem hien tai

int tong= (infor+ i)->dmcb+ (infor+ i)->dmcn1+ (infor+ i)->dmcn2;

if (tong> diemmax){

diemmax= tong;

vtmax= i;

}

}

return diemmax> 0.00;

}

void SearchMax (Information \*infor, int n){

float diemmax;

int vtmax;

if(Checkmax(infor, n, diemmax, vtmax)){

cout << "Thi sinh co diem ba mon lon nhat la"<< endl << endl;

cout << "Ma so sinh vien: " << (infor + vtmax)->mssv << "\n";

cout << "Ho va Ten: " << (infor+ vtmax)->HovaTen << "\n";

cout << "Diem mon co ban: " << (infor + vtmax)->dmcb << "\n";

cout << "Diem mon chuyen nganh 1: " << (infor + vtmax)->dmcn1 << "\n";

cout << "Diem mon chuyen nganh 2: " << (infor + vtmax)->dmcn2 << "\n";

cout << "Diem tong 3 mon: " << (infor+vtmax)->dmcb+ (infor+vtmax)->dmcn1+ (infor+ vtmax)->dmcn2 <<"\n";

cout << "\n";

} else {

cout << "Not found\n" << endl;

}

}

//Cau e

void swap (int \*a, int \*b){

int \*tmp;

\*tmp=\*a;

\*a=\*b;

\*b=\*tmp;

}

void sapxep(Information\* &infor, int n) {

for (int i = 0; i < n - 1; i++) {

bool swapped = false;

for (int j = 0; j < n - i - 1; j++) {

if ((infor + j)->dmcn1 + (infor + j)->dmcn2 > (infor + j + 1)->dmcn1 + (infor + j + 1)->dmcn2) {

swap(\*(infor + j), \*(infor + j + 1));

swapped = true;

}

}

if (swapped == false) {

break;

}

}

}

int main(){

Information\* infor;

int n;

cout << "Nhap so luong sinh vien: ";

cin >> n;

infor = new Information[n];

//Cau a

Input(infor, n);

cout << "\n===============================\n";

//Cau b

Output(infor, n);

cout << "\n===============================\n";

//Cau c

cout << "Sinh vien duoi trung binh 1 mon\n ";

SearchSv(infor, n);

cout << "\n===============================\n";

//Cau d

SearchMax (infor, n);

cout << "\n===============================\n";

//Cau e

int l, r;

sapxep(infor, n);

cout << "Chuoi sau khi sap xep\n ";

Output (infor, n);

delete[] infor;

return 0;

}

**// Bai 3**

#include <iostream>

#include <cmath>

using namespace std;

struct DonThuc {

float heSo;

int soMu;

};

void nhapDaThuc(DonThuc\* daThuc, int n) {

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

cout << "Nhap da thuc thu " << i+1 << endl;

cout << "Nhap he so cua don thuc thu " << i + 1 << ": ";

cin >> daThuc[i].heSo;

cout << "Nhap so mu cua don thuc thu " << i + 1 << ": ";

cin >> daThuc[i].soMu;

cout << endl;

}

}

void tinhGiaTriDaThuc(const DonThuc\* daThuc, float x, int n) {

float giaTri=0;

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

giaTri = daThuc[i].heSo \* pow(x, daThuc[i].soMu)+ daThuc[i].heSo\*x; //giaTri= heso\* x^2 + heso\* x

cout << "Gia tri cua da thuc " << giaTri << endl;

}

}

int main() {

int n;

cout << "Nhap so don thuc: ";

cin >> n;

DonThuc\* daThuc = new DonThuc[n];

nhapDaThuc(daThuc, n);

float x;

cout << "Nhap gia tri x: ";

cin >> x;

tinhGiaTriDaThuc(daThuc, x, n);

delete[] daThuc;

return 0;

}

**Chuong 3**

**Bai 1**

#include <bits/stdc++.h>

using namespace std;

bool islower(char c) {

return c >= 'a' && c <= 'z';

}

bool isupper(char c) {

return c >= 'A' && c <= 'Z';

}

char tolower(char c) {

if (isupper(c)) {

return c + 32;

}

return c;

}

char toupper(char c) {

if (islower(c)) {

return c - 32;

}

return c;

}

//Câu a

void demKiTu(char a[]) {

int cnthoa = 0;

int cntthuong = 0;

for (int i = 0; a[i] != '\0'; i++) {

if (isupper(a[i])) {

cnthoa++; //Tang so luong chu in hoa

} else if (islower(a[i])){

cntthuong++; // Tang so luong chu thuong

}

}

cout << "So ki tu la chu hoa: " << cnthoa << endl;

cout << "So ki tu la chu thuong: " << cntthuong << endl;

}

//Câu b

void ascii (char a[]){

for (int i=0; a[i] != '\0'; i++){

cout << "Ma ascii cua " << a[i] << " la " << int (a[i]) /\* ma ascii cua phan tu a[i] \*/ << endl;

}

}

//Câu c

void chuyenkitu(char a[]) {

for (int i = 0; a[i] != '\0'; i++) {

//Chuyen ki tu dau tien thanh in hoa

if (i == 0 || a[i - 1] == ' ') {

a[i] = toupper(a[i]);

} else {

// Chuyen ki tu con lai thanh chu thuong

a[i] = tolower(a[i]);

}

}

cout << "Chuoi sau khi chuyen doi: ";

cout << a;

}

//Cau d

int demsoluongtu (char a[]){

int cnt=1; // dem so luonh tu

for (int i=0; a[i] != '\0'; i++){

if (a[i]== ' '){

cnt++;

}

}

return cnt++;

}

//Cau e

void dslkt (char\* a) {

int sokytu = 0; // dung de dem so ki tu trong tu

bool trongtu = false; // xac nhan van con trong tu hay khong

for (int i = 0; a[i] != '\0'; ++i) {

if (a[i] != ' ') {

++sokytu;

trongtu = true;

} else if (trongtu) {

cout << "So ky tu trong tu la: " << sokytu << endl;

sokytu = 0;

trongtu = false;

}

}

if (trongtu) { // in ra so ki tu cua tu sau khoang trong

cout << "So ky tu trong tu la: " << sokytu << endl;

}

}

//Cau f

void timtu (char a[]) {

int n = strlen(a);

// gan bang -1 de danh dau chua tim thay ki tu khoang trong

// khong gan bang 0 vi 0 cung la vi tri hop le trong chuoi gan co the se bi loi

int dau\_cach\_dau = -1;

int dau\_cach\_cuoi = -1;

// tim vi tri dau cach dau tien va dau cach cuoi cung

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

if (a[i] == ' ' && dau\_cach\_dau == -1) {

dau\_cach\_dau = i;

}

if (a[i] == ' ') {

dau\_cach\_cuoi = i;

}

}

if (dau\_cach\_dau != -1 && dau\_cach\_cuoi != -1) {

// in tu dau tien

cout << "tu dau tien trong chuoi la: ";

for (int i = 0; i < dau\_cach\_dau; ++i) {

cout << a[i];

}

cout << "\n";

// in tu cuoi cung

cout << "tu cuoi cung trong chuoi la: ";

for (int i = dau\_cach\_cuoi + 1; i < n; ++i) {

cout << a[i];

}

}

cout << endl;

}

int main (){

char a[100];

int n;

cout << "Nhap chuoi: ";

cin.getline(a, 100);

n = strlen(a);

//Câu a

demKiTu(a);

cout << "\n======================\n";

//Câu b

ascii(a);

cout << "\n======================\n";

//Câu c

chuyenkitu(a);

cout << "\n======================\n";

//Cau d

int p= demsoluongtu(a);

cout << "So luong tu cua chuoi la: " << p;

cout << "\n======================\n";

//Cau e

dslkt (a);

cout << "\n======================\n";

//Cau f

timtu (a);

return 0;

}

**//Bai 2**

#include <iostream>

#include <string>

using namespace std;

void nhapchuois(string &s) {

getline(cin, s);

}

void nhapchuoix(string &x) {

getline(cin, x);

}

// Cau a

int kiemtra(string s, string x) {

//chay toi s.length - x.length de neu so ki tu chuoi s it hon x thi ko xet

for (int i = 0; i <= s.length() - x.length(); ++i) {

int j;

for (j = 0; j < x.length(); ++j) {

if (s[i + j] != x[j]) {

break;

}

}

if (j == x.length()) {

return i; // Trả về vị trí đầu tiên của chuỗi x trong chuỗi s

}

}

return -1; // Không tìm thấy chuỗi x trong chuỗi s

}

void In (string s, string x){

int result = kiemtra(s, x);

if (result != -1) { // tim thay chuoi

cout << "Chuoi x xuat hien tai vi tri: " << result << endl;

} else {

cout << "Khong tim thay chuoi x trong chuoi s." << endl;

}

}

//Cau b

int dem (string s, string x){

int cnt=0;

for (int i = 0; i <= s.length() - x.length(); ++i) {

int j;

for (j = 0; j < x.length(); ++j) {

if (s[i + j] != x[j]) {

break;

}

}

if (j == x.length()) {

cnt++;

}

}

return cnt++;

}

void Incnt (string s, string x){

int p= dem(s, x);

cout << "So lan xuat hien cua chuoi x la: " << p << endl;

}

int main() {

string s, x;

cout<<"Nhap chuoi s\n";

nhapchuois(s);

cout<<"Nhap chuoi x\n";

nhapchuoix(x);

//Cau a

kiemtra (s, x);

In (s, x);

//Cau b

dem(s, x);

Incnt(s, x);

return 0;

}

**//Bai 3**

#include <iostream>

using namespace std;

void nhapchuois(string &s) {

getline(cin, s);

}

//Cau a

void xoa(string s, int p, int l){

if (p> s.length()|| p< 0)

cout << "Vi tri xoa khong hop le!\n";

else

for (int i=p; i< s.length(); i++){

s[i]=s[i+l]; // gan phan tu thu i+l cho phan tu thu i

}

cout << "Chuoi sau khi xoa\n" << s << endl;

}

//Cau b

void nhapchuois1 (string &s1) { //Nhap chuoi s1

getline(cin, s1);

}

void nhapchuois2 (string &s2) { // Nhap chuoi s2

getline(cin, s2);

}

void chen (string s1, string s2, int p){

// Tao chuoi tam de luu ket qua sau khi chen

string temp;

// Sao chep ki tu tu chuoi s1 den vi tri p

for (int i = 0; i < p; i++) {

temp.push\_back(s1[i]);

}

// Chen chuoi b vào chuoi tom

temp.append(s2);

// Sao chep các ky tu tu vi tri p của chuoi a vao chuoi tam

for (int i = p; i < s1.length(); i++) {

temp.push\_back(s1[i]);

}

// Gan ket qua tu chuoi tam vao chuoi a

s1 = temp;

cout << "Chuoi sau khi chen\n" << s1;

}

int main (){

string s;

cout << "Nhap chuoi s\n";

nhapchuois(s);

//Cau a

int p, l;

cout << "Nhap vi tri can xoa "; cin >> p;

cout << "Nhap so luong ki tu can xoa "; cin >> l;

xoa (s, p, l);

cout << "\n\n========================\n\n";

//Cau b

string s1, s2;

cout << "Nhap chuoi s1\n"; cin.ignore();

nhapchuois1(s1);

cout << "Nhap chuoi s2\n";

nhapchuois1(s2);

cout << "Nhap vi tri can chen "; cin >> p;

chen(s1, s2, p);

return 0;

}

**Bai 4**

#include <iostream>

using namespace std;

//kiem tra 2 chuoi giong nhau khong

bool kiemtra(string &s, int bd, string &x) {

int lenx = x.size();

for (int i = 0; i < lenx; i++) {

if (s[bd + i] != x[i]) {

return false;

}

}

return true;

}

// thay x bang y trong s

void thaythechuoi(string &s, string &x, string &y) {

int lens = s.size();

int lenx = x.size();

int leny = y.size();

// kiem tra x trong s

bool found = false;

for (int i = 0; i <= lens - lenx; i++) {

if (kiemtra(s, i, x)) {

found = true;

break;

}

}

if (!found) {

cout << "Khong tim thay chuoi x trong chuoi s." << endl;

return;

}

// thay x bang y

string kq = "";

for (int i = 0; i < lens;) {

if (kiemtra(s,i,x)) {

kq += y; //them y vao kq

i += lenx; // di chuyen i qua moi x

} else {

kq += s[i]; // them ki tu tu s vao kq

i++;

}

}

cout << "Chuoi sau khi thay the la: " << kq << endl;

}

int main() {

string s, x, y;

cout << "Nhap chuoi S:";

getline(cin, s);

cout << "Nhap chuoi x: ";

getline(cin, x);

cout << "Nhap chuoi y: ";

getline(cin, y);

thaythechuoi(s, x, y);

return 0;

}

**Bai 5**

#include <bits/stdc++.h>

using namespace std;

void check (const string s[], int n){

int cntw[7] = {0}; // dem so luong tu

for (int i=0; i< n; i++){ // lap qua tung tu va gan cho x

int cnt = s[i].length();// dem do dai tung tu

cntw[cnt-1]++;

}

//vi tri nao xuat hien nhieu nhat

int max = 0;

for (int i=0; i<7; i++){

if (cntw[i] > cntw[max]){

max = i;

}

}

cout<<"Tu loai " << max+1 << " xuat hien nhieu nhat\n";

cout <<"Xuat hien "<<cntw[max] << " lan";

}

int main(){

int n;

cout << "Nhap so luong tu "; cin>>n;

string s[n];

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

cin>>s[i];

}

check (s, n);

return 0;

}

**Bai 6**

// Bai 6

#include <iostream>

using namespace std;

struct Sinhvien {

int sobaodanh;

string ho;

string ten;

};

// Nhap thong tin sinh vien

void nhap (Sinhvien sinhvien[], int n){

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

cin.ignore();

cout << "Nhap thong tin sinh vien thu " << i+1 << endl;

cout << "Nhap so bao danh: ";

cin >> sinhvien[i].sobaodanh;

cin.ignore();

cout << "Nhap ho: ";

getline( cin, sinhvien[i].ho);

cout << "Nhap ten: ";

getline( cin, sinhvien[i].ten);

}

}

//Sap xep danh sach theo ten

void swap (int &a, int &b){

int tmp= a;

a=b;

b= tmp;

}

void sapxep (Sinhvien sinhvien[], int n)

{

int i, j;

for (i = 0; i < n - 1; i++)

for (j = 0; j < n - i - 1; j++)

if (sinhvien[j].ten > sinhvien[j + 1].ten)

swap(sinhvien[j], sinhvien[j + 1]);

}

//In danh sach sinh vien

void In (Sinhvien sinhvien[], int n){

cout << "\n=================================\n";

cout << "Danh sach sap xep theo ten:" << endl;

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

cout << "Sinh vien thu " << i + 1 << endl;

cout << "So bao danh: " << sinhvien[i].sobaodanh << endl;

cout << "Ho va ten: " << sinhvien[i].ho << " " << sinhvien[i].ten << endl;

}

}

int main() {

int n;

cout << "Nhap so luong sinh vien: ";

cin >> n;

Sinhvien \*ds = new Sinhvien[n];

nhap (ds, n);

sapxep (ds, n);

In (ds, n);

delete[] ds;

return 0;

}

**Bai 7**

#include <bits/stdc++.h>

using namespace std;

struct Danhsachnhanvien{

int manhanvien;

string hovaten;

int ngaysinh;

float luongcoban;

float thuong;

float thuclanh;

};

void nhap(Danhsachnhanvien nv[], int n){

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

cout << "Nhap thong tin nhan vien thu " << i+1 << endl;

cout << "Nhap ma nhan vien: ";

cin >> nv[i].manhanvien;

cin.ignore();

cout << "Nhap ho va ten: ";

getline(cin, nv[i].hovaten);

cout << "Nhap ngay sinh: ";

cin >> nv[i].ngaysinh;

cout << "Nhap luong co ban: ";

cin >> nv[i].luongcoban;

cout << "Nhap thuong: ";

cin >> nv[i].thuong;

//tinh luong thuc lanh

nv[i].thuclanh = nv[i].luongcoban + nv[i].thuong;

}

}

void xuatt(Danhsachnhanvien nv[], int n){

cout << "Thong tin nhan vien" << endl;

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

cout << "Ma nhan vien: ";

cout << nv[i].manhanvien << endl;

cout << "Ho va ten: ";

cout << nv[i].hovaten<< endl;

cout << "Ngay sinh: ";

cout << nv[i].ngaysinh<< endl;

cout << "Luong co ban: ";

cout << nv[i].luongcoban<< endl;

cout << "Thuong: ";

cout << nv[i].thuong<< endl;

//tinh luong thuc lanh

cout << "Thuc lanh: " << nv[i].thuclanh << endl;

cout << endl;

}

cout << endl;

}

void swap (int &a, int &b){

int tmp;

tmp=a;

a=b;

b=tmp;

}

void sapxep(Danhsachnhanvien nv[], int n)

{

int i, j;

bool swapped;

for (i = 0; i < n - 1; i++) {

swapped = false;

for (j = 0; j < n - i - 1; j++) {

if (nv[j].luongcoban < nv[j + 1].luongcoban) {

swap(nv[j+1].luongcoban, nv[j].luongcoban);

swapped = true;

}

}

if (swapped == false)

break;

}

}

void sapxep2(Danhsachnhanvien nv[], int n)

{

int i, j;

bool swapped;

for (i = 0; i < n - 1; i++) {

swapped = false;

for (j = 0; j < n - i - 1; j++) {

if (nv[j].manhanvien > nv[j + 1].manhanvien) {

swap(nv[j].manhanvien, nv[j+1].manhanvien);

swapped = true;

}

}

if (swapped == false)

break;

}

}

int main(){

int n;

cout << "Nhap so luong nhan vien: "; cin >>n;

Danhsachnhanvien nv[n];

nhap(nv, n);

cout << "\n\n=============\n\n";

xuatt(nv, n);

sapxep (nv, n);

cout << "\n\n== Sau khi sap xep theo luong ==\n\n";

xuatt (nv, n);

cout << "\n\n== Sau khi sap xep theo ma nhan vien==\n\n";

sapxep2 (nv, n);

xuatt (nv, n);

return 0;

}

**Bai 8**

#include <bits/stdc++.h>

using namespace std;

struct Thisinh {

string sobaodanh;

string hovaten;

float diemnn;

float diemcb;

float diemcs;

};

void nhap(Thisinh ts[], int n){

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

cout << "Nhap thong tin sinh vien thu " << i+1 << endl;

cin.ignore();

cout << "Nhap so bao danh: ";

getline (cin, ts[i].sobaodanh);

cout << "Nhap Ho va Ten: ";

getline (cin, ts[i].hovaten);

cout << "Nhap diem mon ngoai ngu: ";

cin >> ts[i].diemnn;

cout << "Nhap diem mon co ban: ";

cin >> ts[i].diemcb;

cout << "Nhap diem mon co so: ";

cin >> ts[i].diemcs;

cout << endl;

}

}

void xuat(Thisinh ts[], int n){

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

cout << "Thong tin sinh vien thu " << i+1 << endl;

cout << "So bao danh: ";

cout << ts[i].sobaodanh << endl;

cout << "Ho va Ten: ";

cout << ts[i].hovaten << endl;

cout << "Diem mon ngoai ngu ";

cout << ts[i].diemnn << endl;

cout << "Diem mon co ban: ";

cout << ts[i].diemcb << endl;

cout << "Diem mon co so: ";

cout << ts[i].diemcs << endl;

cout << endl;

}

}

//Cau a

void timkiem(Thisinh ts[], int n){

bool found= false; // kiem tra tim thay hay khong

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

if(ts[i].diemnn< 5|| ts[i].diemcb< 5|| ts[i].diemcs< 5){

found= true; // tim thay va in ra sinh vien da tim thay

cout << "Sinh vien thu " << i+1 << " co diem thi be hon 5"<< endl;

cout << "So bao danh: ";

cout << ts[i].sobaodanh << endl;

cout << "Ho va Ten: ";

cout << ts[i].hovaten << endl;

cout << "Diem mon ngoai ngu ";

cout << ts[i].diemnn << endl;

cout << "Diem mon co ban: ";

cout << ts[i].diemcb << endl;

cout << "Diem mon co so: ";

cout << ts[i].diemcs << endl;

cout << endl;

} if (!found){ // khong tim thay

cout << "Khong tim thay thi sinh!\n";

}

}

}

//Cau b

void dem(Thisinh ts[], int n){

int cnt=0; // tao bien dem

bool found= false;

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

if (ts[i].diemnn>= 5&& ts[i].diemcb>= 5&& ts[i].diemcs>= 5&& ts[i].diemcb+ ts[i].diemcs>= 12){

cnt++;

}

}

cout << "Co "<< cnt << " thi sinh thoa yeu cau\n";

}

// Cau c

// tim sinh vien co diemmax tai vtmax

bool Checkmax(Thisinh\* ts, int n, float& diemmax, int& vtmax){ //vtmax: vi tri cua sinh vien co diem lon nhat, diemmax: tong diem lon nhat

diemmax= 0.00;

vtmax=-1;

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

//tongnow: tong diem hien tai

int tongnow= ts[i].diemnn+ ts[i].diemcb+ ts[i].diemcs;

if (tongnow> diemmax){

diemmax= tongnow;

vtmax= i;

}

}

return diemmax> 0.00;

}

//In ra thi sinh co tong lon nhat

void Inmax (Thisinh\* ts, int n){

float diemmax;

int vtmax;

if(Checkmax(ts, n, diemmax, vtmax)){

cout << "Sinh vien thu co diem thi lon nhat la"<< endl << endl;

cout << "So bao danh: ";

cout << ts[vtmax].sobaodanh << endl;

cout << "Ho va Ten: ";

cout << ts[vtmax].hovaten << endl;

cout << "Diem mon ngoai ngu ";

cout << ts[vtmax].diemnn << endl;

cout << "Diem mon co ban: ";

cout << ts[vtmax].diemcb << endl;

cout << "Diem mon co so: ";

cout << ts[vtmax].diemcs << endl;

cout << endl;

} else {

cout << "No student found with valid scores!\n" << endl;

}

}

//Cau d

void timdiemx(Thisinh ts[], int n) {

string x;

cout << "Nhap so bao danh can tim: ";

cin.ignore();

getline(cin, x);

bool timed = false; // kiem tra tim thay khong

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

if (x == ts[i].sobaodanh) {

timed= true;

cout << "Diem thi cua sinh vien can tim la:" << endl;

cout << "Diem mon ngoai ngu: " << ts[i].diemnn << endl;

cout << "Diem mon co ban: " << ts[i].diemcb << endl;

cout << "Diem mon co so: " << ts[i].diemcs << endl;

break;

}

}

if (!timed) {

cout << "So bao danh khong ton tai!\n";

}

}

//Cau e

void swap (int &a, int &b){

int tmp;

tmp=a;

a=b;

b=tmp;

}

void sapxepsbd(Thisinh ts[], int n){

int i, j;

bool swapped;

for (i = 0; i < n - 1; i++) {

swapped = false;

for (j = 0; j < n - i - 1; j++) {

if (ts[j].sobaodanh > ts[j + 1].sobaodanh) {

swap(ts[j].sobaodanh, ts[j + 1].sobaodanh);

swapped = true;

}

}

if (swapped == false)

break;

}

}

int main(){

int n;

cout << "Nhap so luong thi sinh: "; cin >>n;

Thisinh \*ts= new Thisinh[n];

nhap(ts, n);

//Cau a;

cout << "\n\n============= Cau a ===============\n\n";

timkiem (ts, n);

//Cau b

cout << "\n\n============= Cau b ===============\n\n";

dem (ts, n);

//Cau c

cout << "\n\n============= Cau c ===============\n\n";

Inmax(ts, n);

//Cau d

cout << "\n\n============= Cau d ===============\n\n";

timdiemx (ts, n);

// Cau e

cout << "\n\n============= Cau e ===============\n\n";

sapxepsbd(ts, n);

xuat(ts, n);

delete[] ts;

return 0;

}