第八章练习

1.

#include<cmath>

#include<iostream>

using namespace std;

class Point{

private:

double x;double y;

public:

void Set(double ix,double iy){

x=ix;y=iy;

}

double xOffset(){

return x;

}

double yOffset(){

return y;

}

double angle(){

return (180/3.14159)\*atan2(y,x);

}

double radius(){

return sqrt(x\*x+y\*y);

}

//需增加：

void fun(){

x+=5;y+=6;

}

};

int main(){

Point p;

double x,y;

cout<<"Enter x and y:\n";//在开头没有用iostream的头文件

cin>>x>>y;//在开头没有用iostream的头文件

p.Set(x,y);

p.fun();//需增加

//p.x+=5;//不能直接操作

//p.y+=6;//不能直接操作

cout<<"angle="<<p.angle()<<",radius="<<p.radius()<<",x offset="<<p.xOffset()<<",y offset="<<p.yOffset()<<endl;

}

2.

//8\_2\_1.cpp

#include<iostream>

class Cat{

int itsAge;

public:

int getAge();

void setAge(int age);

void meow(); //喵喵叫

};

int Cat::getAge(){return itsAge;}

void Cat::setAge(int age){itsAge=age;}

void Cat::meow(){std::cout<<"Meow.\n";}

//8\_2\_2.h

#include"8\_2\_1.cpp"

int main(){

Cat frisky;

frisky.setAge(5);

frisky.meow();

std::cout<<"frisky is a cat who is "<<frisky.getAge()<<" years old.\n";

frisky.meow();

}

3.

#include<iostream>

#include<iomanip>

class Date{

private:

int year,month,day;

public:

Date(int y=2000,int m=1,int d=1){

if(m>12||m<1||d<1||d>31){

std::cout<<"The program boom!!"<<"\n";exit(1);

}

year=y;month=m;day=d;

}

void set(int y=2000,int m=1,int d=1){

Date(y,m,d);

}

void print(){

std::printf("Today is %04d/%02d/%02d\n",year,month,day);

}

void add(){

day++;

if(month==2){

if(year%100==0){

if(year%400==0){

if(day==29){day=1;month=3;}

}

else{

if(day==28){day=1;month=3;}

}

}

else{

if(year%4==0){

if(day==29){day=1;month=3;}

}

else{

if(day==28){day=1;month=3;}

}

}

}

else if(month==4||month==6||month==9||month==11){

if(day==30){day=1;month++;}

}

else{

if(day==31){day=1;month++;}

}

if(month==13){month=1;year++;}

}

};

int main(){

Date cyz(1999,5,13);

cyz.print();

}

4.

//8\_4\_class.cpp

#include<iostream>

class Time{

private:

int hour,min,second;

public:

Time(int h=0,int m=0,int s=0){hour=h;min=m;second=s;check();}

void set(int h,int m,int s);

void print();

void check();

};

//8\_4\_main.h

#include"8\_4\_class.cpp"

void Time::set(int h,int m,int s){hour=h;min=m;second=s;check();}

void Time::print(){std::cout<<"The time is "<<hour<<":"<<min<<":"<<second<<'\n';}

void Time::check(){

if(hour<1||hour>12||min<1||min>=60||second<1||second>=60){

std::cout<<"The program is booming!!"<<'\n';exit(1);

}

}

int main(){

Time haha(7,4,2);

haha.print();

}

5.

#include<iostream>

class Stack{

private:

int nums[15];int pos;

public:

Stack(){pos=0;}

void push(int x){

nums[pos++]=x;

//std::cout<<"pos="<<pos<<'\n';

check\_full();

}

int read(){

if(!check\_empty()){

std::cout<<"The stack is empty!!"<<'\n';

return 0;

}

return nums[pos-1];

}

void pop(){pos--;if(pos<0)pos=0;}

bool check\_empty(){

if(pos==0)return 0;

return 1;

}

bool check\_full(){

if(pos==12){

std::cout<<"The stack is booming!!"<<'\n';

exit(1);

}

}

};

int main(){

Stack s;

s.push(10);

s.push(12);

s.push(14);

std::cout<<s.read()<<'\n';

s.pop();

std::cout<<s.read()<<'\n';

}

6.

#include<iostream>

class Boat;

class Car{

int size;

public:

void setSize(int j){size=j;}

//int getSize(){return size;}

friend int leisure(int time,Car &aobj,Boat &bobj);

};

class Boat{

int size;

public:

void setSize(int j){size=j;}

//int getSize(){return size;}

friend int leisure(int time,Car &aobj,Boat &bobj);

};

int leisure(int time,Car &aobj,Boat &bobj){

return time\*aobj.size\*bobj.size;

}

int main(){

Car c1;c1.setSize(2);

Boat b1;b1.setSize(3);

std::cout<<leisure(5,c1,b1);

}

7.

#include<iostream>

class Animal{

private:

int itsWeight;

int itsAge;

public:

void setValue(Animal& ta,int tw,int tn){

ta.itsWeight=tw;

ta.itsAge=tn;

}

};

int main(){

Animal peppy;

peppy.setValue(peppy,7,9);

}

8.

#include<iostream>

class Poi{

private:

static int x;

public:

Poi(){x++;}

~Poi(){x--;print();}

void print(){std::cout<<x<<'\n';}

};

int Poi::x=0;

int main(){

Poi p1;

p1.print();

Poi p2;

p2.print();

Poi p3;

p3.print();

}