# 第11周 实验课任务

**一、读程序题**

1. **读程序，写出运行结果。**

#include<iostream>

using namespace std;

class B{

public:

virtual void show(){cout<<"B";}

void print(){cout<<"\n基类";}

};

class D:public B{

public:

void show() {cout<<"D";}

virtual void print(){cout<<"\n派生类";}

};

void fun1(B \*ptr){ptr->show();}

void fun2(B &ref){ref.show();}

void fun3(B b){b.show();}

int main(){

B b,\*p=new D;

D d;

fun1(p);

fun2(b);

fun3(d);

b.print();

p->print();

d.print();

return 0; }

**运行结果：**

**DBB**

**基类**

**基类**

**派生类**

1. **读程序，写出运行结果。**

#include<iostream>

using namespace std;

class GA{

public:

virtual int f(){return 1;}

};

class GB: public GA{

public:

virtual int f(){return 2;}

};

void show(GA g){cout<<g.f();}

void display(GA &g){cout<<g.f();}

void print(GA \*g){cout<<g->f();}

int main(){

GA a; show(a); display(a); print(&a);

GB b; show(b); display(b); print(&b);

return 0; }

**运行结果：**

**111122**

**3、读以下程序，写出运行结果。**

#include<iostream>

#include<cmath>

using namespace std;

class area\_peri

{

protected:

double height;

double width;

public:

area\_peri(double r,double s)

{ height=r;

width=s; }

virtual double area()=0;

virtual double perimeter()=0;

};

class rectangle:public area\_peri

{

public:

rectangle(double r,double s):area\_peri(r,s){ }

virtual double area(){ return height\*width; }

double perimeter(){ return (height+width)\*2; }

};

class triangle:public area\_peri

{

public:

triangle(double r,double s):area\_peri(r,s){ }

virtual double area(){ return (height\*width)/2; }

double perimeter(){ return height+width+sqrt(height\*height+width\*width); }

};

int main()

{

area\_peri \*p;

rectangle r(3,4);

p=&r;

cout<<"矩形的面积是："<<p->area()<<endl;

cout<<"矩形的周长是："<<p->perimeter()<<endl;

triangle t(3,4);

p=&t;

cout<<"三角形的面积是："<<p->area()<<endl;

cout<<"三角形的周长是："<<p->perimeter()<<endl;

return 0;

}

**运行结果：**

**矩形的面积是：12**

**矩形的周长是：14**

**三角形的面积是：6**

**三角形的周长是：12**

1. **编程序题**

**1、教材第258页习题【5.19】，请根据题目要求编程，并写出程序运行结果。**

**2、教材第258页习题【5.20】，请根据题目要求编程，并写出程序运行结果。**

1. **定义一个抽象基类book，由它派生出engineer\_book类（第二层），再由engieer\_book类派生出computer\_book类（第三层）。三个类的成员自拟，要求用虚函数分别对不同书籍进行概要介绍。**

[参考答案]

#include<iostream>

using namespace std;

class book

{

public:

virtual void introduce\_book()

{ cout<<"学无止境！"<<endl; }

};

class engieer\_book : public book

{

public:

void introduce\_book()

{ cout<<"工程是一种系统的实践活动。"<<endl;}

};

class computer\_book : public engieer\_book

{

public:

void introduce\_book()

{ cout<<"计算机对人类社会的影响可以说无处不在。"<<endl;}

};

int main()

{

book b,\*pb;

engieer\_book eb;

computer\_book cb;

pb=&b;

pb->introduce\_book();

pb=&eb;

pb->introduce\_book();

pb=&cb;

pb->introduce\_book();

return 0;

}