

Programming with C

Assignment 8

Due: Next Section.

Notes: This assignment is individual assignment, every student should complete it by himself.

1. (5 points) Create a C++ project and copy the following code to it, then answer the questions:
(This part to understand the function and the scope)

```
1. #include "iostream"
2. using namespace std;
3.
4. int main(){
5.     int x[5]={1, 2, 3, 4, 5};
6.
7.     cout<<endl<<x[0];
8.     cout<<endl<<x[3];
9.     cout<<endl<<x[5];
10.
11.     cout<<endl<<&x[0];
12.     cout<<endl<<&x[1];
13.
14.     cout<<endl<<x;
15.     cout<<endl<<*x;
16.     cout<<endl<<*(x+0);
17.     cout<<endl<<*(x+1);
18.
19.     int y[5];
20.     //y[3]=[-1,-2,-3,-4,-5];
21.
22.     for(int i=0;i<5;i++)
23.         cin>>y[i];
24.
25.     for(int i=0;i<5;i++)
26.         cout<<endl<<x[i]+y[i];
27.
28.
29.     return 0;
30. }
```

- Compile and run this program then , then report the output of each `cout` in lines (7-17) and note the difference.
- Uncomment line 22, compile the program, then report the error and explain why?
- Revert back to the original program, and report the output of line 26?
- Change line 25 into `for(int i=1; i<=5;i++)`. Compile and run the program, then report the output of line 26.

2. (5 points) Write a C program to read two vectors with size n specified by the user, then print the summation of these vectors.

3. (5 points) Write a C program to read two matrices of size n and m specified by the user, then print the summation of these matrices. The output should look as a matrix of rows and columns.

4. (5 points) Write a C program to read an $m \times n$ matrix and another $n \times m$ matrix from the user, then print the multiplication of the two matrices. The output should look as a matrix of rows and columns.

5. (5 points) Write a C program to read an angle in degrees, and print the Sin, Cos, and Tan of this angle. Simple run should look as following:

```
Enter an angle in degree: 30
```

```
Sin(30) = 0.5
```

```
Cos(30) = 0.866
```

```
Tan(30) =0.577
```