Week 5-1 : Name Spaces, Operator Overloading

Part1. Name Spaces

```
#include <iostream>
void Func(void)
{
  std::cout<<"Microsoft"<<std::endl;
}
void Func(void)
{
  std::cout<<"Apple"<<std::endl;
}
  int main(void)
{
Func(); //declare same form function, error!!
return 0;
}
```

When you compile Same implemented, different formed functions, error occurs. this error can be solved by Name Space

```
#include <iostream>

namespace Microsoft
{
        void Func(void)
        {
                std::cout<<"Microsoft"<<std::endl;
        }
}

namespace Apple
{
    void Func(void)
    {
        std::cout<<"Apple"<<std::endl;
    }
}

int main()
{
    Microsoft::Func();
    Apple::Func();

    return 0;
}
```

- Same Namespace's function call

```
#include <iostream>

namespace Microsoft
{
    void Func(void);
}
namespace Microsoft
{
    void print(void);
}
namespace Apple
{
    void Func(void);
}

int main()
{
    Microsoft::Func();
    return 0;
}
void Microsoft::Func(void)
{
    std::cout<<"Microsoft"<<std::endl;
    print(); //same name space
    Apple::Func(); //different name space
}
void Microsoft::print(void)
{
        std::cout<<"Microsoft second"<<std::endl;
}
void Apple::Func(void)
{
        std::cout<<"Apple"<<std::endl;
}
```

- Reiteration of the namespace

```
#include <iostream>
namespace AAA
{
        int num=5;

        namespace BBB
        {
                int num=6;
        }
        namespace CCC
        {
                int num=7;
        }
}

int main()
{
        std::cout<<"AAA_num:"<<AAA::num<<"      BBB_num:"<<AAA::BBB::num<<"
CCC_num:"<<AAA::CCC::num<<std::endl;
        return 0;
}
```

- I/O & namespace std::

std is namespace which is declared by iostream, add "**using namespace std;". ** you can use "std::cin, std::endl" to "cin, endl" simply.

- State clearly ; using

```
#include <iostream>
namespace AAA
{
        int num=5;

        namespace BBB
        {
                int num=6;
        }
        void func(void)
        {
                std::cout<<"AAA namespace의 func함수"<<std::endl;
        }
}
using namespace AAA;
namespace DDD
{
        void print(void)
        {
                func(); //AAA is global
                std::cout<<"DDD namespace의 print함수"<<std::endl;
        }
}
int main()
{
        using DDD::print;
        print(); // local DDD's print function
        return 0;
}
```

- Define alias about namespace

```
#include <iostream>

namespace AAA
{
        namespace BBB
        {
```

```
                    namespace CCC
                    {
                              int num1=1;
                              int num2=2;
                    }
          }
}

namespace ABC=AAA::BBB::CCC;

int main(void)
{

std::cout<<"num1:"<<AAA::BBB::CCC::num1<<"num2:"<<AAA::BBB::CCC::num2<<std::
endl;
          std::cout<<"num1:"<<ABC::num1<<"num2:"<<ABC::num2<<std::endl;
//AAA::BBB::CCC:: = ABC::
}
```

[Exercise]

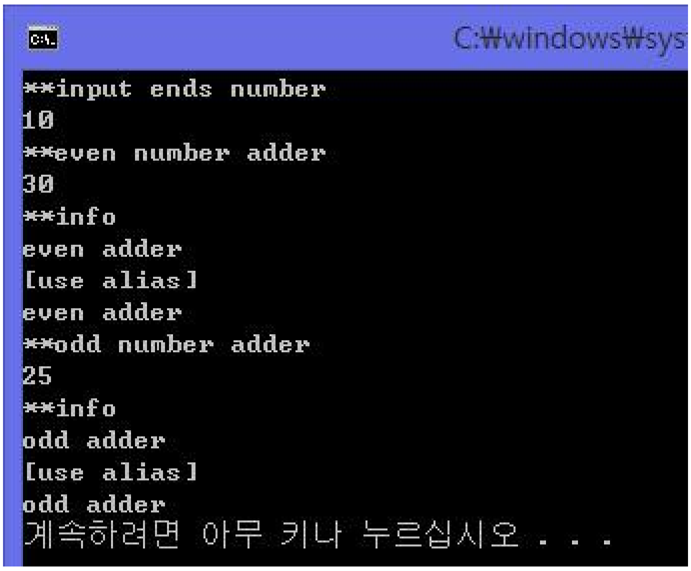
1. Run the program below. what can you find in this program?

```
int price = 1000;

void discount(void)
{
     int price = 2000;
     cout<<price * 0.7<<endl;
     cout<<::price*0.7<<endl;
}

int main( )
{
     discount( );
     return 0;
}
```

2. Using namespace, make functions which add each even number, odd number. The header file include function templates.

*** namespace**

even
 └ info
odd
 └ info



```
**input ends number
10
**even number adder
30
**info
even adder
[use alias]
even adder
**odd number adder
25
**info
odd adder
[use alias]
odd adder
계속하려면 아무 키나 누르십시오 . . .
```