#include <iostream>

using namespace std;

////////////////////////////////////////////////////////////////

class Counter

{

private:

unsigned int count; //count

public:

Counter() : count(0) //constructor no args

{ }

Counter(int c) : count(c) //constructor, one arg

{ }

unsigned int get\_count() //return count

{ return count; }

Counter operator ++ () //increment count

{

++count; // increment count, then return

return Counter(count); // an unnamed temporary object

} // initialized to this count

};

int main()

{

Counter c1, c2; //c1=0, c2=0

cout << “\nc1=” << c1.get\_count(); //display

cout << “\nc2=” << c2.get\_count();

++c1; //c1=1

c2 = ++c1; //c1=2, c2=2

cout << “\nc1=” << c1.get\_count(); //display again

cout << “\nc2=” << c2.get\_count() << endl;

return 0;

}

#include <iostream>

#include <string>

using namespace std;

class time12

{

private:

bool pm; //true = pm, false = am

int hrs; //1 to 12

int mins; //0 to 59

public: //no-arg constructor

time12() : pm(true), hrs(0), mins(0)

{ }

//3-arg constructor

time12(bool ap, int h, int m) : pm(ap), hrs(h), mins(m)

{ }

void display() const //format: 11:59 p.m.

{

cout << hrs << ":";

if(mins < 10)

cout << "0"; //extra zero for “01”

cout << mins << " ";

string am\_pm = pm ? "p.m." : "a.m.";

cout << am\_pm;

}

};

class time24

{

private:

int hours; //0 to 23

int minutes; //0 to 59

int seconds; //0 to 59

public: //no-arg constructor

time24() : hours(0), minutes(0), seconds(0)

{ }

time24(int h, int m, int s) : //3-arg constructor

hours(h), minutes(m), seconds(s)

{ }

void display() const //format: 23:15:01

{

if(hours < 10) cout << "0";

cout << hours << ":";

if(minutes < 10) cout << "0";

cout << minutes << ":";

if(seconds < 10) cout << "0";

cout << seconds;

}

operator time12() const; //conversion operator

};

time24::operator time12() const //conversion operator

{

int hrs24 = hours;

bool pm = hours < 12 ? false : true; //find am/pm

//round secs

int roundMins = seconds < 30 ? minutes : minutes+1;

if(roundMins == 60) //carry mins?

{

roundMins=0;

++hrs24;

if(hrs24 == 12 || hrs24 == 24) //carry hrs?

pm = (pm==true) ? false : true; //toggle am/pm

}

int hrs12 = (hrs24 < 13) ? hrs24 : hrs24-12;

if(hrs12==0) //00 is 12 a.m.

{ hrs12=12; pm=false; }

return time12(pm, hrs12, roundMins);

}

int main()

{

int h, m, s;

while(true)

{

//get 24-hr time from user

cout << "Enter 24-hour time: \n";

//cout << " Hours (0 to 23): "; cin >> h;

h=11;

if(h > 23) //quit if hours > 23

return(1);

//cout << " Minutes: "; cin >> m; cout << " Seconds: "; cin >> s;

m=20; s=25;

time24 t24(h, m, s); //make a time24

cout << "You entered: "; //display the time24

t24.display();

time12 t12 = t24; //convert time24 to time12

cout << "\n12-hour time: "; //display equivalent time12

t12.display();

cout << "\n\n";

}

return 0;

}