第十五周作业（当堂提交）

一．简答题

1. 多继承时，如果多个基类中的同名成员在派生类中的标识符不唯一，将会出现什么问题？在派生类中如何消除该问题？

2. 什么是虚基类？它有什么作用？

二. 阅读题

1. 写出以下程序的运行结果

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

class B1 {
   public:
      B1(int i) {    cout << "constructing B1" << i << endl;    }
      ~B1( ) {    cout << "destructing B1" << endl;    }
};

class B2 {
   public:
      B2( ) {    cout << "constructing B3" << endl;    }
      ~B2( ) {    cout << "destructing B3" << endl;    }
};

class C: public B2, virtual public B1 {
      int j;
   public:
      C(int a, int b, int c): B1(a), memberB1(b), j(c) { }
   private:
      B1 memberB1;
      B2 memberB2;
};

int main( ) {
      C obj(1,2,3);
}
```

2. 写出以下程序的运行结果

```
#include<iostream>
class A {
   public:
      int n;
};
```

```
class B: public A {};
class C: public A {};
class D: public B, public C {
    int getn() {   return B::n;   }
};

void main()
{   D d;
    d.B::n = 10;
    d.C::n = 20;
    cout << d.B::n << "," << d.C::n <<endl;
}
```

3. 写出以下程序的运行结果

```
#include <iostream>
class A {
    int a;
public:
    A(int i) {   a=i; cout << "constructing class A" << endl;   }
    void print() {   cout << a << endl;   }
    ~A()   {   cout << "destructing class A" << endl;   }
};

class B1: public A {
    int b1;
public:
    B1(int i, int j): A(i) {   b1=j; cout << "constructing class B1" << endl;   }
    void print()
    {
        A::print();
        cout << b1 << endl;
    }
    ~B1() {   cout << "destructing class B1" << endl;   }
};

class B2: public A {
    int b2;
public:
    B2(int i, int j): A(i) {   b2=j; cout << "constructing class B2" << endl;   }
    void print()
    {
        A::print();
        cout << b2 << endl;
    }
```

```
    ~B2() {    cout << "destructing class B2" << endl;    }
};

class C: public B1, public B2 {
    int c;
public:
    C(int i, int j, int k, int l, int m) : B1(i, j), B2(k, l), c(m)
    {
        cout << "constructing class C" << endl;
    }
    void print()
    {
        B1::print();
        B2::print();
        cout << c << endl;
    }
    ~C( ){    cout << "destructing class C" << endl;    }
};
void main()
{
     C c1(1,2,3,4,5);
     c1.print();
}
```

三. 编程题

请定义一个类 A，使得在程序中只能创建该类的唯一一个对象，当试图创建该类的第二个对象时，返回第一个对象的指针。（提示：类 A 的设计模式采用 Singleton 模式）