

**TRƯỜNG ĐẠI HỌC BÁCH KHOA HÀ NỘI**  
**VIỆN ĐIỆN TỬ - VIỄN THÔNG**



**BÁO CÁO THÍ NGHIỆM NGÔN NGỮ**  
**LẬP TRÌNH**

**Họ tên sinh viên: Nguyễn Minh Hiếu**

**MSSV: 20151336**

**Lớp: Điện tử 03 K60**

**Mã lớp TN: 683614**

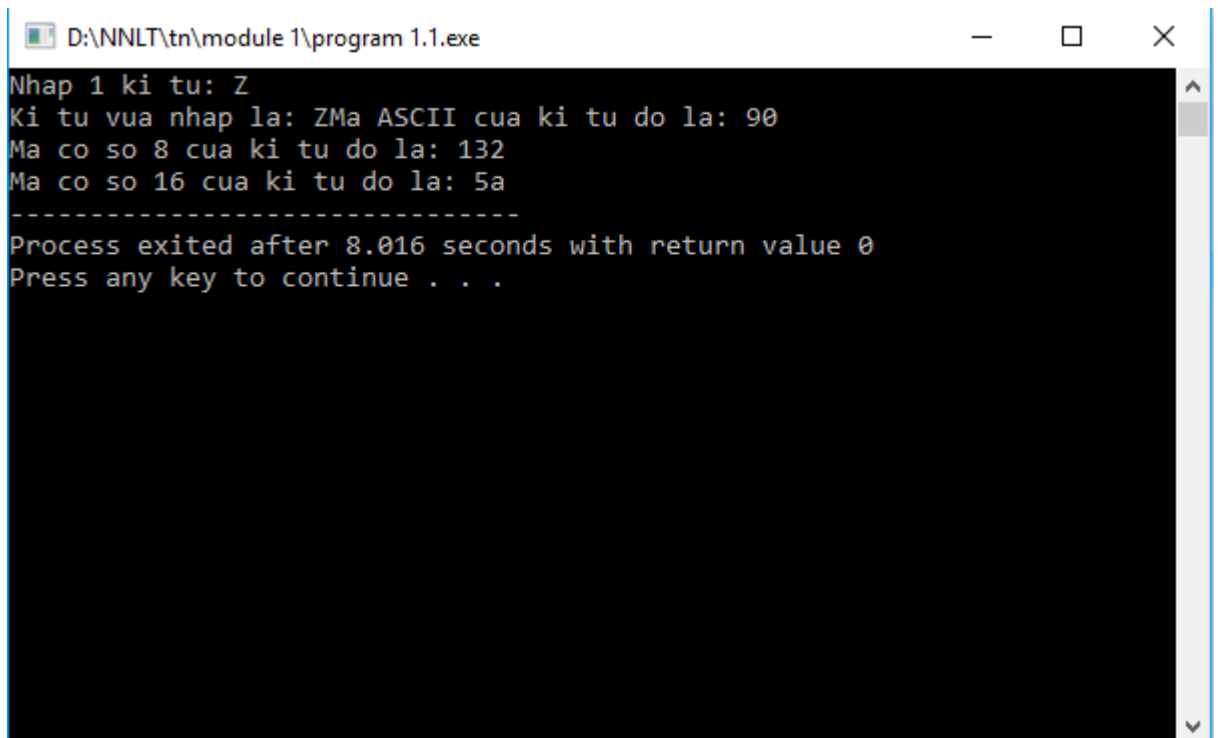
# MODULE 1

## Program 1.1

```
#include<iostream>
using namespace std;

int main(){
    char ch;
    cout<<"Nhap 1 ki tu: ";
    cin>>ch;
    cout<<"Ki tu vua nhap la: "<<ch<<endl;
    cout<<"Ma ASCII cua ki tu do la: "<<(int)(ch)<<endl;
    cout<<"Ma co so 8 cua ki tu do la: "<<oct<<(int)(ch)<<endl;
    cout<<"Ma co so 16 cua ki tu do la: "<<hex<<(int)(ch)<<endl;

    system("pause");
    return 0;
}
```



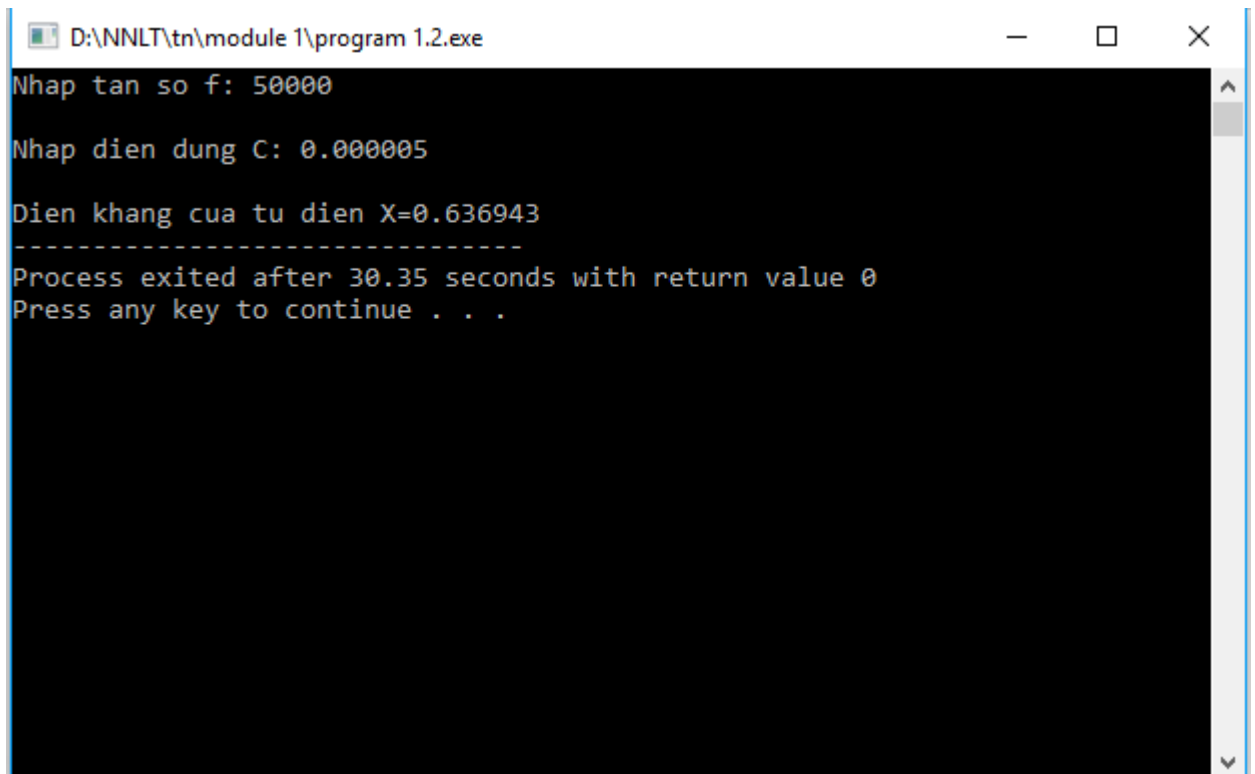
```
D:\NNLT\tn\module 1\program 1.1.exe
Nhap 1 ki tu: Z
Ki tu vua nhap la: ZMa ASCII cua ki tu do la: 90
Ma co so 8 cua ki tu do la: 132
Ma co so 16 cua ki tu do la: 5a
-----
Process exited after 8.016 seconds with return value 0
Press any key to continue . . .
```

## Program 1.2

```
#include<iostream>
#define PI 3.14
using namespace std;

int main(){
double f,C,X;
cout<<"Nhập tan số f: ";
cin>>f;
cout<<"\nNhập diện dung C: ";
cin>>C;
X=1/(2*PI*f*C);
cout<<"Diện kháng của tụ điện X="<<X<<endl;

system("pause");
return 0;
}
```



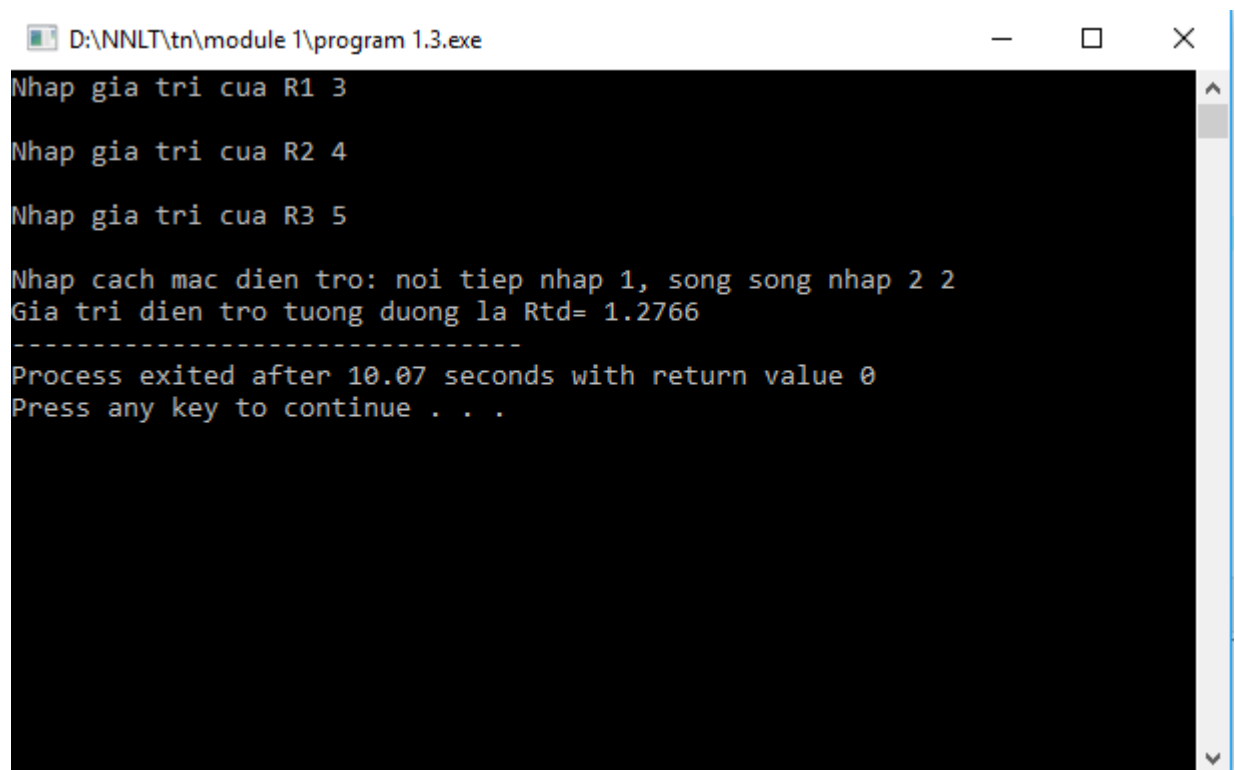
```
D:\NNLT\tn\module 1\program 1.2.exe
Nhập tan số f: 50000
Nhập diện dung C: 0.000005
Diện kháng của tụ điện X=0.636943
-----
Process exited after 30.35 seconds with return value 0
Press any key to continue . . .
```

## Program 1.3

```
#include<iostream>
using namespace std;

int main(){
double R1,R2,R3,Rtd;
int a;
cout<<"Nhập giá trị R1: ";
cin>>R1;
cout<<"Nhập giá trị của R2: ";
cin>>R2;
cout<<"Nhập giá trị của R3: ";
cin>>R3;
cout<<"Nhập cách mắc điện trở\nNoi tiếp: 1\nSong song: 2 ";
cin>>a;
if (a==1) Rtd=R1+R2+R3;
if (a==2) Rtd=1/(1/R1+1/R2+1/R3);
cout<<"Giá trị điện trở tương đương là Rtd= "<<Rtd<<endl;

system("pause");
return 0;
}
```



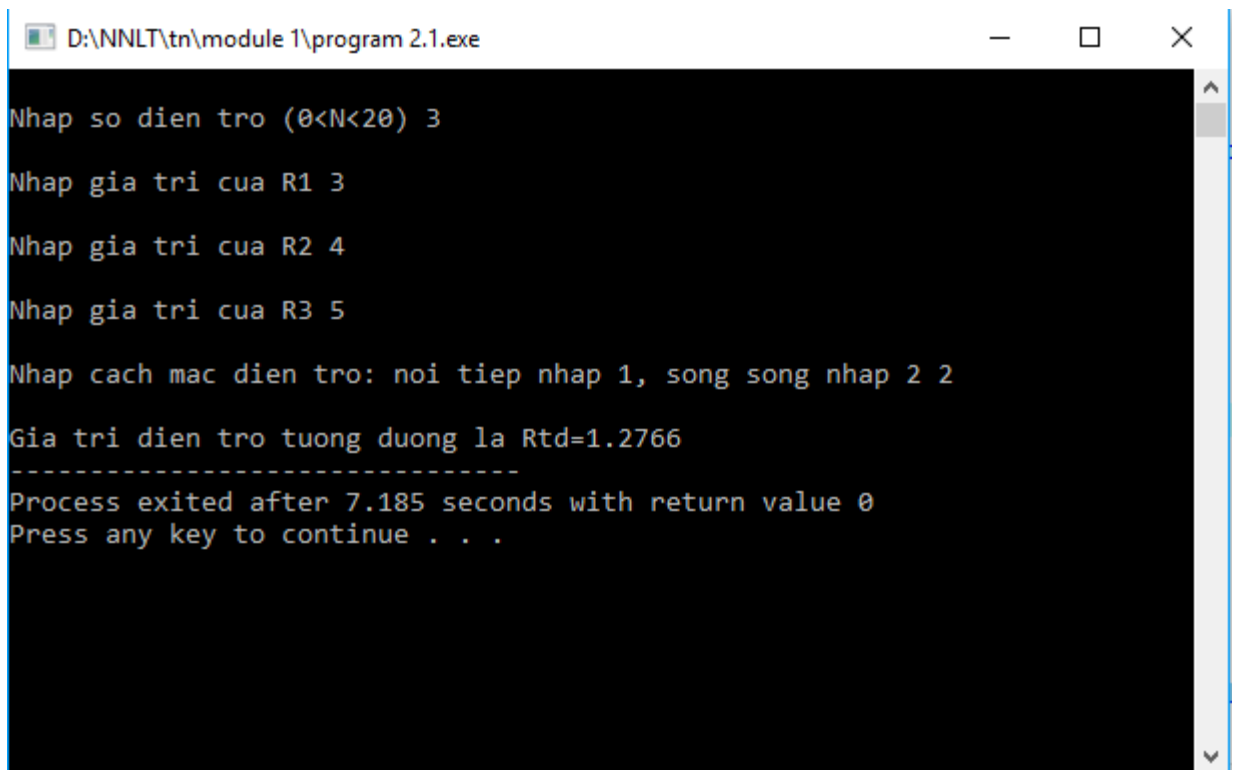
```
D:\NNLT\tn\module 1\program 1.3.exe
Nhập giá trị của R1 3
Nhập giá trị của R2 4
Nhập giá trị của R3 5
Nhập cách mắc điện trở: nối tiếp nhập 1, song song nhập 2 2
Giá trị điện trở tương đương là Rtd= 1.2766
-----
Process exited after 10.07 seconds with return value 0
Press any key to continue . . .
```

## Program 2.1

```
#include<iostream>
using namespace std;

int main(){
double A[19];
int N;
do{
    cout<<"\nNhap so dien tro (0<N<20) ";
    cin>>N;
    if(N>0&&N<20) continue;
    cout<<"\nNhap lai, chi nhap 0<N<20 ";
}while(N<=0||N>=20);
for(int i=0;i<N;i++){
    do{
        cout<<"\nNhap gia tri cua R"<<i+1<<" ";
        cin>>A[i];
        if(A[i]>0) continue;
        cout<<"\nNhap lai gia tri R>0 ";
    }while(A[i]<=0);
}
int a;
do{
    cout<<"Nhap cach mac dien tro\nNoi tiep: 1\nSong song: 2 ";
    cin>>a;
    if(a==1||a==2) continue;
    cout<<"\nNhap lai, chi nhap 1 hoac 2 ";
}while(a!=1&&a!=2);
double Rtd=0, m=0;
if(a==1){
    for(int i=0;i<N;i++)
        Rtd+=A[i];
}
else {
    for(int i=0;i<N;i++){
        m+=(1/A[i]);
        Rtd=1/m;
    }
}
cout<<"\nGia tri dien tro tuong duong la Rtd="<<Rtd<<endl;

system("pause");
return 0;
}
```



```
D:\NNLT\tn\module 1\program 2.1.exe

Nhap so dien tro (0<N<20) 3

Nhap gia tri cua R1 3

Nhap gia tri cua R2 4

Nhap gia tri cua R3 5

Nhap cach mac dien tro: noi tiep nhap 1, song song nhap 2 2

Gia tri dien tro tuong duong la Rtd=1.2766
-----
Process exited after 7.185 seconds with return value 0
Press any key to continue . . .
```

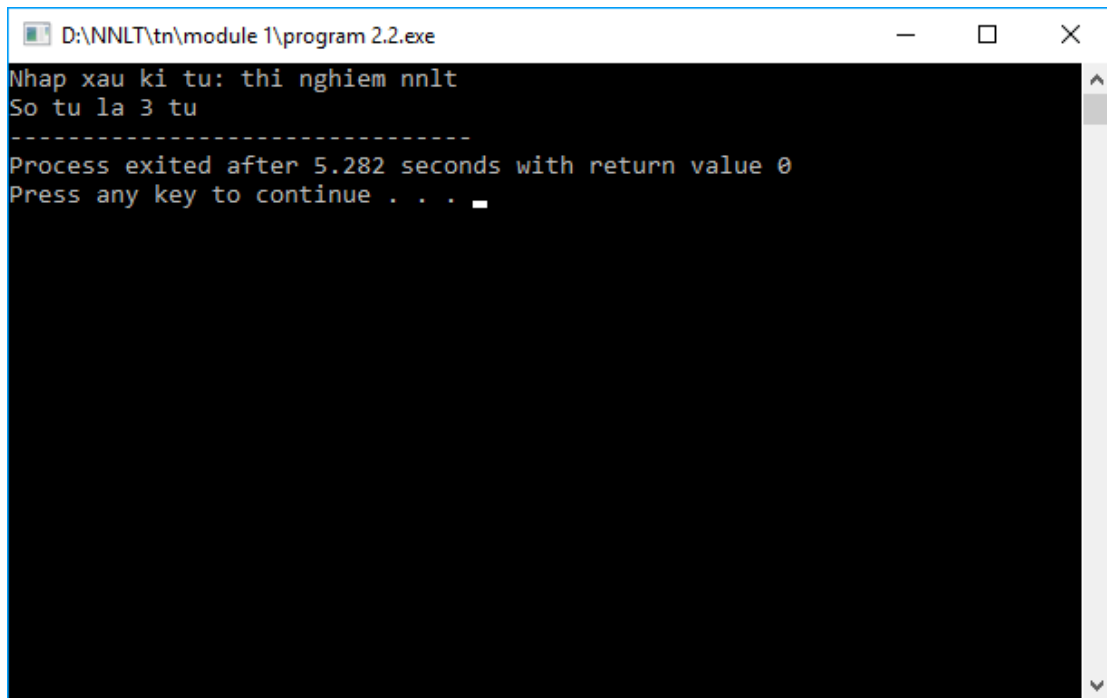
## Program 2.2

```
#include<iostream>
#include<string.h>
using namespace std;

int sotu(char s[]){
    int dem=0;
    if(s[0]!=' ') dem++;
    for(int i=0;i<strlen(s);i++)
        if(s[i]==' ' && s[i+1]!=' ' && s[i+1]!='\0')
            dem++;
    return dem;
}

int main(){
    char s[200];
    cout<<"Nhap xau ki tu: ";
    cin.ignore();
    cin.getline(s,200);
    cout<<"So tu la "<<sotu(s)<<" tu"<<endl;

    system("pause");
    return 0;
}
```



```
D:\NNLT\tn\module 1\program 2.2.exe
Nhap xau ki tu: thi nghieng nnlt
So tu la 3 tu
-----
Process exited after 5.282 seconds with return value 0
Press any key to continue . . .
```

## Program 2.3

```
#include<iostream>
using namespace std;

void nhapmatran(double A[][10], int m, int n){
    for(int i=0;i<m;i++){
        for(int j=0;j<n;j++){
            cout<<"Nhap gia tri cua A["<<i+1<<"]["<<j+1<<"] ";
            cin>>A[i][j];
        }
    }
}

void inmatran(double A[][10],int m, int n){
    cout<<"\nMa tran vua nhap la ";
    for(int i=0;i<m;i++){
        cout<<"\n";
        for(int j=0;j<n;j++){
            cout<<A[i][j]<<"\t";
        }
    }
}

double tongmatran(double A[][10], int m, int n){
    double tong=0;
    for(int i=0;i<m;i++){
        for(int j=0;j<n;j++){
            tong+=A[i][j];
        }
    }
    return tong;
}
```

```

void tonghang(double A[][10],int m, int n){
    for(int i=0;i<m;i++){
        double tonghang=0;
        for(int j=0;j<n;j++){
            tonghang+=A[i][j];
            cout<<"\nTong cua hang thu "<<i+1<<" bang "<<tonghang;
        }
    }

void tongcot(double A[][10],int m, int n){
    for(int j=0;j<n;j++){
        double tongcot=0;
        for(int i=0;i<m;i++){
            tongcot+=A[i][j];
            cout<<"\nTong cua cot thu "<<j+1<<" bang "<<tongcot;
        }
    }

int main(){
    double A[10][10];
    int m,n;
    cout<<"Nhap so hang m=";cin>>m;
    cout<<"Nhap so cot n=";cin>>n;
    nhapmatran(A,m,n);
    inmatran(A,m,n);
    cout<<"\nTong cua cac phan tu trong ma tran la "<<tongmatran(A,m,n);
    tonghang(A,m,n);
    tongcot(A,m,n);

    system("pause");
    return 0;
}

```

```

D:\NNLT\tn\module 1\program 2.3.exe
Nhap so hang m=3
Nhap so cot n=2
Nhap gia tri cua A[1][1] 11
Nhap gia tri cua A[1][2] 12
Nhap gia tri cua A[2][1] 21
Nhap gia tri cua A[2][2] 22
Nhap gia tri cua A[3][1] 31
Nhap gia tri cua A[3][2] 32
Ma tran vua nhap la
11    12
21    22
31    32
Tong cua cac phan tu trong ma tran la 129
Tong cua hang thu 1 bang 23
Tong cua hang thu 2 bang 43
Tong cua hang thu 3 bang 63
Tong cua cot thu 1 bang 63
Tong cua cot thu 2 bang 66
-----
Process exited after 7.696 seconds with return value 0
Press any key to continue . . .

```



# BÀI VỀ NHÀ

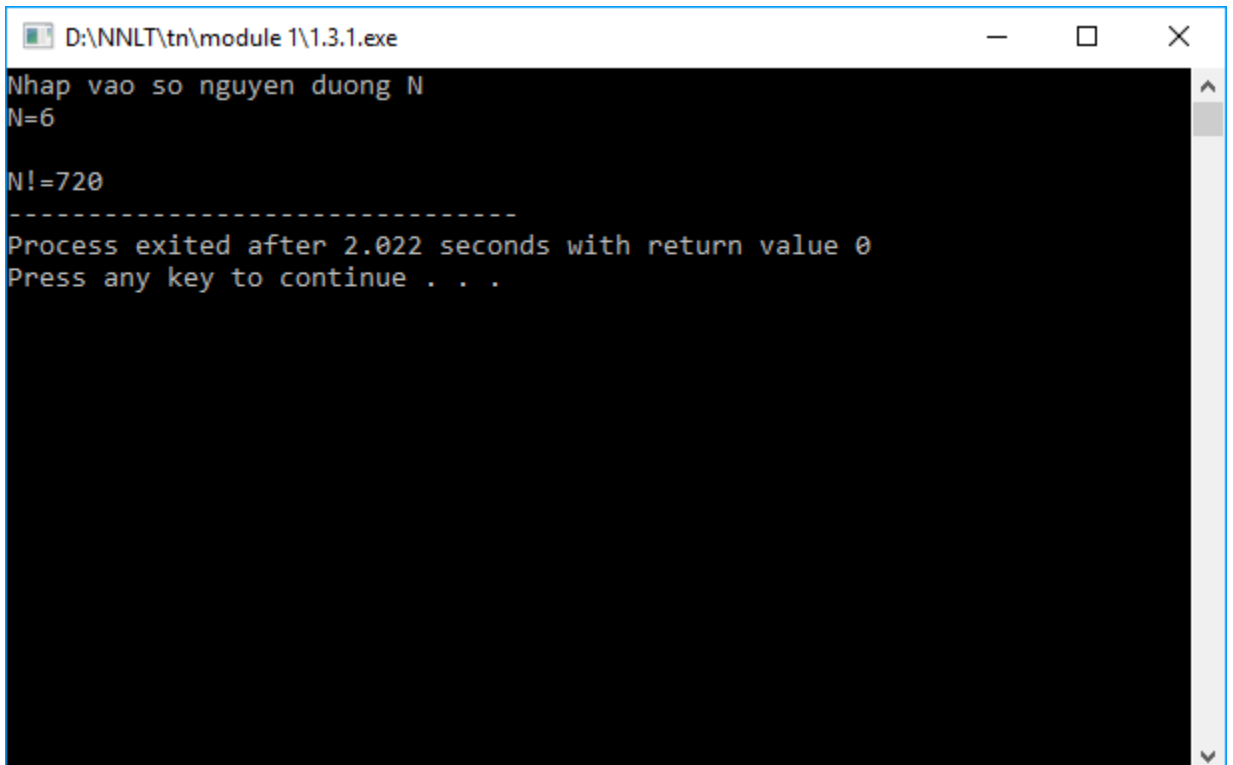
## Bài 1

```
#include<iostream>
using namespace std;

int Factorial(int N){
    if(N==0) return 1;
    int gt=1;
    for(int i=0;i<N;i++)
        gt*=(i+1);
    return gt;
}

int main(){
    int N;
    cout<<"Nhap so nguyen duong N: ";
    cin>>N;
    cout<<"N!="<<Factorial(N)<<endl;

    system("pause");
    return 0;
}
```



```
D:\NNLT\tn\module 1\1.3.1.exe
Nhap vao so nguyen duong N
N=6

N!=720
-----
Process exited after 2.022 seconds with return value 0
Press any key to continue . . .
```

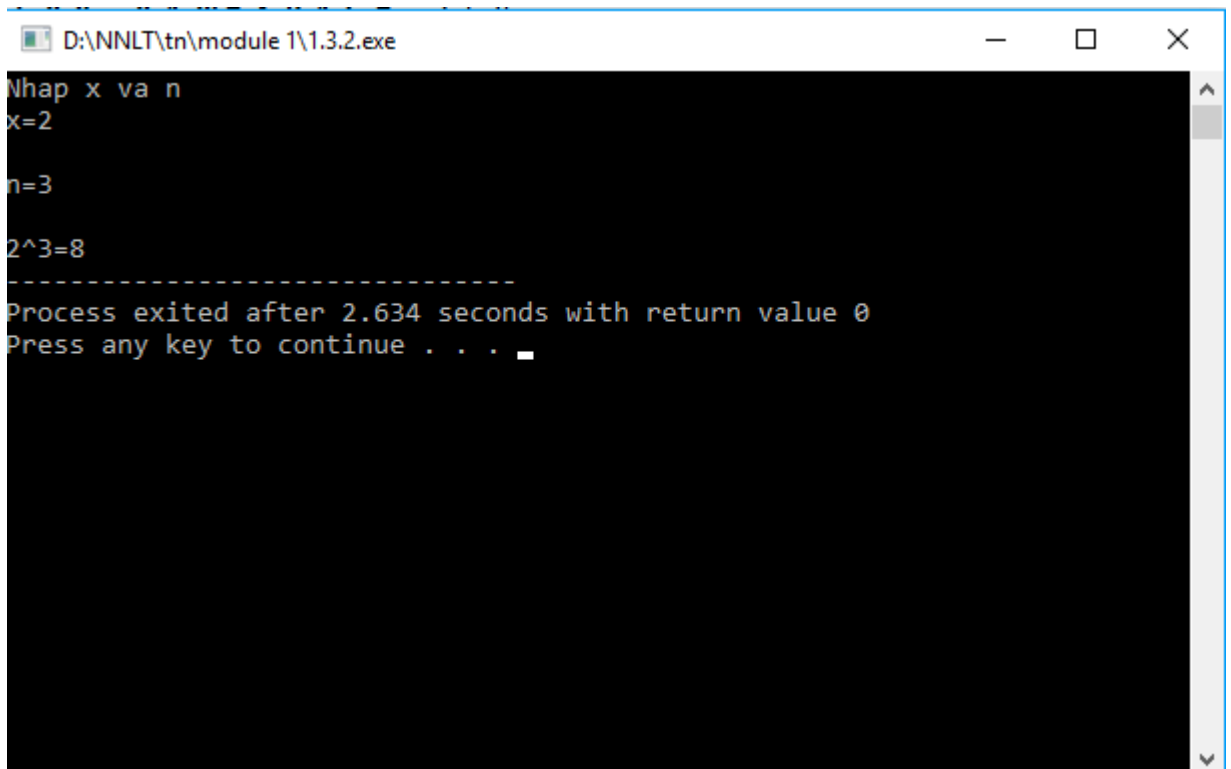
## Bài 2

```
#include <iostream>
using namespace std;

double Pow(double x,int n){
    if(n==0) return 1;
    if (n<0) return 1.0/pow(x, -n);
    else return pow(x,n-1)*x;
}

int main (){
    double x;
    int n;
    cout<<"Nhập x: ";
    cin>>x;
    cout<<"Nhập n: ";
    cin>>n;
    cout<<x<<"^"<<n<<"="<<Pow(x,n)<<endl;

    system("pause");
    return 0;
}
```



```
D:\NNLT\tn\module 1\1.3.2.exe
Nhập x va n
x=2
n=3
2^3=8
-----
Process exited after 2.634 seconds with return value 0
Press any key to continue . . .
```

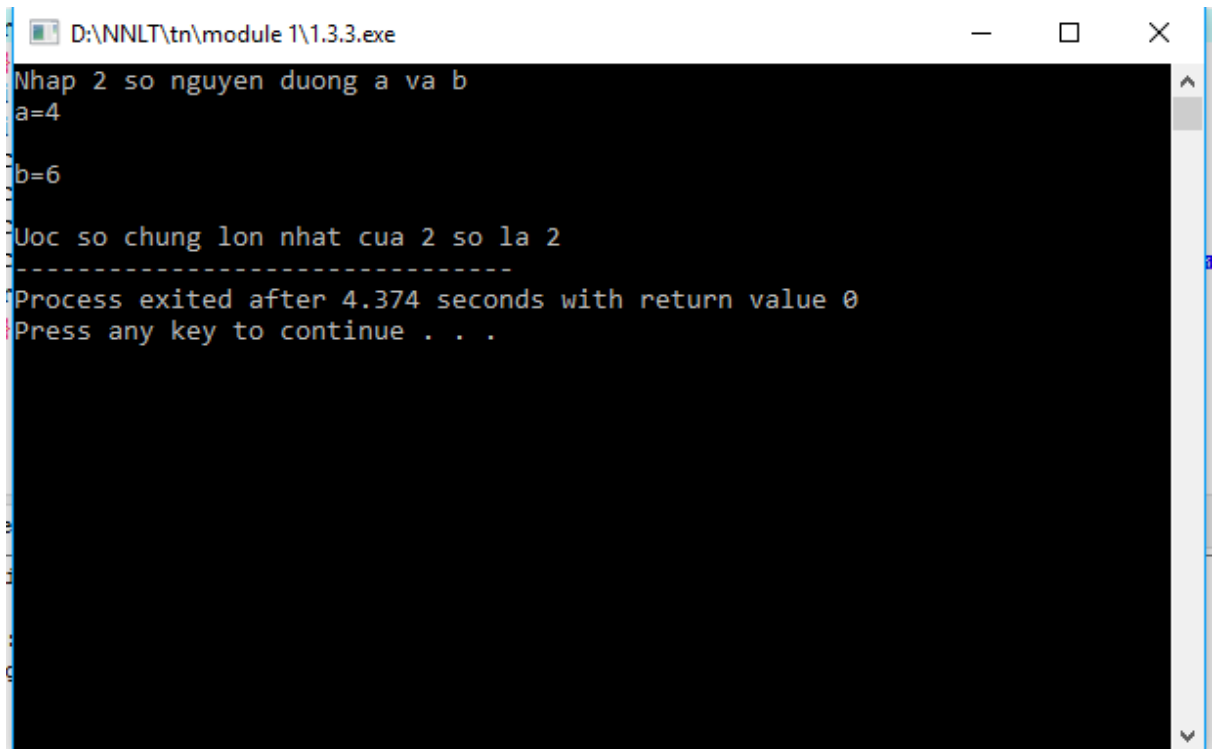
### Bài 3

```
#include <iostream>
using namespace std;

int uscln(int a, int b){
    if(a<b) swap(a,b);
    int u;
    do{
        u=a%b;
        a=b;
        b=u;
    }while(u!=0);
    return a;
}

int main(){
    int a,b;
    cout<<"Nhập a: ";
    cin>>a;
    cout<<"Nhập b: ";
    cin>>b;
    cout<<"UCLN của 2 số là "<<uscln(a,b)<<endl;

    system("pause");
    return 0;
}
```



```
D:\NNLT\tn\module 1\1.3.3.exe
Nhập 2 số nguyên dương a và b
a=4
b=6
Uoc số chung lớn nhất của 2 số là 2
-----
Process exited after 4.374 seconds with return value 0
Press any key to continue . . .
```

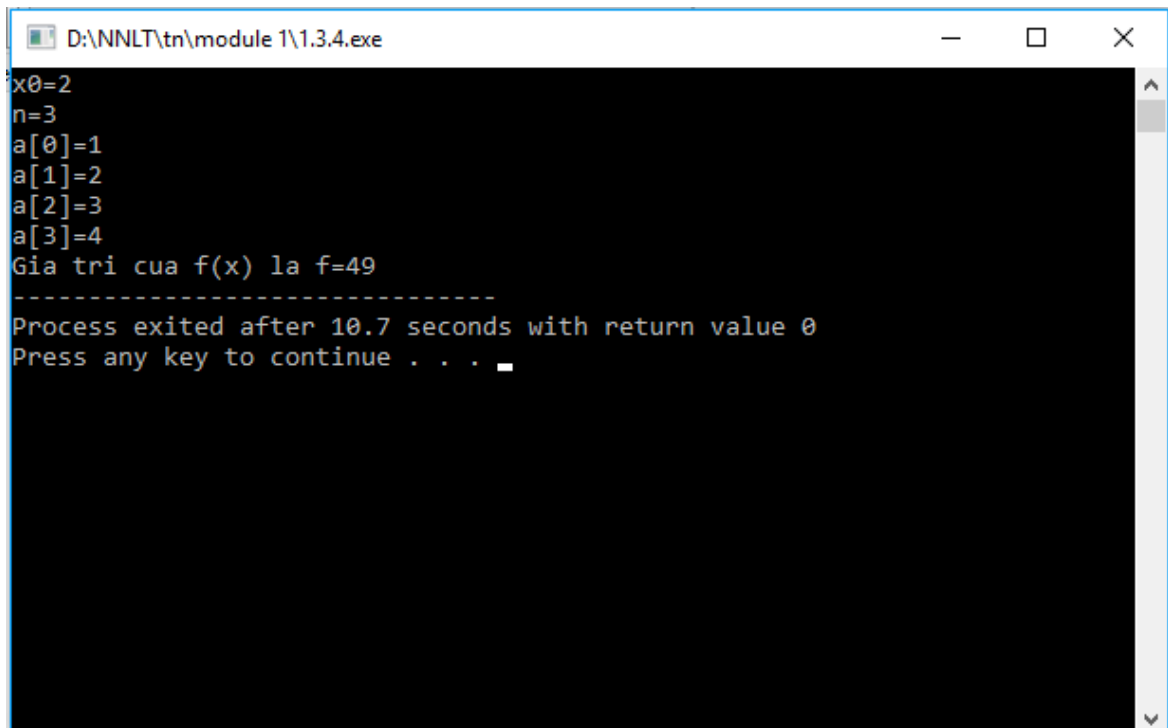
## Bài 4

```
#include<iostream>
using namespace std;

double Value(double a[], int n, double x0){
double f=0;
for(int i=0;i<=n;i++){
f+=a[i]*pow(x0,i);
return f;
}

int main(){
double a[100];
int n;
double x0;
cout<<"x0=";cin>>x0;
if(x0==0){
    cout<<"Gia tri cua f(x) la f=0";
    exit(0);
}
cout<<"n=";cin>>n;
for(int i=0;i<=n;i++){
    cout<<"a["<<i<<"]=";cin>>a[i];
}
cout<<"Gia tri cua f(x) la f="<<Value(a,n,x0)<<endl;

system("pause");
return 0;
}
```



```
D:\NNLT\tn\module 1\1.3.4.exe
x0=2
n=3
a[0]=1
a[1]=2
a[2]=3
a[3]=4
Gia tri cua f(x) la f=49
-----
Process exited after 10.7 seconds with return value 0
Press any key to continue . . .
```

## MODULE 2

### Program 1.1

```
#include <iostream>
using namespace std;

class Complex{
private:
    double re,im;
public:
    Complex(double r=0,double i=0):re(r),im(i){}
    Complex(const Complex &c):re(c.re),im(c.im){}
public:
    Complex operator +(Complex c);
    Complex operator -(Complex c);
    Complex operator *(Complex c);
    Complex operator /(Complex c);
public:
    friend ostream& operator<<(ostream &out,Complex c){
        return(out<<'('<<c.re<<","<<c.im<<"i)");
    }
};

Complex Complex::operator+(Complex c){
    return Complex(this->re+c.re,this->im+c.im);
}

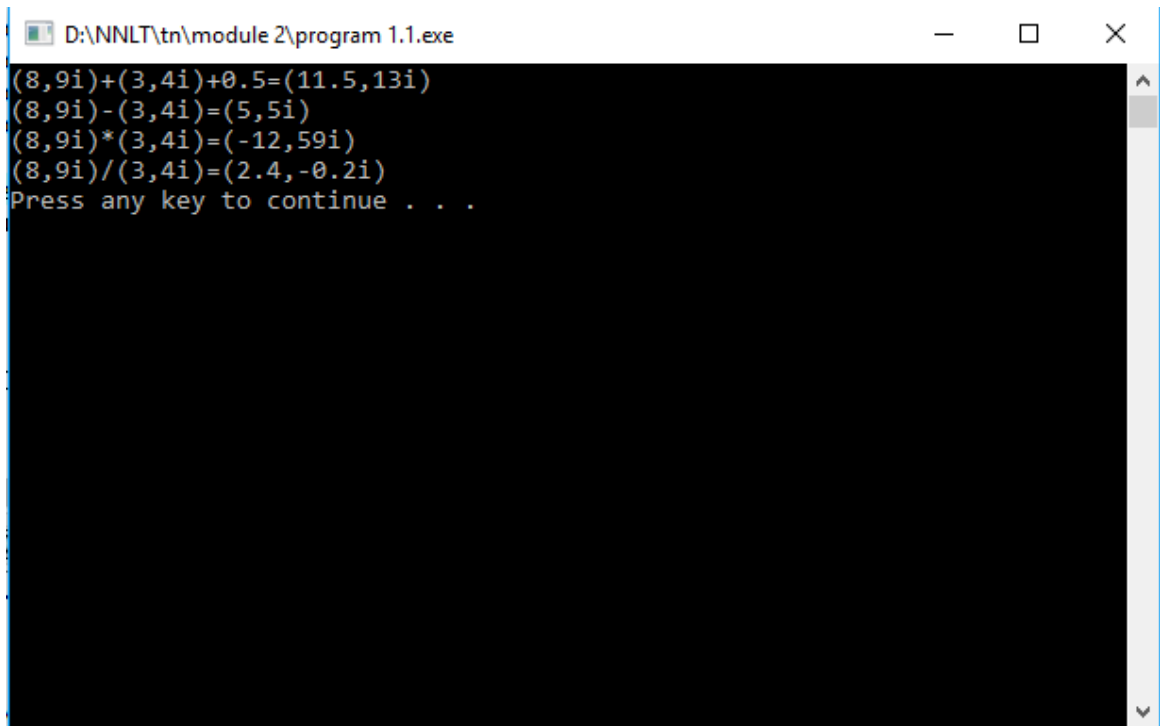
Complex Complex::operator -(Complex c){
    return Complex(this->re-c.re,this->im-c.im);
}

Complex Complex::operator*(Complex c){
    return Complex((this->re*c.re)-(this->im*c.im),(this->re*c.im)+(c.re*this->im));
}

Complex Complex::operator / (Complex c){
    double m=c.re*c.re+c.im*c.im;
    return Complex((this->re*c.re+this->im*c.im)/m,(-this->re*c.im+this->im*c.re)/m);
}

int main(){
    Complex y(8,9),z(3,4);
    double a=0.5;
    cout<<y<<"+"<<z<<"+"<<a<<"="<<y+z+a<<endl;
    cout<<y<<"-"<<z<<"="<<y-z<<endl;
    cout<<y<<"*"<<z<<"="<<y*z<<endl;
    cout<<y<<"/"<<z<<"="<<y/z<<endl;

    system("pause");
    return 0;
}
```



```
D:\NNLT\tn\module 2\program 1.1.exe
(8,9i)+(3,4i)+0.5=(11.5,13i)
(8,9i)-(3,4i)=(5,5i)
(8,9i)*(3,4i)=(-12,59i)
(8,9i)/(3,4i)=(2.4,-0.2i)
Press any key to continue . . .
```

## Program 1.2

```
#include <iostream>
#include <string.h>

using namespace std;

class String{
private:
    int length;
    char *data;
private:
    String(int length, char *data):length(length),data(data){}
public:
    String():length(0),data(new char[1]){data[0];}
    String(const char* s){
        length= strlen(s);
        data=new char[length +1];
        strcpy(data,s);
    }
    String (const String&s):length(s.length),data(s.data){}
    ~String(){delete[] data;}
public:
    int Compare(String s){
        int r=strcmp(data,s.data);
        if(r>0)return 1;
        if (r<0) return -1;
        return 0;
    }
};
```

```

    }
public:
    char &operator[](int index){return data[index];}
    String&operator=(String&s);
public:
    String operator + (char c);
    String operator + (String s);
public:
    int operator == (String s);
    int operator != (String s);
    friend ostream&operator<<(ostream&out, const String&s){
        return(out<<s.data);
    }
};

String&String::operator=(String&s){
    delete[] data;
    length=s.length;
    data=new char[length+1];
    strcpy(data,s.data);
    return(*this);
}

String String::operator +(char c){
    int length =this->length +1;
    char *data =new char[length+1];
    strcpy(data,this->data);
    data[this->length]=c;
    data[length]=0;
    return String(length,data);
}

String String::operator +(String s){
    int length=this->length+s.length;
    char *data=new char[length+1];
    strcpy(data,this->data);
    strcat(data,s.data);
    return String(length,data);
}

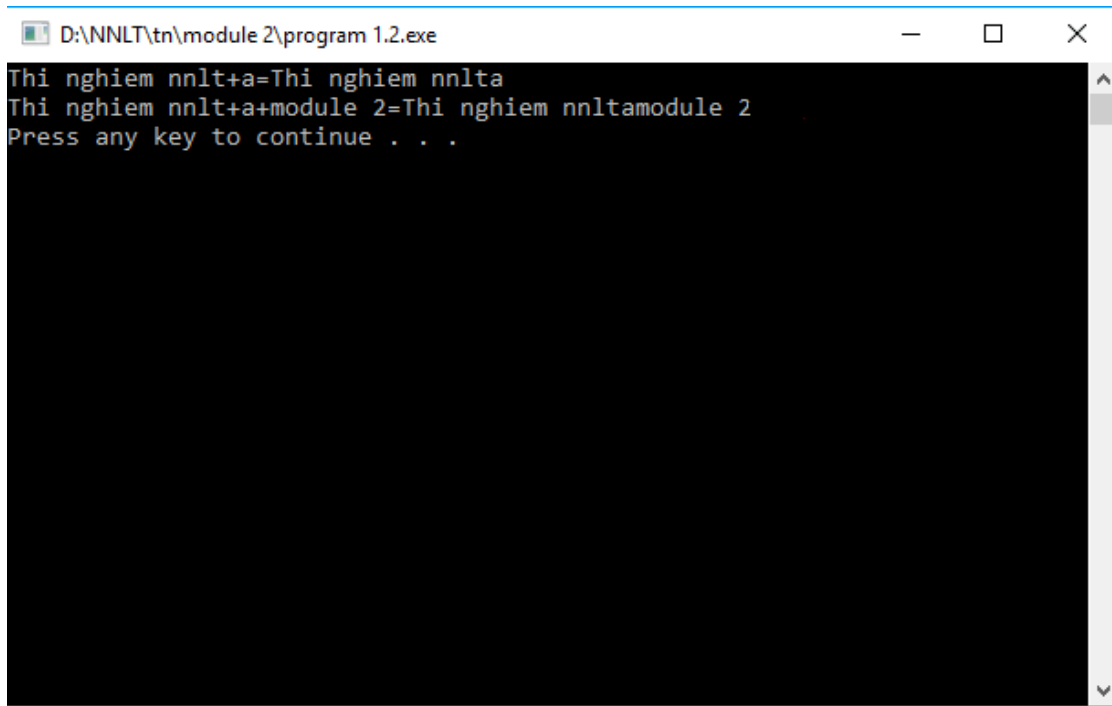
int String::operator ==(String s){
    return strcmp (data,s.data);
}

int String::operator !=(String s){
    return(!strcmp(data,s.data));
}

int main(){
    String s("Thi nghiem nnlt");
    char ch='a';
    cout<<s<<"+"<<ch<<"="<<s+ch<<endl;
    String ss("module 2");
    cout<<s<<"+"<<ch<<"+"<<ss<<"="<<s+ch+ss<<endl;

    system("pause");
    return 0;
}

```

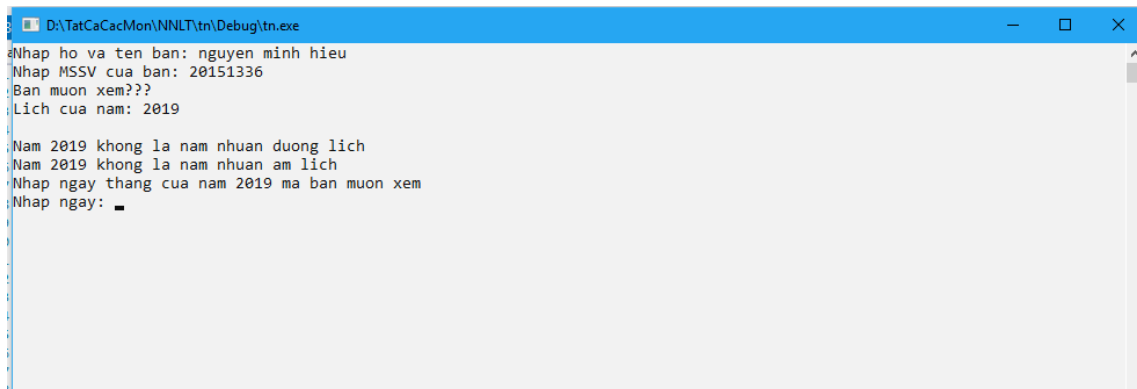


```
D:\NNLT\tn\module 2\program 1.2.exe
Thi nghiem nnlt+a=Thi nghiem nnlt a
Thi nghiem nnlt+a+module 2=Thi nghiem nnlt a module 2
Press any key to continue . . .
```

## MODULE 3

```
int main(){
int year, day, month;
nhapTen();
nhapNam(year);
namNhuan(year);
canChi(year);
xemThuBatKi(year,month,day);

system("pause");
return 0;
}
```



```
D:\TatCaCacMon\NNLT\tn\Debug\tn.exe
Nhap ho va ten ban: nguyen minh hieu
Nhap MSSV cua ban: 20151336
Ban muon xem??
Lich cua nam: 2019

Nam 2019 khong la nam nhuan duong lich
Nam 2019 khong la nam nhuan am lich
Nhap ngay thang cua nam 2019 ma ban muon xem
Nhap ngay: 
```