Bai 1

```cpp
#include <iostream>
using namespace std;
int main (){
        int n,m,a[100][100];
        cout << "nhap kich thuoc cua mang: ";
        cin >> n >> m;
        cout << "nhap mang" << endl;
        for (int i=0; i<n;i++){
                for (int j=0; j<m; j++){
                        cin >> a[i][j];
                }
        }
        cout << "mang la: " << endl;
        for (int i=0; i<n;i++){
                for (int j=0; j<m; j++){
                        cout << a[i][j] << " ";
                }
                cout << endl;
        }
}
```

Bai 2

```cpp
#include <iostream>
using namespace std;
void nhapmang (int a[100][100], int n, int m){
        for (int i=0; i<n; i++){
                for (int j=0; j<m; j++){
                        cin >> a[i][j];
                }
```

```cpp
        }
}
int timmax (int a[100][100], int n, int m){
                int max=a[0][1];
        for (int i=0; i<n; i++){
                        if (max<a[i][1]){
                        max=a[i][1];
                }
        }
                return max;
}


int main (){
        int b[100][100], c,d;
        cout << "nhap kich thuoc cua mang: ";
        cin >>c>>d;
        cout << "nhap mang" << endl;
        nhapmang (b,c,d);

        for (int i=0; i<c; i++){
                int sum=0;
                for (int j=0; j<d; j++)
                        sum+=b[i][j];
        cout << "tong cac phan tu tren hang: " << i << " la: " << " "<< sum << endl;
        }

        cout << "gia tri lon nhat cot 1: "<< timmax (b,c,d);
}
```
Bai 3

```cpp
#include <iostream>

using namespace std;

void nhapmang (int a[100][100], int n, int m){

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

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

                        cin >> a[i][j];

                }

        }

}

void xuatmang (int a[100][100], int n, int m){

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

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

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

                }

                cout << endl;

        }

}

int timmax (int a[100][100], int n, int m){

                int max=a[0][0];

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

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

                        if (max<a[i][j]){

                        max=a[i][j];

                        }

                }

        }

                return max;

}

int timmin (int a[100][100], int n, int m){
```

```cpp
        int min = a[0][0];
        for (int i=0; i<n; i++){
                for (int j=0; j<m; j++){
                        if (min>a[i][j]){
                                min=a[i][j];
                        }
                }
        }
        return min;
}
int main (){
        int b[100][100];
        int c,d;
        cout << "nhap kich thuoc cua ma tran: ";
        cin >> c >> d;
        cout << "nhap ma tran" << endl;
        nhapmang (b,c,d);
        cout << "ma tran la" << endl;
        xuatmang (b,c,d);
        int p=timmax(b,c,d);
        cout << "gia tri lon nhat la: " << p << endl;
        int s=timmin (b,c,d);
        cout << "gia tri nho nhat la: " << s << endl;
        return 0;
}
Bai 4
#include <iostream>
#include <math.h>
using namespace std;
```

```cpp
void nhapmang (int a[100][100], int n, int m){
	for (int i=0; i<n; i++){
		for (int j=0; j<m; j++){
			cin >> a[i][j];
		}
	}
}
void xuatmang (int a[100][100], int n, int m){
	for (int i=0; i<n; i++){
		for (int j=0; j<m; j++){
			cout << a[i][j] << " ";
		}
		cout << endl;
	}
}
bool checksnt (int n){
	if(n < 2)
		return false;
	for(int i = 2 ; i <= sqrt(n) ; ++i)
		if(n % i == 0)
			return false;
	return true;
}
int insnt(int a[100][100], int n, int m){
	int count =0;
	int q[100]={0};
	for (int i=0; i<n; i++){
		for (int j=0; j<m; j++){
			if (checksnt(a[i][j])==true){
```

```cpp
                        ++count;
                        q[count-1]=a[i][j];
                }


        }
}
if(count == 0){
 cout << "Ma tran da nhap khong co phan tu nao la so nguyen to.";
 return 0;

}
        cout << "Ma tran co: " << count << " so nguyen to." << endl;
    cout << "Cac so nguyen to ton tai trong ma tran la: ";
    for(int i = 0 ; i < count ; ++i)
        cout << q[i] << " ";
    cout << endl;
    return 0;
}
int main() {
    int c, d;
    int b[100][100];
    cout << "Nhap kich thuoc cua ma tran: ";
    cin >> c >> d;
    cout << "nhap ma tran: "<< endl;
    nhapmang(b,c,d);
    cout << "ma tran la: "<<endl;
    xuatmang(b,c,d);
    insnt(b,c,d);
    return 0;

}
```

Bai 5

```cpp
#include <iostream>
using namespace std;
int timmax (int a[100][100], int n){
        int max = a[0][0];
        for (int i=0; i<=n; i++){
                if (max < a[i][i]){
                        max = a[i][i];
                }
        }
        return  max;
}
int main(){
        int b[100][100];
        int c,d;
        cout << "nhap kich thuoc mang: ";
        cin >>c>>d;
        cout << "nhap mang" << endl;
        for( int i=0; i<c; i++){
                for(int j=0; j<d; j++){
                        cin >> b[i][j];
                }
        }
        int p = timmax(b,c);
    cout << "gia tri lon nhat tren duong cheo chinh la: " << p;
}
```

Bai 6

```cpp
#include <iostream>
```

```cpp
#include <math.h>

using namespace std;

void nhapmang (int a[100][100], int m, int n){
        for (int i=0; i<m; i++){
                for (int j=0; j<n; j++){
                        cin >> a[i][j];
                }
        }
}

void xuatmang (int a[100][100], int m, int n){
        for (int i=0; i<m; i++){
                for (int j=0; j<n; j++){
                        cout << a[i][j] << " ";
                }
                cout << endl;
        }
}


void xoarow(int a[100][100], int m, int n, int xrow){
    if(xrow >= 0 && xrow < n){
        for(int i = 0 ; i < m ; ++i)
            for(int j = 0 ; j < n ; ++j)
                if(i >= xrow)
                    a[i][j] = a[i + 1][j];
        --m;
        cout << "Ma tran sau khi xoa dong: " <<  xrow << endl;
        xuatmang(a, m, n); cout << endl;
    }
}
```

```cpp
void xoacol(int a[100][100], int m, int n, int xcol){
    if(xcol >= 0 && xcol < n){
        for(int i = 0 ; i < m ; ++i)
            for(int j = 0 ; j < n ; ++j)
                if(j >= xcol)
                    a[i][j] = a[i][j + 1];
        --n;
        cout << "Ma tran sau khi xoa cot: " << xcol << endl;
        xuatmang(a, m, n); cout << endl;
    }
}

int main(){
    int c, d;
    int b[100][100];
    cout << "Nhap so dong va so cot: ";
    cin >> c >> d;
    cout << "nhap ma tran: "<< endl;
    nhapmang(b, c, d);
    cout << "ma tran la: " << endl;
    xuatmang(b, c, d);
        int cot,hang;
    cout << "nhap so cot can xoa: ";
    cin >> cot ;
    xoacol(b, c, d,cot);
    cout << "nhap so hang can xoa: ";
    cin >> hang ;
    xoarow(b, c, d - 1, hang);
```

```cpp
    return 0;

}
```

Bai 7

```cpp
#include <iostream>

#include <math.h>

using namespace std;


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

   int temp = a;

   a = b;

   b = temp;

}


void nhapmang (int a[100][100], int m, int n){

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

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

                        cin >> a[i][j];

                }

        }

}
void xuatmang (int a[100][100], int m, int n){

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

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

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

                }

                cout << endl;

        }

}
```

```cpp
void doihang(int a[100][100], int m, int n, int hang1, int hang2){
    for(int j = 0 ; j < n ; ++j)
        swap(a[hang1][j], a[hang2][j]);
    cout << "Ma tran sau khi doi hang " << hang1 <<" voi hang " << hang2 << " la: "<< endl;
    xuatmang(a, m, n);
}


void doicot(int a[100][100], int m, int n, int cot1, int cot2){
    for(int i = 0 ; i < n ; ++i)
        swap(a[i][cot1], a[i][cot2]);
    cout << "Ma tran sau khi doi cot "<<cot1<<" voi cot: "<< cot2 << " la: " << endl;;
    xuatmang(a, m, n);
}


int main(){
    int c, d,e,f,g,h;
    int aa[100][100];
    cout << "Nhap kich thuoc cua ma tran: ";
    cin >> c >> d;
            cout << "Nhap ma tran" << endl;
    nhapmang(aa, c, d);
    cout << "Ma tran la:" << endl;
    xuatmang(aa, c, d);
    cout << "Nhap hai hang can doi cho voi nhau: ";
    cin >> e >> f;
    doihang(aa, c, d, e, f);
    cout << "Nhap hai cot can doi cho voi nhau: ";
    cin >> g >> h;
    doicot(aa, c, d, g, h);
```

```cpp
        return 0;
}
Bai 8
#include <iostream>
using namespace std;

const int ROW = 100;
const int COL = 100;

void arrInput(int arr[ROW][COL], int m, int n){
    for(int i = 0 ; i < m ; ++i)
        for(int j = 0 ; j < n ; ++j){
            cout << "Nhap vao ma tran hang[" << i + 1 << "] cot[" << j + 1 << "]: ";
            cin >> arr[i][j];
        }
}

void arrOutput(int arr[][COL], int m, int n){
    for(int i = 0 ; i < m ; ++i){
        for(int j = 0 ; j < n ; ++j)
            cout << arr[i][j] << "\t";
        cout << endl;
    }
}

void sumMatrix(int arr_1[][COL], int arr_2[][COL], int m, int n){
    int sum[ROW][COL];
    for(int i = 0 ; i < m ; ++i)
        for(int j = 0 ; j < n ; ++j)
```

```cpp
            sum[i][j] = arr_1[i][j] + arr_2[i][j];
    cout << "Ket qua cua phep cong ma tran:" << endl;
    arrOutput(sum, m, n);
}


int main(){
    int m, n;
    cout << "Nhap kich thuoc cua ma tran: ";
    cin >> m >> n;


    int arr_1[ROW][COL];
    int arr_2[ROW][COL];


    cout << "Nhap vao ma tran thu nhat: " << endl;
    arrInput(arr_1, m, n);
    cout << endl;
    cout << "Nhap vao ma tran thu hai: " << endl;
    arrInput(arr_2, m, n);
    cout<< endl;
    cout << "Ma tran da nhap: " << endl;
    arrOutput(arr_1, m, n); cout << endl;
    arrOutput(arr_2, m, n); cout << endl;


    sumMatrix(arr_1, arr_2, m, n);


    return 0;
}
```
Bai 9

```cpp
#include <iostream>
```

```cpp
#include <math.h>

using namespace std;


void swap(int& a, int& b){
    int temp = a;
    a = b;
    b = temp;
}


void nhapmang (int a[100][100], int m, int n){
        for (int i=0; i<m; i++){
                for (int j=0; j<n; j++){
                        cin >> a[i][j];
                }
        }
}

void xuatmang (int a[100][100], int m, int n){
        for (int i=0; i<m; i++){
                for (int j=0; j<n; j++){
                        cout << a[i][j] << " ";
                }
                cout << endl;
        }
}


int kiem_tra_duong_cheo_chinh(int a[100][100], int m) {
    for (int i = 0; i < m; i++) {
        for (int j = 0; j < m; j++) {
            if (a[i][j] != a[j][i]) {
```

```cpp
            return 0;
        }
    }
  }
  return 1;
}


int main() {
  int b[100][100];
  int hang, cot;

  cout << "nhap kich thuoc ma tran: ";
  cin >> hang >> cot;

  if (hang != cot) {
    cout << "Ma tran khong phai la ma tran vuong." << endl;
    return 0;
  }
        nhapmang(b, hang, cot);

  cout << "Ma tran:" << endl;
  xuatmang(b, hang, cot);

  cout << (kiem_tra_duong_cheo_chinh(b, hang) == 1 ? "Ma tran doi xung qua duong cheo chinh" : "Ma tran khong doi xung qua duong cheo chinh");
}
```

Bai 10

```cpp
#include <iostream>
#include <string>
```

```cpp
using namespace std;

const int MAX_SACH = 50;

struct Sach {
        char tenSach[100];
        char tacGia[100];
        float gia;
};

Sach danhSachSach[MAX_SACH];
Sach donHang[MAX_SACH];
int soLuongSach = 0;
int soLuongDonHang = 0;

bool coChuoiCon(const char chuoiChinh[], const char chuoiCon[]) {
        int m = strlen(chuoiChinh);
        int n = strlen(chuoiCon);

        for (int i = 0; i <= m - n; i++) {
                int j;
                for (j = 0; j < n; j++) {
                        if (chuoiChinh[i + j] != chuoiCon[j])
                                break;
                }
                if (j == n)
                        return true; // Chuỗi con được tìm thấy
        }
```

```cpp
        return false; // Chuỗi con không được tìm thấy
}


void hienThiDanhSachSach() {
        for (int i = 0; i < soLuongSach; i++) {
                cout << "Cuon " << i + 1 << ":" << endl;
                cout << "Ten sach: " << danhSachSach[i].tenSach << endl;
                cout << "Tac gia: " << danhSachSach[i].tacGia << endl;
                cout << "Gia: " << danhSachSach[i].gia << endl;
                cout << "------------------------" << endl;
        }
}


void timSach(const char timKiem[]) {
        bool timThay = false;
        for (int i = 0; i < soLuongSach; i++) {
                if (coChuoiCon(danhSachSach[i].tenSach, timKiem) ||
coChuoiCon(danhSachSach[i].tacGia, timKiem)) {
                        cout << "Cuon " << i + 1 << ":" << endl;
                        cout << "Ten sach: " << danhSachSach[i].tenSach << endl;
                        cout << "Tac gia: " << danhSachSach[i].tacGia << endl;
                        cout << "Gia: " << danhSachSach[i].gia << endl;
                        cout << "------------------------" << endl;
                        timThay = true;
                }
        }
        if (!timThay) {
                cout << "Khong tim thay sach." << endl;
```

```cpp
        }
}


void themSach() {
        if (soLuongSach < MAX_SACH) {
                cout << "Nhap thong tin cuon sach:" << endl;
                cout << "Ten sach: ";
                cin.ignore();
                cin.getline(danhSachSach[soLuongSach].tenSach, 100);
                cout << "Tac gia: ";
                cin.getline(danhSachSach[soLuongSach].tacGia, 100);
                cout << "Gia: ";
                cin >> danhSachSach[soLuongSach].gia;


                soLuongSach++;
                cout << "Da them sach vao danh sach." << endl;
        }
        else {
                cout << "Danh sach sach da day, khong the them them sach moi." << endl;
        }
}


float tinhTongTien(Sach donHang[]) {
        float tongTien = 0.0;
        for (int i = 0; i < soLuongDonHang; i++) {
                tongTien += donHang[i].gia;
        }
        return tongTien;
}
```

```cpp
void datHang() {
        cout << "Nhap so thu tu cuon sach muon dat: ";
        int soThuTu;
        cin >> soThuTu;

        if (soThuTu >= 1 && soThuTu <= soLuongSach) {
                cout << "Nhap so luong muon dat: ";
                int soLuongMuonDat;
                cin >> soLuongMuonDat;

                for (int i = 0; i < soLuongMuonDat; i++) {
                        donHang[soLuongDonHang++] = danhSachSach[soThuTu - 1];
                }

                cout << "Da them sach vao don hang." << endl;
        }
        else {
                cout << "So thu tu khong hop le." << endl;
        }
}
void hienThiDonHang(int soLuongSachCanTinh) {
        float tongTien = tinhTongTien(donHang);

        cout << "Danh sach sach trong don hang:" << endl;
        for (int i = 0; i < soLuongSachCanTinh; i++) {
                cout << "Cuon " << i + 1 << ":" << endl;
                cout << "Ten sach: " << donHang[i].tenSach << endl;
                cout << "Tac gia: " << donHang[i].tacGia << endl;
```

```cpp
            cout << "Gia: " << donHang[i].gia << endl;

            cout << "------------------------" << endl;

        }


        cout << "Tong so tien can thanh toan: " << tongTien << " VND" << endl;

}


int main() {

        int luaChon;


        do {

                cout << "===== Quan Ly Nha Sach =====" << endl;

                cout << "1. Them sach" << endl;

                cout << "2. Hien thi danh sach sach" << endl;

                cout << "3. Tim sach theo ten sach hoac tac gia" << endl;

                cout << "4. Dat hang" << endl;

                cout << "5. Xem don hang" << endl;

                cout << "6. Thoat" << endl;

                cout << "Nhap lua chon cua ban: ";

                cin >> luaChon;


                switch (luaChon) {

                case 1:

                        themSach();

                        break;



                case 3:

                        char timKiem[100];
```

```cpp
            cout << "Nhap ten sach hoac tac gia can tim: ";

            cin.ignore();

            cin.getline(timKiem, 100);

            timSach(timKiem);

            break;


    case 2:

            hienThiDanhSachSach();

            break;


    case 4:

            datHang();

            break;


    case 5:

            int soLuongSachCanTinh;

            cout << "Nhap so luong sach can tinh trong don hang: ";

            cin >> soLuongSachCanTinh;

            hienThiDonHang(soLuongSachCanTinh);

            break;


    case 6:

            cout << "Cam on da su dung chuong trinh. Hen gap lai!" << endl;

            break;


    default:

            cout << "Lua chon khong hop le. Vui long chon lai." << endl;

            break;
    }
```

```
    } while (luaChon != 6);


    return 0;
}
```