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| **TRƯỜNG ĐẠI HỌC VINH**  **VIỆN KỸ THUẬT VÀ CÔNG NGHỆ** |
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| **ĐỒ ÁN KẾT THÚC HỌC PHẦN**  **LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG** |
| **ĐỀ TÀI SỐ 2** |
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| **Nghệ An, tháng 6/2023** |

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| **TRƯỜNG ĐẠI HỌC VINH**  **VIỆN KỸ THUẬT VÀ CÔNG NGHỆ** |
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| **ĐỒ ÁN KẾT THÚC HỌC PHẦN**  **LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG** |
| **ĐỀ TÀI SỐ 2** |
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| Giảng viên hướng dẫn: Trần Thị Kim Oanh  Sinh viên thực hiện:   1. Nguyễn Đình Mạnh   Msv: 225748020110370 – Lớp: 63K6   1. Võ Tạ Đức   Msv: 225748020110115 – Lớp: 63K2   1. Vũ Hoàng Hải   Msv: 225748020110302 – Lớp: 63K5 |
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| **Nghệ An, tháng 6/2023** |
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# PHẦN I: NỘI DUNG BÁO CÁO

1. **Đề tài:**

Trong một Công ty sản xuất X, việc quản lý nhân sự được thực hiện như sau: tất cả nhân viên đều được quản lý Họ và tên, Mã nhân viên, Ngày sinh, Giới tính, Quê quán, Ngày vào công ty, Lương, Tổng số nhân viên trong Công ty. Đối tượng Nhân viên văn phòng được quản lý thêm Phòng, đối tượng Công nhân sản xuất được quản lý thêm Định mức số lượng sản phẩm. Đối với đối tượng Công nhân, nếu là nam ngày nghỉ quy định là ngày chủ nhật, còn đối với nữ có thể đăng ký 1 ngày nghỉ bất kỳ trong tuần. Ngoài ra, Công ty còn lưu thông tin nhân viên sau khi chuyển đi khỏi Công ty, bao gồm Họ và tên, Mã nhân viên, Ngày sinh, Giới tính, Ngày chuyển đi. Viết chương trình quản lý nhân sự cho Công ty X bao gồm các công việc cơ bản sau: Quản lý danh sách nhân viên; Hiển thị thông tin nhân viên; Thống kê số nhân viên nữ đăng ký nghỉ theo thứ trong tuần, thống kê nhân viên chuyển đi,…

1. **Yêu cầu**

+ Phân tích, thiết kế các lớp;  
+ Biểu diễn các lớp, sơ đồ kế thừa nếu có (có thể sử dụng công cụ UML);  
+ Xác định lớp cơ sở ảo, lớp cơ sở trừu tượng, hàm xử lý liên kết tương ứng bội (nếu có);  
+ Sử dụng ngôn ngữ C++ để viết chương trình;  
+ Dữ liệu vào/ ra sử dụng tệp văn bản;  
+ Báo cáo toàn bộ nội dung đã thực hiện bằng bản Word *(Font: Times New Roman; Cỡ chữ: 13; Lề trên: 2 cm; dưới: 2cm; trái 3 cm; phải 2 cm; dãn dòng Multiple 1.3; dãn đoạn: 3pt; Mục lục tự động; Có tiêu đề đầu trang hoặc cuối trang với nội dung: Đồ án kết thúc học phần Lập trình hướng đối tượng; Đánh số trang; Căn lề hợp lý; Sửa lỗi chính tả.)*

1. **Sơ đồ lớp**

**A screenshot of a computer

Description automatically generated with medium confidence**

1. **Cấu trúc các tệp dữ liệu vào/ ra**
   1. Cấu trúc tệp dữ liệu vào

* Tên file: Office\_worker\_input.txt
* Chức năng: Lưu thông tin nhân viên văn phòng
* Cấu trúc của file: Bao gồm các thông tin:
* Mã nhân viên;
* Họ và tên nhân viên;
* Ngày sinh;
* Giới tính;
* Quê quán;
* Ngày vào làm;
* Lương;
* Công việc văn phòng.
* Tên file: Production\_worker\_input.txt
* Chức năng: Lưu thông tin công nhân sản xuất
* Cấu trúc của file: Bao gồm các thông tin:
* Mã nhân viên;
* Họ và tên nhân viên;
* Ngày sinh;
* Giới tính;
* Quê quán;
* Ngày vào làm;
* Lương;
* Định mức sản phẩm;
* Ngày nghỉ.
* Ngày nghỉ. Tên file: Move\_worker\_input.txt
* Chức năng: Lưu thông tin nhân viên chuyển đi
* Cấu trúc của file: Bao gồm các thông tin:
* Mã nhân viên;
* Họ và tên nhân viên;
* Ngày sinh;
* Giới tính;
* Ngày chuyển đi.
  1. Cấu trúc tệp dữ liệu ra
* Tên file: File\_list\_worker.txt
* Chức năng: Lưu danh sách nhân viên của công ty
* Cấu trúc file: Bao gồm các danh sách:
* Danh sách nhân viên văn phòng;
* Danh sách công nhân sản xuất;
* Danh sách nhân viên chuyển đi.
* Tên file: File\_output\_statistical.txt
* Chức năng: Lưu danh sách nhân viên thống kê theo các tiêu chí
* Cấu trúc file: Bao gồm các danh sách:
* Danh sách nhân viên;
* Danh sách nhân viên nam;
* Danh sách nhân viên nữ;
* Danh sách nhân viên xếp theo ngày sinh;
* Danh sách nhân viên theo tiền lương;
* Danh sách nhân viên theo văn phòng;
* Danh sách nhân viên theo ngày làm công ty;
* Danh sách nhân viên theo ngày nghỉ;
* Danh sách ngày nghỉ công nhân nữ;
* Danh sách nhân viên chuyển đi.

1. **Code**

#include <bits/stdc++.h>

#include <Windows.h>

using namespace std;

// Tao file doc va ghi du lieu

ifstream file\_office("Office\_worker\_input.txt", ios::in);

ifstream file\_production("Production\_worker\_input.txt", ios::in);

ifstream file\_move("Move\_worker\_input.txt", ios::in);

ofstream file\_list("File\_list\_worker.txt", ios::out);

ofstream file\_statistical("File\_output\_statistical.txt", ios::out);

void TextColor(int x){

HANDLE h= GetStdHandle(STD\_OUTPUT\_HANDLE);

SetConsoleTextAttribute(h, x);

}

void MENU(){

TextColor(11);

cout << "\t\t\t\t\t+---------------------------------+\n";

cout << "\t\t\t\t\t| MENU |\n";

cout << "\t\t\t\t\t+---------------------------------+\n";

cout << "\t\t\t\t\t| 1. Tim kiem nhan vien. |\n";

cout << "\t\t\t\t\t| 2. Xem danh sach nhan vien. |\n";

cout << "\t\t\t\t\t| 3. Them nhan vien. |\n";

cout << "\t\t\t\t\t| 4. Xoa nhan vien. |\n";

cout << "\t\t\t\t\t| 5. Chinh sua thong tin. |\n";

cout << "\t\t\t\t\t| 6. Thong ke. |\n";

cout << "\t\t\t\t\t| 0. Thoat. |\n";

cout << "\t\t\t\t\t+---------------------------------+\n";

}

// Menu cac lop nhan vien

void MENU\_company(){

cout << "\n\t1. Nhan vien van phong.\n";

cout << "\t2. Nhan vien san xuat.\n";

cout << "\t3. Nhan vien chuyen di khoi cong ty.\n";

}

// Menu cac tieu chi thong ke

void MENU\_statistical(){

cout << "\t0. Thong ke nhan vien trong cong ty.\n";

cout << "\t1. Thong ke theo gioi tinh.\n";

cout << "\t2. Thong ke theo nam sinh.\n";

cout << "\t3. Thong ke theo tien luong.\n";

cout << "\t4. Thong ke theo van phong.\n";

cout << "\t5. Thong ke theo ngay vao cong ty.\n";

cout << "\t6. Thong ke theo ngay nghi.\n";

cout << "\t7. Thong ke theo ngay nghi cong nhan nu.\n";

cout << "\t8. Thong ke nhan vien chuyen di khoi cong ty.\n";

}

// Tieu de cua nhan vien van phong

void Header\_office(){

TextColor(7);

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) | Van phong |\n";

cout << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------+-----------------|\n";

}

void Footer\_office(){

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Tieu de cua cong nhan san xuat

void Header\_production(){

TextColor(7);

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) | Dinh muc sp (sp/thang) | Ngay nghi |\n";

cout << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------+------------------------+-----------|\n";

}

void Footer\_production(){

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Tieu de cua nhan vien chuyen di khoi cong ty

void Header\_move(){

TextColor(7);

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay chuyen di |\n";

cout << "|---------+---------------------------+--------------+---------+------------------|\n";

}

void Footer\_move(){

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Lop Mydate xu ly ngay thang nam

class Mydate {

public:

int day, month, year;

Mydate(){}

friend istream& operator >> (istream& is, Mydate &mydate){

is >> mydate.day >> mydate.month >> mydate.year;

return is;

}

friend ostream& operator << (ostream& os, Mydate &mydate){

os << mydate.day << "/" << setw(2) << mydate.month << "/" << setw(4) << mydate.year;

return os;

}

bool operator > (Mydate mydate){

if(year > mydate.year) return true;

else if(year < mydate.year) return false;

if(month > mydate.month) return true;

else if(month < mydate.month) return false;

if(day > mydate.day) return true;

else return false;

}

};

// Lop Company\_X quan ly nhan vien cong ty X

class Company\_X {

protected:

string Employee\_code; // Ma nhan vien

string Full\_name; // Ho va ten

Mydate Birthday; // Ngay sinh

string Sex; // Gioi tinh

string Native\_place; // Que quan

Mydate Day\_start; // Ngay vao lam

int Salary; // Tien luong

public:

static int Total\_employee;

// Lay du lieu nhan vien

string get\_Employee\_code(){

return Employee\_code;

}

string get\_Full\_name(){

return Full\_name;

}

Mydate get\_Birthday(){

return Birthday;

}

string get\_Sex(){

return Sex;

}

string get\_Native\_place(){

return Native\_place;

}

Mydate get\_Day\_start(){

return Day\_start;

}

int get\_Salary(){

return Salary;

}

// Thay doi du lieu nhan vien

void set\_Employee\_code(string employee\_code){

Employee\_code = employee\_code;

}

void set\_Full\_name(string full\_name){

Full\_name = full\_name;

}

void set\_Birthday(Mydate birthday){

Birthday = birthday;

}

void set\_Sex(string sex){

Sex = sex;

}

void set\_Native\_place(string native\_place){

Native\_place = native\_place;

}

void set\_Day\_start(Mydate day\_start){

Day\_start = day\_start;

}

void set\_Salary(int salary){

Salary = salary;

}

Company\_X(){}

void input(){

cout << "Nhap ma nhan vien: ";

getline(cin, Employee\_code);

cout << "Nhap Ten: ";

getline(cin, Full\_name);

cout << "Nhap ngay sinh: ";

cin >> Birthday;

cin.ignore();

cout << "Nhap gioi tinh: ";

getline(cin, Sex);

cout << "Nhap que quan: ";

getline(cin, Native\_place);

cout << "Nhap ngay vao lam: ";

cin >> Day\_start;

cout << "Nhap tien luong: ";

cin >> Salary;

cin.ignore();

Total\_employee++;

}

void output(){

cout << "|" << setw(8) << Employee\_code << " |";

cout << setw(26) << Full\_name << " |";

cout << setw(4) << Birthday << " |";

cout << setw(6) << Sex << " |";

cout << setw(37) << Native\_place << " |";

cout << setw(6) << Day\_start << " |";

cout << setw(13) << Salary << " |" << endl;

}

friend istream& operator >> (istream& is, Company\_X &company\_x){

// cout << "Nhap ma nhan vien: ";

getline(is, company\_x.Employee\_code);

// cout << "Nhap Ten: ";

getline(is, company\_x.Full\_name);

// cout << "Nhap ngay sinh: ";

is >> company\_x.Birthday;

is.ignore();

// cout << "Nhap gioi tinh: ";

getline(is, company\_x.Sex);

// cout << "Nhap que quan: ";

getline(is, company\_x.Native\_place);

// cout << "Nhap ngay vao lam: ";

is >> company\_x.Day\_start;

// cout << "Nhap tien luong: ";

is >> company\_x.Salary;

is.ignore();

company\_x.Total\_employee++;

return is;

}

friend ostream& operator << (ostream& os, Company\_X &company\_x){

os << "|" << setw(8) << company\_x.Employee\_code << " |";

os << setw(26) << company\_x.Full\_name << " |";

os << setw(4) << company\_x.Birthday << " |";

os << setw(6) << company\_x.Sex << " |";

os << setw(37) << company\_x.Native\_place << " |";

os << setw(6) << company\_x.Day\_start << " |";

os << setw(13) << company\_x.Salary << " |" << endl;

return os;

}

bool operator > (const Company\_X company\_x){

string name1, name2;

for(int i = Full\_name.length() - 1; ; i--){

char tmp\_char = Full\_name[i];

name1 += tmp\_char;

if(Full\_name[i-1] == ' '){

break;

}

}

for(int i = company\_x.Full\_name.length() - 1; ; i--){

char tmp\_char = company\_x.Full\_name[i];

name2 += tmp\_char;

if(company\_x.Full\_name[i-1] == ' '){

break;

}

}

reverse(name1.begin(), name1.end()); // đảo ngược chuỗi

reverse(name2.begin(), name2.end()); // đảo ngược chuỗi

return name1 > name2;

}

};

int Company\_X::Total\_employee = 0;

// Lop Move\_worker quan ly nhan vien chuyen di khoi cong ty

class Move\_worker : public Company\_X {

protected:

Mydate Day\_leave;

public:

Move\_worker(){}

// Lay du lieu nhan vien chuyen di khoi cong ty

Mydate get\_Day\_leave(){

return Day\_leave;

}

// Thay doi du lieu chuyen di khoi cong ty

void set\_Day\_leave(Mydate day\_leave){

Day\_leave = day\_leave;

}

void input(){

// cout << "Nhap ma nhan vien: ";

getline(cin, Employee\_code);

// cout << "Nhap Ten: ";

getline(cin, Full\_name);

// cout << "Nhap ngay sinh: ";

cin >> Birthday;

cin.ignore();

// cout << "Nhap gioi tinh: ";

getline(cin, Sex);

// cout << "Nhap ngay chuyen di: ";

cin >> Day\_leave;

cin.ignore();

}

void output(){

cout << "|" << setw(8) << Employee\_code << " |";

cout << setw(26) << Full\_name << " |";

cout << setw(4) << Birthday << " |";

cout << setw(6) << Sex << " |";

cout << setw(6) << Day\_leave << " |" << endl;

}

friend istream& operator >> (istream& is, Move\_worker &move\_worker){

// cout << "Nhap ma nhan vien: ";

getline(is, move\_worker.Employee\_code);

// cout << "Nhap Ten: ";

getline(is, move\_worker.Full\_name);

// cout << "Nhap ngay sinh: ";

is >> move\_worker.Birthday;

is.ignore();

// cout << "Nhap gioi tinh: ";

getline(is, move\_worker.Sex);

// cout << "Nhap ngay chuyen di: ";

is >> move\_worker.Day\_leave;

is.ignore();

return is;

}

friend ostream& operator << (ostream& os, Move\_worker &move\_worker){

os << "|" << setw(8) << move\_worker.Employee\_code << " |";

os << setw(26) << move\_worker.Full\_name << " |";

os << setw(4) << move\_worker.Birthday << " |";

os << setw(6) << move\_worker.Sex << " |";

os << setw(6) << move\_worker.Day\_leave << " |" << endl;

return os;

}

bool operator > (const Move\_worker move\_worker){

string name1, name2;

for(int i = Full\_name.length() - 1; ; i--){

char tmp\_char = Full\_name[i];

name1 += tmp\_char;

if(Full\_name[i-1] == ' '){

break;

}

}

for(int i = move\_worker.Full\_name.length() - 1; ; i--){

char tmp\_char = move\_worker.Full\_name[i];

name2 += tmp\_char;

if(move\_worker.Full\_name[i-1] == ' '){

break;

}

}

reverse(name1.begin(), name1.end()); // đảo ngược chuỗi

reverse(name2.begin(), name2.end()); // đảo ngược chuỗi

return name1 > name2;

}

friend void Find(Move\_worker \*mov\_work, int size, string worker\_code, int &check);

friend void Add\_employee\_move(Move\_worker\* &mov\_work, int &size, Move\_worker move\_worker);

friend void Change\_file(Move\_worker \*mov\_work, int size);

};

// Tim kiem nhan vien chuyen di khoi cong ty

void Find(Move\_worker \*mov\_work, int size, string worker\_code, int &check){

TextColor(7);

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

if(worker\_code == mov\_work[i].Employee\_code){

cout << "\n\tNhan vien chuyen di khoi cong ty.\n";

Header\_move();

cout << mov\_work[i];

Footer\_move();

check = 1;

return;

}

}

check = 0;

}

// Xuat danh sach nhan vien chuyen di khoi cong ty ra man hinh

void List\_move(Move\_worker \*mov\_work, int size){

TextColor(7);

cout << " NHAN VIEN CHUYEN DI KHOI CONG TY\n";

cout << "Tong co " << size << " nhan vien.\n";

Header\_move();

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

cout << mov\_work[i];

}

Footer\_move();

}

// Them nhan vien chuyen di khoi cong ty

void Add\_employee\_move(Move\_worker\* &mov\_work, int &size, Move\_worker move\_worker){

if(move\_worker.Employee\_code == ""){

return;

}

int new\_size = size + 1;

Move\_worker \*\_mov\_work = new Move\_worker[new\_size];

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

\_mov\_work[i] = mov\_work[i];

}

// Luu thong tin doi tuong xoa

\_mov\_work[new\_size-1] = move\_worker;

delete[] mov\_work;

mov\_work = \_mov\_work;

size = new\_size;

}

// Sua file doc du lieu

void Change\_file(Move\_worker \*mov\_work, int size){

ofstream file\_change("Move\_worker\_input.txt", ios::out);

file\_change << size << endl;

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

file\_change << mov\_work[i].Employee\_code << endl;

file\_change << mov\_work[i].Full\_name << endl;

file\_change << mov\_work[i].Birthday.day << " " << mov\_work[i].Birthday.month << " " << mov\_work[i].Birthday.year << endl;

file\_change << mov\_work[i].Sex << endl;

file\_change << mov\_work[i].Day\_leave.day << " " << mov\_work[i].Day\_leave.month << " " << mov\_work[i].Day\_leave.year << endl;

}

file\_change.close();

}

// Lop Office\_worker quan ly nhan vien van phong

class Office\_worker : public Company\_X {

protected:

string Office; // Van phong

public:

Office\_worker(){}

// Lay du lieu nhan vien van phong

string get\_Office(){

return Office;

}

// Thay doi du lieu nhan vien van phong

void set\_Office(string office){

Office = office;

}

void input(){

Company\_X::input();

cout << "Nhap van phong: ";

getline(cin, Office);

}

void output(){

Company\_X::output();

cout << "Van phong: " << Office << endl;

}

friend istream& operator >> (istream& is, Office\_worker &office\_worker){

// cout << "Nhap ma nhan vien: ";

getline(is, office\_worker.Employee\_code);

// cout << "Nhap Ten: ";

getline(is, office\_worker.Full\_name);

// cout << "Nhap ngay sinh: ";

is >> office\_worker.Birthday;

is.ignore();

// cout << "Nhap gioi tinh: ";

getline(is, office\_worker.Sex);

// cout << "Nhap que quan: ";

getline(is, office\_worker.Native\_place);

// cout << "Nhap ngay vao lam: ";

is >> office\_worker.Day\_start;

// cout << "Nhap tien luong: ";

is >> office\_worker.Salary;

is.ignore();

// cout << "Nhap van phong: ";

getline(is, office\_worker.Office);

office\_worker.Total\_employee++;

return is;

}

friend ostream& operator << (ostream& os, Office\_worker &office\_worker){

os << "|" << setw(8) << office\_worker.Employee\_code << " |";

os << setw(26) << office\_worker.Full\_name << " |";

os << setw(4) << office\_worker.Birthday << " |";

os << setw(6) << office\_worker.Sex << " |";

os << setw(37) << office\_worker.Native\_place << " |";

os << setw(6) << office\_worker.Day\_start << " |";

os << setw(13) << office\_worker.Salary << " |";

os << setw(16) << office\_worker.Office << " |" << endl;

return os;

}

bool operator > (const Office\_worker office\_worker){

string name1, name2;

for(int i = Full\_name.length() - 1; ; i--){

char tmp\_char = Full\_name[i];

name1 += tmp\_char;

if(Full\_name[i-1] == ' '){

break;

}

}

for(int i = office\_worker.Full\_name.length() - 1; ; i--){

char tmp\_char = office\_worker.Full\_name[i];

name2 += tmp\_char;

if(office\_worker.Full\_name[i-1] == ' '){

break;

}

}

reverse(name1.begin(), name1.end()); // đảo ngược chuỗi

reverse(name2.begin(), name2.end()); // đảo ngược chuỗi

return name1 > name2;

}

friend void Find(Office\_worker \*off\_work, int size, string worker\_code, int &check);

friend void Add\_employee\_office(Office\_worker\* &off\_work, int &size, int &mark\_office\_code);

friend void Delete\_employee\_office(Office\_worker\* &off\_work, int &size, Move\_worker &move\_worker);

friend void Edit\_employee\_office(Office\_worker\* &off\_work, int size);

friend void Change\_file(Office\_worker \*off\_work, int size, int mark\_office\_code);

};

// Tim kiem nhan vien van phong

void Find(Office\_worker \*off\_work, int size, string worker\_code, int &check){

TextColor(7);

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

if(worker\_code == off\_work[i].Employee\_code){

cout << "\n\tNhan vien van phong.\n";

Header\_office();

cout << off\_work[i];

Footer\_office();

check = 1;

return;

}

}

check = 0;

}

// Xuat danh sach nhan vien van phong ra man hinh

void List\_office(Office\_worker \*off\_work, int size){

TextColor(7);

cout << "\n DANH SACH NHAN VIEN VAN PHONG\n";

cout << "Tong co " << size << " nhan vien.\n";

Header\_office();

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

cout << off\_work[i];

}

Footer\_office();

}

// Them nhan vien van phong

void Add\_employee\_office(Office\_worker\* &off\_work, int &size, int &mark\_office\_code){

int new\_size = size + 1;

mark\_office\_code++;

Office\_worker \*\_off\_work = new Office\_worker[new\_size];

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

\_off\_work[i] = off\_work[i];

}

List\_office(off\_work, size);

// Tao ma nhan vien

\_off\_work[new\_size-1].Employee\_code = "";

string tmp\_code = to\_string(mark\_office\_code);

if(mark\_office\_code < 10){

\_off\_work[new\_size-1].Employee\_code = "OFF00" + tmp\_code;

}

else if(mark\_office\_code >=10 && mark\_office\_code < 100){

\_off\_work[new\_size-1].Employee\_code = "OFF0" + tmp\_code;

}

else {

\_off\_work[new\_size-1].Employee\_code = "OFF" + tmp\_code;

}

cout << "Nhap Ten: ";

getline(cin, \_off\_work[new\_size-1].Full\_name);

cout << "Nhap ngay sinh: ";

cin >> \_off\_work[new\_size-1].Birthday;

cin.ignore();

cout << "Nhap gioi tinh: ";

getline(cin, \_off\_work[new\_size-1].Sex);

cout << "Nhap que quan: ";

getline(cin, \_off\_work[new\_size-1].Native\_place);

do{

cout << "Nhap ngay vao lam: ";

cin >> \_off\_work[new\_size-1].Day\_start;

if(\_off\_work[new\_size-1].Birthday > \_off\_work[new\_size-1].Day\_start){

cout << "Ngay vao lam khong hop le. Vui long nhap lai!\n";

}

} while(\_off\_work[new\_size-1].Birthday > \_off\_work[new\_size-1].Day\_start);

cout << "Nhap tien luong: ";

cin >> \_off\_work[new\_size-1].Salary;

cin.ignore();

cout << "Nhap van phong: ";

getline(cin, \_off\_work[new\_size-1].Office);

delete[] off\_work;

off\_work = \_off\_work;

size = new\_size;

Company\_X::Total\_employee++; // Cong them 1 nhan vien vao tong so nhan vien cua cong ty X

cout << "\*\*\* Them thanh cong \*\*\*\n";

}

// Xoa nhan vien van phong

void Delete\_employee\_office(Office\_worker\* &off\_work, int &size, Move\_worker &move\_worker){

int new\_size = size - 1;

Office\_worker \*\_off\_work = new Office\_worker[new\_size];

List\_office(off\_work, size);

int check;

do{

string employee\_code;

cout << "Nhap ma nhan vien xoa: ";

getline(cin, employee\_code);

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

if(employee\_code == off\_work[i].Employee\_code){

// Lay thong tin doi tuong xoa

move\_worker.set\_Employee\_code(off\_work[i].Employee\_code);

move\_worker.set\_Full\_name(off\_work[i].Full\_name);

move\_worker.set\_Birthday(off\_work[i].Birthday);

move\_worker.set\_Sex(off\_work[i].Sex);

Mydate day\_leave;

cout << "Nhap ngay chuyen di: ";

cin >> day\_leave;

cin.ignore();

move\_worker.set\_Day\_leave(day\_leave);

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

off\_work[j] = off\_work[j+1];

}

check = 1;

break;

}else {

check = 0;

}

}

if(!check){

string select2;

cout << "Ma nhan vien khong dung.\n";

cout << "Chon 0 de thoat / so bat ky de tiep tuc : ";

getline(cin, select2);

if(select2 == "0"){

return;

}

cout << "Vui long nhap lai!\n";

}

} while(!check);

for(int i=0; i<new\_size; i++){

\_off\_work[i] = off\_work[i];

}

delete[] off\_work;

off\_work = \_off\_work;

size = new\_size;

Company\_X::Total\_employee--;

cout << "\*\*\* Xoa thanh cong \*\*\*\n";

}

// Chinh sua thong tin nhan vien

void Edit\_employee\_office(Office\_worker\* &off\_work, int size){

List\_office(off\_work, size);

string employee\_code;

int check;

do{

check = 0;

cout << "Nhap ma nhan vien chinh sua: ";

getline(cin, employee\_code);

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

if(off\_work[i].Employee\_code == employee\_code){

check = 1;

cout << "Chinh sua thong tin:\n";

cout << "Nhap Ten: ";

getline(cin, off\_work[i].Full\_name);

cout << "Nhap ngay sinh: ";

cin >> off\_work[i].Birthday;

cin.ignore();

cout << "Nhap gioi tinh: ";

getline(cin, off\_work[i].Sex);

cout << "Nhap que quan: ";

getline(cin, off\_work[i].Native\_place);

do{

cout << "Nhap ngay vao lam: ";

cin >> off\_work[i].Day\_start;

if(off\_work[i].Birthday > off\_work[i].Day\_start){

cout << "Ngay vao lam khong hop le. Vui long nhap lai!\n";

}

} while(off\_work[i].Birthday > off\_work[i].Day\_start);

cout << "Nhap tien luong: ";

cin >> off\_work[i].Salary;

cin.ignore();

cout << "Nhap van phong: ";

getline(cin, off\_work[i].Office);

cout << "\*\*\* Chinh sua thanh cong \*\*\*\n";

}

}

if(!check){

string select2;

cout << "Ma nhan vien khong dung.\n";

cout << "Chon 0 de thoat / so bat ky de tiep tuc : ";

getline(cin, select2);

if(select2 == "0"){

return;

}

cout << "Vui long nhap lai!\n";

}

} while(!check);

}

// Sua file doc du lieu nhan vien van phong

void Change\_file(Office\_worker \*off\_work, int size, int mark\_office\_code){

ofstream file\_change("Office\_worker\_input.txt", ios::out);

file\_change << mark\_office\_code << endl;

file\_change << size << endl;

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

file\_change << off\_work[i].Employee\_code << endl;

file\_change << off\_work[i].Full\_name << endl;

file\_change << off\_work[i].Birthday.day << " " << off\_work[i].Birthday.month << " " << off\_work[i].Birthday.year << endl;

file\_change << off\_work[i].Sex << endl;

file\_change << off\_work[i].Native\_place << endl;

file\_change << off\_work[i].Day\_start.day << " " << off\_work[i].Day\_start.month << " " << off\_work[i].Day\_start.year << endl;

file\_change << off\_work[i].Salary << endl;

file\_change << off\_work[i].Office << endl;

}

file\_change.close();

}

// Lop Production\_worker quan ly cong nhan san xuat

class Production\_worker : public Company\_X {

protected:

int Product\_norms; // Dinh muc san pham (san pham/ thang)

string Day\_off; // Ngay nghi trong tuan

public:

// Lay du lieu cong nhan san xuat

int get\_Product\_norms(){

return Product\_norms;

}

string get\_Day\_off(){

return Day\_off;

}

// Thay doi du lieu cong nhan san xuat

void get\_Product\_norms(int product\_norms){

Product\_norms = product\_norms;

}

void get\_Day\_off(string day\_off){

Day\_off = day\_off;

}

Production\_worker(){}

void input(){

Company\_X::input();

cout << "Nhap dinh muc san pham: ";

cin >> Product\_norms;

cin.ignore();

cout << "Nhap ngay nghi: ";

getline(cin, Day\_off);

}

void output(){

Company\_X::output();

cout << "Dinh muc san pham: " << Product\_norms << endl;

cout << "Ngay nghi: " << Day\_off << endl;

}

friend istream& operator >> (istream& is, Production\_worker &production\_worker){

// cout << "Nhap ma nhan vien: ";

getline(is, production\_worker.Employee\_code);

// cout << "Nhap Ten: ";

getline(is, production\_worker.Full\_name);

// cout << "Nhap ngay sinh: ";

is >> production\_worker.Birthday;

is.ignore();

// cout << "Nhap gioi tinh: ";

getline(is, production\_worker.Sex);

// cout << "Nhap que quan: ";

getline(is, production\_worker.Native\_place);

// cout << "Nhap ngay vao lam: ";

is >> production\_worker.Day\_start;

// cout << "Nhap tien luong: ";

is >> production\_worker.Salary;

// cout << "Nhap dinh muc san pham: ";

is >> production\_worker.Product\_norms;

is.ignore();

// cout << "Nhap ngay nghi: ";

getline(is, production\_worker.Day\_off);

production\_worker.Total\_employee++;

return is;

}

friend ostream& operator << (ostream& os, Production\_worker &production\_worker){

os << "|" << setw(8) << production\_worker.Employee\_code << " |";

os << setw(26) << production\_worker.Full\_name << " |";

os << setw(4) << production\_worker.Birthday << " |";

os << setw(6) << production\_worker.Sex << " |";

os << setw(37) << production\_worker.Native\_place << " |";

os << setw(6) << production\_worker.Day\_start << " |";

os << setw(13) << production\_worker.Salary << " |";

os << setw(23) << production\_worker.Product\_norms << " |";

os << setw(10) << production\_worker.Day\_off << " |" << endl;

return os;

}

bool operator > (const Production\_worker production\_worker){

string name1, name2;

for(int i = Full\_name.length() - 1; ; i--){

char tmp\_char = Full\_name[i];

name1 += tmp\_char;

if(Full\_name[i-1] == ' '){

break;

}

}

for(int i = production\_worker.Full\_name.length() - 1; ; i--){

char tmp\_char = production\_worker.Full\_name[i];

name2 += tmp\_char;

if(production\_worker.Full\_name[i-1] == ' '){

break;

}

}

reverse(name1.begin(), name1.end()); // đảo ngược chuỗi

reverse(name2.begin(), name2.end()); // đảo ngược chuỗi

return name1 > name2;

}

friend void Find(Production\_worker \*pro\_work, int size, string worker\_code, int &check);

friend void Add\_employee\_production(Production\_worker\* &pro\_work, int &size, int &mark\_production\_code);

friend void Delete\_employee\_production(Production\_worker\* &pro\_work, int &size, Move\_worker &move\_worker);

friend void Edit\_employee\_production(Production\_worker\* &pro\_work, int size);

friend void Change\_file(Production\_worker \*pro\_work, int size, int mark\_production\_code);

};

// Tim kiem cong nhan san xuat

void Find(Production\_worker \*pro\_work, int size, string worker\_code, int &check){

TextColor(7);

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

if(worker\_code == pro\_work[i].Employee\_code){

cout << "\n\tCong nhan san xuat.\n";

Header\_production();

cout << pro\_work[i];

Footer\_production();

check = 1;

return;

}

}

check = 0;

}

// Xuat danh sach cong nhan san xuat ra man hinh

void List\_production(Production\_worker \*pro\_work, int size){

TextColor(7);

cout << "\n DANH SACH CONG NHAN SAN XUAT\n";

cout << "Tong co " << size << " nhan vien.\n";

Header\_production();

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

cout << pro\_work[i];

}

Footer\_production();

}

// Them cong nhan san xuat

void Add\_employee\_production(Production\_worker\* &pro\_work, int &size, int &mark\_production\_code){

int new\_size = size + 1;

mark\_production\_code++;

Production\_worker \*\_pro\_work = new Production\_worker[new\_size];

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

\_pro\_work[i] = pro\_work[i];

}

List\_production(pro\_work, size);

// Tao ma nhan vien

\_pro\_work[new\_size-1].Employee\_code = "";

string tmp\_code = to\_string(mark\_production\_code);

if(mark\_production\_code < 10){

\_pro\_work[new\_size-1].Employee\_code = "PRO00" + tmp\_code;

}

else if(mark\_production\_code >=10 && mark\_production\_code < 100){

\_pro\_work[new\_size-1].Employee\_code = "PRO0" + tmp\_code;

}

else {

\_pro\_work[new\_size-1].Employee\_code = "PRO" + tmp\_code;

}

cout << "Nhap Ten: ";

getline(cin, \_pro\_work[new\_size-1].Full\_name);

cout << "Nhap ngay sinh: ";

cin >> \_pro\_work[new\_size-1].Birthday;

cin.ignore();

cout << "Nhap gioi tinh: ";

getline(cin, \_pro\_work[new\_size-1].Sex);

cout << "Nhap que quan: ";

getline(cin, \_pro\_work[new\_size-1].Native\_place);

do{

cout << "Nhap ngay vao lam: ";

cin >> \_pro\_work[new\_size-1].Day\_start;

if(\_pro\_work[new\_size-1].Birthday > \_pro\_work[new\_size-1].Day\_start){

cout << "Ngay vao lam khong hop le. Vui long nhap lai!\n";

}

} while(\_pro\_work[new\_size-1].Birthday > \_pro\_work[new\_size-1].Day\_start);

cout << "Nhap tien luong: ";

cin >> \_pro\_work[new\_size-1].Salary;

cin.ignore();

cout << "Nhap dinh muc san pham: ";

cin >> \_pro\_work[new\_size-1].Product\_norms;

cin.ignore();

if(\_pro\_work[new\_size-1].Sex == "Nu" || \_pro\_work[new\_size-1].Sex == "nu"){

cout << "Nhap ngay nghi: ";

getline(cin, \_pro\_work[new\_size-1].Day\_off);

}else {

\_pro\_work[new\_size-1].Day\_off = "Chu Nhat";

}

delete[] pro\_work;

pro\_work = \_pro\_work;

size = new\_size;

Company\_X::Total\_employee++; // Cong them 1 nhan vien vao tong so nhan vien cua cong ty X

cout << "\*\*\* Them thanh cong \*\*\*\n";

}

// Xoa cong nhan san xuat

void Delete\_employee\_production(Production\_worker\* &pro\_work, int &size, Move\_worker &move\_worker){

int new\_size = size - 1;

Production\_worker \*\_pro\_work = new Production\_worker[new\_size];

List\_production(pro\_work, size);

int check;

do{

string employee\_code;

cout << "Nhap ma cong nhan xoa: ";

getline(cin, employee\_code);

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

if(employee\_code == pro\_work[i].Employee\_code){

// Lay thong tin doi tuong xoa

move\_worker.set\_Employee\_code(pro\_work[i].Employee\_code);

move\_worker.set\_Full\_name(pro\_work[i].Full\_name);

move\_worker.set\_Birthday(pro\_work[i].Birthday);

move\_worker.set\_Sex(pro\_work[i].Sex);

Mydate day\_leave;

cout << "Nhap ngay chuyen di: ";

cin >> day\_leave;

cin.ignore();

move\_worker.set\_Day\_leave(day\_leave);

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

pro\_work[j] = pro\_work[j+1];

}

check = 0;

break;

}else {

check = 1;

}

}

if(check){

string select2;

cout << "Ma cong nhan khong dung.\n";

cout << "Chon 0 de thoat / so bat ky de tiep tuc : ";

getline(cin, select2);

if(select2 == "0"){

return;

}

cout << "Vui long nhap lai!\n";

}

} while(check);

for(int i=0; i<new\_size; i++){

\_pro\_work[i] = pro\_work[i];

}

delete[] pro\_work;

pro\_work = \_pro\_work;

size = new\_size;

Company\_X::Total\_employee--;

cout << "\*\*\* Xoa thanh cong \*\*\*\n";

}

// Chinh sua thong tin cong nhan

void Edit\_employee\_production(Production\_worker\* &pro\_work, int size){

List\_production(pro\_work, size);

string employee\_code;

int check;

do{

check = 0;

cout << "Nhap ma nhan vien chinh sua: ";

getline(cin, employee\_code);

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

if(pro\_work[i].Employee\_code == employee\_code){

check = 1;

cout << "Chinh sua thong tin:\n";

cout << "Nhap Ten: ";

getline(cin, pro\_work[i].Full\_name);

cout << "Nhap ngay sinh: ";

cin >> pro\_work[i].Birthday;

cin.ignore();

cout << "Nhap gioi tinh: ";

getline(cin, pro\_work[i].Sex);

cout << "Nhap que quan: ";

getline(cin, pro\_work[i].Native\_place);

do{

cout << "Nhap ngay vao lam: ";

cin >> pro\_work[i].Day\_start;

if(pro\_work[i].Birthday > pro\_work[i].Day\_start){

cout << "Ngay vao lam khong hop le. Vui long nhap lai!\n";

}

} while(pro\_work[i].Birthday > pro\_work[i].Day\_start);

cout << "Nhap tien luong: ";

cin >> pro\_work[i].Salary;

cout << "Nhap dinh muc san pham: ";

cin >> pro\_work[i].Product\_norms;

cin.ignore();

if(pro\_work[i].Sex == "Nu" || pro\_work[i].Sex == "nu"){

cout << "Nhap ngay nghi: ";

getline(cin, pro\_work[i].Day\_off);

}

cout << "\*\*\* Chinh sua thanh cong \*\*\*\n";

}

}

if(!check){

string select2;

cout << "Ma nhan vien khong dung.\n";

cout << "Chon 0 de thoat / so bat ky de tiep tuc : ";

getline(cin, select2);

if(select2 == "0"){

return;

}

cout << "Vui long nhap lai!\n";

}

} while(!check);

}

// Sua file doc du lieu cong nhan san xuat

void Change\_file(Production\_worker \*pro\_work, int size, int mark\_production\_code){

ofstream file\_change("Production\_worker\_input.txt", ios::out);

file\_change << mark\_production\_code << endl;

file\_change << size << endl;

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

file\_change << pro\_work[i].Employee\_code << endl;

file\_change << pro\_work[i].Full\_name << endl;

file\_change << pro\_work[i].Birthday.day << " " << pro\_work[i].Birthday.month << " " << pro\_work[i].Birthday.year << endl;

file\_change << pro\_work[i].Sex << endl;

file\_change << pro\_work[i].Native\_place << endl;

file\_change << pro\_work[i].Day\_start.day << " " << pro\_work[i].Day\_start.month << " " << pro\_work[i].Day\_start.year << endl;

file\_change << pro\_work[i].Salary << endl;

file\_change << pro\_work[i].Product\_norms << endl;

file\_change << pro\_work[i].Day\_off << endl;

}

file\_change.close();

}

// Thong ke nhan vien trong cong ty

void Employee\_statistical(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Native\_place(off\_work[i].get\_Native\_place());

company\_x[i].set\_Day\_start(off\_work[i].get\_Day\_start());

company\_x[i].set\_Salary(off\_work[i].get\_Salary());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Native\_place(pro\_work[i - off\_num].get\_Native\_place());

company\_x[i].set\_Day\_start(pro\_work[i - off\_num].get\_Day\_start());

company\_x[i].set\_Salary(pro\_work[i - off\_num].get\_Salary());

}

// Sap xep danh sach theo ten Alphabet

for(int i=size-1; i>0; i--){

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

if(company\_x[j] > company\_x[j+1]){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

TextColor(7);

cout << "\n DANH SACH NHAN VIEN CONG TY\n";

cout << "Tong so: " << Company\_X::Total\_employee << " nhan vien" << endl;

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) |\n";

cout << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------|\n";

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

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |";

cout << setw(37) << company\_x[i].get\_Native\_place() << " |";

Mydate tmp\_day\_start = company\_x[i].get\_Day\_start();

cout << setw(6) << tmp\_day\_start << " |";

cout << setw(13) << company\_x[i].get\_Salary() << " |" << endl;

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo gioi tinh

void Sex\_statistical(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

}

// Sap xep theo nam sinh

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Birthday() > company\_x[j+1].get\_Birthday()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

int Total\_male = 0;

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

if(company\_x[i].get\_Sex() == "Nam"){

Total\_male++;

}

}

TextColor(7);

cout << "\n DANH SACH NHAN VIEN NAM\n";

cout << "Tong co " << Total\_male << " nam" << endl;

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

cout << "|---------+---------------------------+--------------+---------|\n";

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

if(company\_x[i].get\_Sex() == "Nam"){

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

cout << "\n DANH SACH NHAN VIEN NU\n";

cout << "Tong co " << size - Total\_male << " nu" << endl;

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

cout << "|---------+---------------------------+--------------+---------|\n";

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

if(company\_x[i].get\_Sex() == "Nu"){

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo nam sinh

void Birthday\_statistical(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

}

// Sap xep theo nam sinh

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Birthday() > company\_x[j+1].get\_Birthday()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

TextColor(7);

cout << "\n DANH SACH NHAN VIEN XEP THEO NGAY SINH\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

cout << "|---------+---------------------------+--------------+---------|\n";

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

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo tien luong

void Salary\_statistical(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Salary(off\_work[i].get\_Salary());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Salary(pro\_work[i - off\_num].get\_Salary());

}

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Salary() > company\_x[j+1].get\_Salary()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

TextColor(7);

cout << "\n DANH SACH NHAN VIEN THEO TIEN LUONG\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Luong (dong) |\n";

cout << "|---------+---------------------------+--------------+---------+--------------|\n";

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

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |";

cout << setw(13) << company\_x[i].get\_Salary() << " |" << endl;

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo van phong

void Office\_statistical(Office\_worker \*off\_work, int off\_num){

TextColor(7);

cout << "\n DANH SACH NHAN VIEN THEO VAN PHONG\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Van phong |\n";

cout << "|---------+---------------------------+--------------+---------+-----------------|\n";

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Quan ly nhan su"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Y tuong" || off\_work[i].get\_Office() == "Y Tuong"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Thiet ke" || off\_work[i].get\_Office() == "Thiet Ke"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Ke toan" || off\_work[i].get\_Office() == "Ke Toan"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Marketing"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Ky Thuat" || off\_work[i].get\_Office() == "Ky thuat"){

cout << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << off\_work[i].get\_Sex() << " |";

cout << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo ngay vao cong ty

void Day\_start\_statistical(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Day\_start(off\_work[i].get\_Day\_start());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Day\_start(pro\_work[i - off\_num].get\_Day\_start());

}

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Day\_start() > company\_x[j+1].get\_Day\_start()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

TextColor(7);

cout << "\n DANH SACH NHAN VIEN THEO NGAY VAO CONG TY\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay vao cong ty |\n";

cout << "|---------+---------------------------+--------------+---------+------------------|\n";

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

cout << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

cout << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << company\_x[i].get\_Sex() << " |";

Mydate tmp\_day\_start = company\_x[i].get\_Day\_start();

cout << setw(6) << tmp\_day\_start << " |" << endl;

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo ngay nghi

void Day\_off\_statistical(Production\_worker \*pro\_work, int pro\_num){

TextColor(7);

cout << "\n DANH SACH CONG NHAN THEO NGAY NGHI\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay nghi |\n";

cout << "|---------+---------------------------+--------------+---------+-----------|\n";

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Hai"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Ba"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Tu"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Nam"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Sau"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Bay"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Chu Nhat"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Thong ke theo ngay nghi cong nhan nu

void Day\_off\_female\_statistical(Production\_worker \*pro\_work, int pro\_num){

TextColor(7);

cout << "\n DANH SACH NGAY NGHI CONG NHAN NU\n";

cout << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

cout << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay nghi |\n";

cout << "|---------+---------------------------+--------------+---------+-----------|\n";

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Sex() == "Nu"){

cout << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

cout << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

cout << setw(4) << tmp\_birthday << " |";

cout << setw(6) << pro\_work[i].get\_Sex() << " |";

cout << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

cout << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat danh sach nhan vien vao file

void List\_office\_file\_output(Office\_worker\* &off\_work, int off\_num){

// Sap xep danh sach

for(int i=off\_num-1; i>0; i--){

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

if(off\_work[j] > off\_work[j+1]){

Office\_worker tmp\_office\_worker = off\_work[j];

off\_work[j] = off\_work[j+1];

off\_work[j+1] = tmp\_office\_worker;

}

}

}

file\_list << "\n DANH SACH NHAN VIEN VAN PHONG\n";

file\_list << "Tong so " << off\_num << " nhan vien." << endl;

file\_list << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_list << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) | Van phong |\n";

file\_list << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------+-----------------|\n";

for(int i=0; i<off\_num; i++){

file\_list << off\_work[i];

}

file\_list << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat danh sach cong nhan vao file

void List\_production\_file\_output(Production\_worker\* &pro\_work, int pro\_num){

// Sap xep danh sach

for(int i=pro\_num-1; i>0; i--){

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

if(pro\_work[j] > pro\_work[j+1]){

Production\_worker tmp\_production\_worker = pro\_work[j];

pro\_work[j] = pro\_work[j+1];

pro\_work[j+1] = tmp\_production\_worker;

}

}

}

file\_list << "\n DANH SACH CONG NHAN SAN XUAT\n";

file\_list << "Tong so " << pro\_num << " cong nhan." << endl;

file\_list << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_list << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) | Dinh muc sp (sp/thang) | Ngay nghi |\n";

file\_list << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------+------------------------+-----------|\n";

for(int i=0; i<pro\_num; i++){

file\_list << pro\_work[i];

}

file\_list << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat danh sach nhan vien chuyen khoi cong ty vao file

void List\_move\_file\_output(Move\_worker\* &mov\_work, int mov\_num){

// Sap xep danh sach

for(int i=mov\_num-1; i>0; i--){

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

if(mov\_work[j] > mov\_work[j+1]){

Move\_worker tmp\_move\_worker = mov\_work[j];

mov\_work[j] = mov\_work[j+1];

mov\_work[j+1] = tmp\_move\_worker;

}

}

}

file\_list << "\n DANH SACH NHAN VIEN CHUYEN DI\n";

file\_list << "Tong so " << mov\_num << " nhan vien." << endl;

file\_list << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_list << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay chuyen di |\n";

file\_list << "|---------+---------------------------+--------------+---------+------------------|\n";

for(int i=0; i<mov\_num; i++){

file\_list << mov\_work[i];

}

file\_list << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke nhan vien trong cong ty vao file

void Employee\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Native\_place(off\_work[i].get\_Native\_place());

company\_x[i].set\_Day\_start(off\_work[i].get\_Day\_start());

company\_x[i].set\_Salary(off\_work[i].get\_Salary());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Native\_place(pro\_work[i - off\_num].get\_Native\_place());

company\_x[i].set\_Day\_start(pro\_work[i - off\_num].get\_Day\_start());

company\_x[i].set\_Salary(pro\_work[i - off\_num].get\_Salary());

}

// Sap xep danh sach theo ten Alphabet

for(int i=size-1; i>0; i--){

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

if(company\_x[j] > company\_x[j+1]){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

file\_statistical << "\n DANH SACH NHAN VIEN CONG TY\n";

file\_statistical << "Tong so: " << Company\_X::Total\_employee << " nhan vien" << endl;

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Que quan | Ngay vao cong ty | Luong (dong) |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+--------------------------------------+------------------+--------------|\n";

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

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |";

file\_statistical << setw(37) << company\_x[i].get\_Native\_place() << " |";

Mydate tmp\_day\_start = company\_x[i].get\_Day\_start();

file\_statistical << setw(6) << tmp\_day\_start << " |";

file\_statistical << setw(13) << company\_x[i].get\_Salary() << " |" << endl;

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo gioi tinh vao file

void Sex\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

}

// Sap xep theo nam sinh

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Birthday() > company\_x[j+1].get\_Birthday()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

int Total\_male = 0;

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

if(company\_x[i].get\_Sex() == "Nam"){

Total\_male++;

}

}

file\_statistical << "\n DANH SACH NHAN VIEN NAM\n";

file\_statistical << "Tong so: " << Total\_male << " nam" << endl;

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

file\_statistical << "|---------+---------------------------+--------------+---------|\n";

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

if(company\_x[i].get\_Sex() == "Nam"){

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

file\_statistical << "\n DANH SACH NHAN VIEN NU\n";

file\_statistical << "Tong so: " << size - Total\_male << " nu" << endl;

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

file\_statistical << "|---------+---------------------------+--------------+---------|\n";

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

if(company\_x[i].get\_Sex() == "Nu"){

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo nam sinh vao file

void Birthday\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

}

// Sap xep theo nam sinh

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Birthday() > company\_x[j+1].get\_Birthday()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

file\_statistical << "\n DANH SACH NHAN VIEN XEP THEO NGAY SINH\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh|\n";

file\_statistical << "|---------+---------------------------+--------------+---------|\n";

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

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |" << endl;

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo tien luong vao file

void Salary\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Salary(off\_work[i].get\_Salary());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Salary(pro\_work[i - off\_num].get\_Salary());

}

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Salary() > company\_x[j+1].get\_Salary()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

file\_statistical << "\n DANH SACH NHAN VIEN THEO TIEN LUONG\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Luong (dong) |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+--------------|\n";

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

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |";

file\_statistical << setw(13) << company\_x[i].get\_Salary() << " |" << endl;

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo van phong vao file

void Office\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num){

file\_statistical << "\n DANH SACH NHAN VIEN THEO VAN PHONG\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Van phong |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+-----------------|\n";

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Quan ly nhan su"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Y tuong" || off\_work[i].get\_Office() == "Y Tuong"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Thiet ke" || off\_work[i].get\_Office() == "Thiet Ke"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Ke toan" || off\_work[i].get\_Office() == "Ke Toan"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Marketing"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

for(int i=0; i<off\_num; i++){

if(off\_work[i].get\_Office() == "Ky Thuat" || off\_work[i].get\_Office() == "Ky thuat"){

file\_statistical << "|" << setw(8) << off\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << off\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = off\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << off\_work[i].get\_Sex() << " |";

file\_statistical << setw(16) << off\_work[i].get\_Office() << " |" << endl;

}

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo ngay vao cong ty vao file

void Day\_start\_statistical\_file\_output(Office\_worker \*off\_work, int off\_num, Production\_worker \*pro\_work, int pro\_num){

int size = off\_num + pro\_num;

Company\_X \*company\_x = new Company\_X[size];

for(int i=0; i<off\_num; i++){

company\_x[i].set\_Employee\_code(off\_work[i].get\_Employee\_code());

company\_x[i].set\_Full\_name(off\_work[i].get\_Full\_name());

company\_x[i].set\_Birthday(off\_work[i].get\_Birthday());

company\_x[i].set\_Sex(off\_work[i].get\_Sex());

company\_x[i].set\_Day\_start(off\_work[i].get\_Day\_start());

}

for(int i=off\_num; i<size; i++){

company\_x[i].set\_Employee\_code(pro\_work[i - off\_num].get\_Employee\_code());

company\_x[i].set\_Full\_name(pro\_work[i - off\_num].get\_Full\_name());

company\_x[i].set\_Birthday(pro\_work[i - off\_num].get\_Birthday());

company\_x[i].set\_Sex(pro\_work[i - off\_num].get\_Sex());

company\_x[i].set\_Day\_start(pro\_work[i - off\_num].get\_Day\_start());

}

for(int i=size-1; i>0; i--){

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

if(company\_x[j].get\_Day\_start() > company\_x[j+1].get\_Day\_start()){

Company\_X tmp\_company\_x = company\_x[j];

company\_x[j] = company\_x[j+1];

company\_x[j+1] = tmp\_company\_x;

}

}

}

file\_statistical << "\n DANH SACH NHAN VIEN THEO NGAY VAO CONG TY\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay vao cong ty |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+------------------|\n";

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

file\_statistical << "|" << setw(8) << company\_x[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << company\_x[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = company\_x[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << company\_x[i].get\_Sex() << " |";

Mydate tmp\_day\_start = company\_x[i].get\_Day\_start();

file\_statistical << setw(6) << tmp\_day\_start << " |" << endl;

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo ngay nghi vao file

void Day\_off\_statistical\_file\_output(Production\_worker \*pro\_work, int pro\_num){

file\_statistical << "\n DANH SACH CONG NHAN THEO NGAY NGHI\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay nghi |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+-----------|\n";

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Hai"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Ba"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Tu"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Nam"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Sau"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Thu Bay"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Day\_off() == "Chu Nhat"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke theo ngay nghi cong nhan nu vao file

void Day\_off\_female\_statistical\_file\_output(Production\_worker \*pro\_work, int pro\_num){

file\_statistical << "\n DANH SACH NGAY NGHI CONG NHAN NU\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay nghi |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+-----------|\n";

for(int i=0; i<pro\_num; i++){

if(pro\_work[i].get\_Sex() == "Nu"){

file\_statistical << "|" << setw(8) << pro\_work[i].get\_Employee\_code() << " |";

file\_statistical << setw(26) << pro\_work[i].get\_Full\_name() << " |";

Mydate tmp\_birthday = pro\_work[i].get\_Birthday();

file\_statistical << setw(4) << tmp\_birthday << " |";

file\_statistical << setw(6) << pro\_work[i].get\_Sex() << " |";

file\_statistical << setw(10) << pro\_work[i].get\_Day\_off() << " |" << endl;

}

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_|\n";

}

// Xuat bang thong ke nhan vien chuyen di khoi cong ty

void List\_move\_statistical\_file\_output(Move\_worker \*mov\_work, int size){

file\_statistical << "\n DANH SACH NHAN VIEN CHUYEN DI\n";

file\_statistical << " \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \n";

file\_statistical << "| Ma nv | Ho va ten | Ngay sinh |Gioi tinh| Ngay chuyen di |\n";

file\_statistical << "|---------+---------------------------+--------------+---------+------------------|\n";

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

file\_statistical << mov\_work[i];

}

file\_statistical << "|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\n";

}

int main(){

int mark\_office\_code;

int off\_num;

file\_office >> mark\_office\_code;

file\_office >> off\_num;

file\_office.ignore();

Office\_worker \*off\_work = new Office\_worker[off\_num];

for(int i=0; i<off\_num; i++){

file\_office >> off\_work[i];

}

int mark\_production\_code;

int pro\_num;

file\_production >> mark\_production\_code;

file\_production >> pro\_num;

file\_production.ignore();

Production\_worker \*pro\_work = new Production\_worker[pro\_num];

for(int i=0; i<pro\_num; i++){

file\_production >> pro\_work[i];

}

int mov\_num;

file\_move >> mov\_num;

file\_move.ignore();

Move\_worker \*mov\_work = new Move\_worker[mov\_num];

for(int i=0; i<mov\_num; i++){

file\_move >> mov\_work[i];

}

MENU();

while(true){

TextColor(14);

cout << "Nhap lua chon cua ban: ";

string select;

getline(cin, select);

if(select == "0"){

break;

}

else if(select == "1"){

int check1, check2, check3;

do {

string worker\_code;

cout << "Nhap ma nhan vien tim: ";

getline(cin, worker\_code);

Find(off\_work, off\_num, worker\_code, check1);

Find(pro\_work, pro\_num, worker\_code, check2);

Find(mov\_work, mov\_num, worker\_code, check3);

if(!check1 && !check2 && !check3){

cout << "Ma ban nhap khong dung.\n";

cout << "Chon 0 de thoat / so bat ky de tiep tuc: ";

string select1;

getline(cin, select1);

if(select1 == "0") {

break;

}

else {

cout << "Vui long nhap lai!\n";

}

}

} while(!check1 && !check2 && !check3);

}

else if(select == "2"){

MENU\_company();

string select1;

do {

cout << "\tLua chon 1 / 2 / 3: ";

getline(cin, select1);

if(select1 == "1"){

List\_office(off\_work, off\_num);

}

else if(select1 == "2"){

List\_production(pro\_work, pro\_num);

}

else if(select1 == "3"){

List\_move(mov\_work, mov\_num);

}

else{

cout << "Lua chon khong dung. Vui long nhap lai!\n";

}

} while (select1 != "1" && select1 != "2" && select1 != "3");

}

else if(select == "3"){

cout << "\n\t1. Nhan vien van phong.\n";

cout << "\t2. Cong nhan san xuat.\n";

string select1;

cout << "\nLua chon them nhan vien 1 / 2: ";

getline(cin, select1);

if(select1 == "1"){

Add\_employee\_office(off\_work, off\_num, mark\_office\_code);

}

else if(select1 == "2"){

Add\_employee\_production(pro\_work, pro\_num, mark\_production\_code);

}

else {

cout << "Lua chon khong phu hop.\n";

}

}

else if(select == "4"){

cout << "\n\t1. Nhan vien van phong.\n";

cout << "\t2. Cong nhan san xuat.\n";

string select1;

cout << "\nLua chon xoa nhan vien 1 / 2: ";

getline(cin, select1);

if(select1 == "1"){

Move\_worker move\_worker;

move\_worker.set\_Employee\_code("");

Delete\_employee\_office(off\_work, off\_num, move\_worker);

Add\_employee\_move(mov\_work, mov\_num, move\_worker);

}

else if(select1 == "2"){

Move\_worker move\_worker;

move\_worker.set\_Employee\_code("");

Delete\_employee\_production(pro\_work, pro\_num, move\_worker);

Add\_employee\_move(mov\_work, mov\_num, move\_worker);

}

else {

cout << "Lua chon khong phu hop.\n";

}

}

else if(select == "5"){

cout << "\n\t1. Nhan vien van phong.\n";

cout << "\t2. Cong nhan san xuat.\n";

string select1;

cout << "\nLua chon chinh sua nhan vien 1 / 2: ";

getline(cin, select1);

if(select1 == "1"){

Edit\_employee\_office(off\_work, off\_num);

}

else if(select1 == "2"){

Edit\_employee\_production(pro\_work, pro\_num);

}

else {

cout << "Lua chon khong phu hop.\n";

}

}

else if(select == "6"){

MENU\_statistical();

cout << "\nLua chon 0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8: ";

string select1;

getline(cin, select1);

if(select1 == "0"){

Employee\_statistical(off\_work, off\_num, pro\_work, pro\_num);

}

else if(select1 == "1"){

Sex\_statistical(off\_work, off\_num, pro\_work, pro\_num);

}

else if(select1 == "2"){

Birthday\_statistical(off\_work, off\_num, pro\_work, pro\_num);

}

else if(select1 == "3"){

Salary\_statistical(off\_work, off\_num, pro\_work, pro\_num);

}

else if(select1 == "4"){

Office\_statistical(off\_work, off\_num);

}

else if(select1 == "5"){

Day\_start\_statistical(off\_work, off\_num, pro\_work, pro\_num);

}

else if(select1 == "6"){

Day\_off\_statistical(pro\_work, pro\_num);

}

else if(select1 == "7"){

Day\_off\_female\_statistical(pro\_work, pro\_num);

}

else if(select1 == "8"){

List\_move(mov\_work, mov\_num);

}

else{

cout << "Lua chon khong phu hop.\n";

}

}

else {

cout << "Lua chon khong dung. Vui long nhap lai!\n";

}

system("pause");

system("cls");

MENU();

}

// Xuat danh sach vao file

List\_office\_file\_output(off\_work, off\_num);

file\_list << endl;

List\_production\_file\_output(pro\_work, pro\_num);

file\_list << endl;

List\_move\_file\_output(mov\_work, mov\_num);

// Xuat du lieu thong ke vao file

Employee\_statistical\_file\_output(off\_work, off\_num, pro\_work, pro\_num);

file\_statistical << endl;

Sex\_statistical\_file\_output(off\_work, off\_num, pro\_work, pro\_num);

file\_statistical << endl;

Birthday\_statistical\_file\_output(off\_work, off\_num, pro\_work, pro\_num);

file\_statistical << endl;

Salary\_statistical\_file\_output(off\_work, off\_num, pro\_work, pro\_num);

file\_statistical << endl;

Office\_statistical\_file\_output(off\_work, off\_num);

file\_statistical << endl;

Day\_start\_statistical\_file\_output(off\_work, off\_num, pro\_work, pro\_num);

file\_statistical << endl;

Day\_off\_statistical\_file\_output(pro\_work, pro\_num);

file\_statistical << endl;

Day\_off\_female\_statistical\_file\_output(pro\_work, pro\_num);

file\_statistical << endl;

List\_move\_statistical\_file\_output(mov\_work, mov\_num);

file\_statistical << endl;

Change\_file(mov\_work, mov\_num);

Change\_file(off\_work, off\_num, mark\_office\_code);

Change\_file(pro\_work, pro\_num, mark\_production\_code);

file\_office.close();

file\_production.close();

file\_move.close();

file\_list.close();

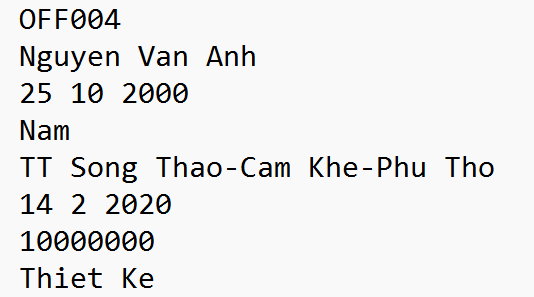
file\_statistical.close();

return 0;

}

1. **Dữ liệu vào/ ra**
   1. Tệp dữ liệu vào

* Tệp: Ofice\_worker\_input.txt

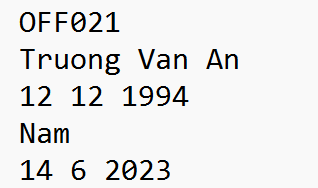


* Tệp: Production\_worker\_input.txt

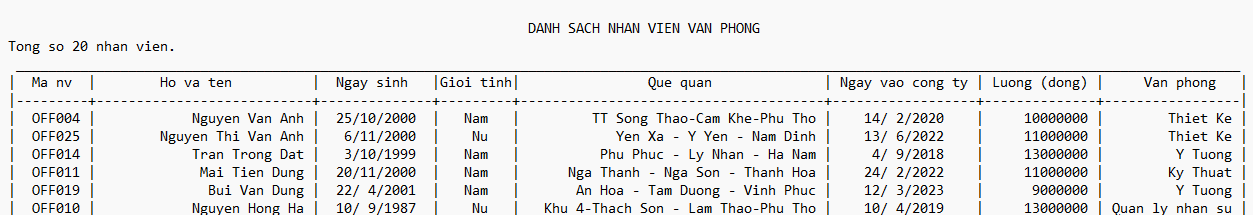
A white background with black text

Description automatically generated with low confidence

* Tệp: Move\_worker\_input.txt



* 1. Tệp dữ liệu ra
* Tệp: File\_list\_worker



* Tệp: File\_output\_statiscal

**A screenshot of a computer screen

Description automatically generated with low confidence**

# PHẦN II: PHÂN CÔNG CÔNG VIỆC TRONG NHÓM

|  |  |  |  |
| --- | --- | --- | --- |
| **STT** | **Họ và tên** | **Công việc được giao** | **Ghi chú** |
| **1** | Nguyễn Đình Mạnh | Code chính, làm file xuất/ nhập |  |
| **2** | Võ Tạ Đức | Code phụ, làm báo cáo |  |
| **3** | Vũ Hoàng Hải | Làm powpoin, tìm dữ liệu nhập |  |

# PHẦN III: ĐÁNH GIÁ NHÓM

|  |  |  |  |
| --- | --- | --- | --- |
| **STT** | **Họ và tên** | **Đánh giá hoạt động nhóm** | **Xếp loại** |
| **1** | Nguyễn Đình Mạnh | Tốt | A |
| **2** | Võ Tạ Đức | Tốt | A |
| **3** | Vũ Hoàng Hải | Khá | B |

**Ghi chú: Mỗi người xếp 1 trong 4 loại (Loại A chỉ được 1 - 2 bạn)**

A: Tốt

B: Khá

C: Trung bình

D: Không tham gia nhóm