1 .Define an integer set class named CSet with some memeber functions as follows:

1.1 Multiple elements of the same type can be put in a set.

1.2 IsExist(): To judge if an integer is a member of a set or not;

1.3 IsEqual(): To judge if two sets are equal or not;

1.4 RemoveItem(): To delete an integer from the set;

1.5 Intersection(): To get intersection with another set; (交集)

1.6 Union(): To get union with another set. (并集)

1.7 AddItem(): To add an integer to a set.In this function adds an integer successfully when this integer is NOT in the set and there are enough space to save it in the set.

NOTES: To complement CSet class, you may define other member functions with appropriate arguments as well as member variables if you need.

2. Define a class of CSmart which can print how many objects of CSmart thare are in the program, and explain the results of the procedure.

```
class CSmart
{
    //  Here is your codes...
};

 void DoSomething()
 {
    CSmart s;
 }

 CSmart s1;

 int main()
 {
    CSmart s2;
```

```
    DoSomething();

    CSmart *s3 = new CSmart;

    delete s3;

    s2.~CSmart();

    return 0;
}
```

The outputs of main are as below:

```
1 object
2 objects
3 objects
2 objects
3 objects
2 objects
1 object
0 object
```

3.Create a class, CIntChar, to archieve an integer to save a string which length is no more than 4.
Suppose that a character length is 1 byte.

For example: "Love", it's binary form associated with an integer is : 0100 1100 0110 1111 0111 0110 0110 0101
If the string length is less than 4 characters, the remaining part is made up by zero.

NOTES:
(1) You can define appropriate members;

(2) The string type in C++ is FORBIDDEN in the CIntChar;
(3) In main, programmer can call member functions in the following way.

```
void main()
{
   CIntChar  IC("Love");

   IC.ASC_Print();      // Print the content with string format: Love
   IC.Binary_Print();   // Print the content with binary format: 0100 1100 0110 1111 0111 0110 0110 0101
   IC.Int_Print();      // Print the content with integer format: 1282373221
}
```

[optional 1] Define a class of CLQueue which holds data with linear structure and connects the last node to the first node.
4.1 Define member function, Add(), to add an item to CLQueue;
4.2 Define member function, Remove(), to remove an item from CLQueue;
4.3 Define member function, Get(), to get an item at the specified position;
Note: You may define compatible parameters as well as other members you need.

[optional 2] In C09.CPP of chapter 9，There is an example, Time, which used C library.
Demands:
1. Define CDateTime to encapusulate funcitons: localtime and struct tm in C library;
2. In main, the class can be used in te following way:

```
int main()
{
    CDateTime dt = CDateTime::Now();
```

```
        dt.ShowTime12();    // 以 am  或 pm 形式，显示当前时间，例如上午：10:11:12 am
        dt.ShowTime24();    // 以24小时形式，显示当前时间，例如下午：22:11:12 pm
        dt.ShowDate();      // 显示当前日期和星期，例如：2023年3月24日，星期五

        return 0;
    }
```