Пример 06.1. Прямая и косвенная базы.

class A

{

public:

A(char\* s) { cout<<"Creature A"<<s<<";"<<endl; }

};

class B : public A

{

public:

B() : A(" from B") { cout<<"Creature B;"<<endl; }

};

class C : public B, public A

{

public:

C() : A(" from C") { cout<<"Creature C;"<<endl; }

};

void main()

{

C obj;

}

Пример 06.2. Виртуальное наследование.

class A

{

public:

A(char\* s) { cout<<"Creature A"<<s<<";"<<endl; }

};

class B : virtual public A

{

public:

B() : A(" from B") { cout<<"Creature B;"<<endl; }

};

class C : public B, virtual public A

{

public:

C() : A(" from C") { cout<<"Creature C;"<<endl; }

};

void main()

{

C obj;

}

Пример 06.4. Доминирование.

class A

{

public:

void f() { cout<<"Executing f() from A;"<<endl; }

void f(int i) { cout<<"Executing f(int) from A;"<<endl; }

};

class B : virtual public A

{

public:

void f() { cout<<"Executing f from B;"<<endl; }

using A::f; // плохо!!!

};

class C : virtual public A

{

};

class D : virtual public C, virtual public B

{

};

void main()

{

D obj;

obj.f();

obj.f(1);

}

Пример 06.5. Доминирование.

class A

{

public:

void f() { cout<<"Executing f from A;"<<endl; }

};

class B : virtual public A

{

public:

void f() { cout<<"Executing f from B;"<<endl; }

};

class C : public B, virtual public A

{

};

void main()

{

C obj;

obj.f();

}

Пример 06.8. Множественный вызов методов.

class A

{

public:

void f() { cout<<"Executing f from A;"<<endl; }

};

class B : virtual public A

{

public:

void f()

{

A::f();

cout<<"Executing f from B;"<<endl;

}

};

class C : virtual public A

{

public:

void f()

{

A::f();

cout<<"Executing f from C;"<<endl;

}

};

class D : virtual public C, virtual public B

{

public:

void f()

{

C::f();

B::f();

cout<<"Executing f from D;"<<endl;

}

};

void main()

{

D obj;

obj.f();

}

Пример 06.9. Решение проблемы множественного вызова методов.

class A

{

protected:

void \_f() { cout<<"Executing f from A;"<<endl; }

public:

void f() { this->\_f(); }

};

class B : virtual public A

{

protected:

void \_f() { cout<<"Executing f from B;"<<endl; }

public:

void f()

{

A::\_f();

this->\_f();

}

};

class C : virtual public A

{

protected:

void \_f() { cout<<"Executing f from C;"<<endl; }

public:

void f()

{

A::\_f();

this->\_f();

}

};

class D : virtual public C, virtual public B

{

protected:

void \_f() { cout<<"Executing f from D;"<<endl; }

public:

void f()

{

A::\_f(); C::\_f(); B::\_f();

this->\_f();

}

};

void main()

{

D obj;

obj.f();

}

Пример 06.10. Неоднозначности при множественном наследовании.

|  |  |
| --- | --- |
| class A  {  public:  int a;  int (\*b)();  int f();  int f(int);  int g();  }; | class B  {  int a;  int b;  public:  int f();  int g;  int h();  int h(int);  }; |
| class C: public A, public B {}; | |

class D

{

public:

static void fun(C& obj)

{

obj.a = 1; // Error!!!

obj.b(); // Error!!!

obj.f(); // Error!!!

obj.f(1); // Error!!!

obj.g = 1; // Error!!!

obj.h(); obj.h(1); // Ok!

}

};

void main()

{

C obj;

D::fun(obj);

}

Пример 06.7. Замена интерфейса.

class A

{

public:

void f1() { cout<<"Executing f1 from A;"<<endl; }

void f2() { cout<<"Executing f2 from A;"<<endl; }

};

class B

{

public:

void f1() { cout<<"Executing f1 from B;"<<endl; }

void f3() { cout<<"Executing f3 from B;"<<endl; }

};

class C : private A, public B {};

class D

{

public:

void g1(A& obj)

{

obj.f1(); obj.f2();

}

void g2(B& obj)

{

obj.f1(); obj.f3();

}

};

void main()

{

C obj;

D d;

// obj.f1(); Error!!! Неоднозначность

// d.g1(obj); Error!!! Нет приведения к базовому классу при наследовании по схеме private

d.g2(obj);

}

Пример 06.6. Объединение интерфейсов.

class A

{

public:

void f1() { cout<<"Executing f1 from A;"<<endl; }

void f2() { cout<<"Executing f2 from A;"<<endl; }

};

class B

{

public:

void f1() { cout<<"Executing f1 from B;"<<endl; }

void f3() { cout<<"Executing f3 from B;"<<endl; }

};

class C : public A, public B {};

class D

{

public:

void g1(A& obj)

{

obj.f1(); obj.f2();

}

void g2(B& obj)

{

obj.f1(); obj.f3();

}

};

void main()

{

C obj;

D d;

d.g1(obj);

d.g2(obj);

}

Пример 06.11. Виртуальные методы.

class A

{

public:

virtual void f() { cout<<"Executing f from A;"<<endl; }

};

class B : public A

{

public:

virtual void f() override { cout<<"Executing f from B;"<<endl; }

};

class C

{

public:

static void g(A& obj) { obj.f(); }

};

void main()

{

B obj;

C::g(obj);

}