1. Read the codes carefully and answer the following questions.

```
#include<iostream>
using namespace std;
class Singleton
{
private:
	static Singleton *s;
	Singleton() { }
public:
	static Singleton* GetInstance()
	{
		if (s == nullptr)	s = new Singleton();
		return s;
	}
	~Singleton()
	{
		if (s != nullptr)		// s != NULL if you use in DEV C++
		{
			delete s;
			cout << "Realease the static s." << endl;
		}
	}
};
Singleton* Singleton::s = nullptr;
void main()
{
	Singleton *ps;
	ps = Singleton::GetInstance();
	cout << ps << endl;
}
```

1.1 Please explain the member variable s;

1.2 Please describe the meaning above the codes;

1.3 Correct errors you find if any.

2．Create a class, CLINT, to save a big positive integer which is no more than 100 digits.
Define a member function to achieve the sum of two big numbers such as following:

```
class CLINT
{
private:
    ……
public:
    CLINT Add(const CLINT&    L);          // Achieve the sum of two big numbers
    void Value();                                          // Display the big number
    ……
};
```

CLINT can be used in the following way in the main:

```
void main()
{
    LINT    L1("12345678900987654321"), L2("9876543210"), L3;
    L3 = L1.Add(L2);
    L3.Value();       //    12345678910864197531
}
```

NOTES: You can define appropriate member functions and variables.

3. Create a class , CExpression，to calculate the value of an expression which consists of numbers and operators such as +、-、*、/ and ( )。

Define member functions such as following:

```
class CExpression
{
private:
    ……
public:
    double Value( );
    void PrintExpression( );
    ……
};
```

NOTE：

3.1 You can define appropriate member functions and variables.

3.2 Assume that an expression you input is always correct.

CExpression can be used in the following way in the main:

```
void main()
{
    CExpression expr("50.3-20.12+8*8/2");

    expr.PrintExpression();
    cout << " = " << expr.Value() << endl;              //    50.3-20.12+8*8/2 = 62.18

    expr.SetExpression("(39+11)*30+10/5");
    expr.PrintExpression();
    cout << " = " << expr.Value() << endl;              // (39+11)*30+10/5 = 1502

    expr.SetExpression("39+12*(47+33)");
    expr.PrintExpression();
    cout << " = " << expr.Value() << endl;             // 39+12*(47+33) = 999

    expr.SetExpression("20/(112-(10*1.2))/10-1.01");
    expr.PrintExpression();
    cout << " = " << expr.Value() << endl;             //    20/(112-(10*1.2))/10-1.01 = -0.99
}
```