

```
manip TimeHMS.cpp - X
Week11_Homework2 (Global Scope)
1 #pragma once
2 #include <iostream>
3 #include <iomanip>
4 // #include <string>
5 using namespace std;
6
7 class TimeHMS
8 {
9     int hour, min, sec;
10 public:
11     TimeHMS(int h, int m, int s) : hour(h), min(m), sec(s) {}
12     TimeHMS(int d = 0) { convert(d); }
13     ~TimeHMS() {}
14
15     void convert(int total) {
16         hour = total / (60 * 60);
17         total %= (60 * 60);
18         min = total / 60;
19         sec = total % 60;
20     }
21     int totalsec() { return hour * (60 * 60) + min * 60 + sec; }
22
23     TimeHMS operator+(TimeHMS t) {
24         return TimeHMS((hour + t.hour) * 3600 + (min + t.min) * 60 + (sec + t.sec));
25     }
26     TimeHMS operator-(TimeHMS t) {
27         return TimeHMS((hour - t.hour) * 3600 + (min - t.min) * 60 + (sec - t.sec));
28     }
29     bool operator==(TimeHMS t) { return totalsec() == t.totalsec(); }
30     bool operator!=(TimeHMS t) { return totalsec() != t.totalsec(); }
31     TimeHMS& operator++() {
32         hour++;
33         return *this;
34     }
35     TimeHMS& operator--() {
```

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C:\Users\Wuser\source\repos\Week11_Homework2\Week11_Homework2.exe
t1 :
```

```
iomanip TimeHMS.cpp - X
Week11_Homework2 (Global Scope)
34 }
35 TimeHMS& operator--() {
36     hour--;
37     return *this;
38 }
39 TimeHMS& operator++(int) {
40     sec++;
41     return *this;
42 }
43 TimeHMS& operator--(int) {
44     sec--;
45     return *this;
46 }
47 int operator[] (int id) {
48     if (id == 0) return hour;
49     else if (id == 1) return min;
50     else if (id == 2) return sec;
51     else return -1;
52 }
53 operator int() { return totalsec(); }
54 operator double() { return totalsec() / 3600.; }
55 friend TimeHMS operator*(int times, TimeHMS t) {
56     return TimeHMS(times * t.totalsec());
57 }
58 friend ostream& operator<<(ostream& os, const TimeHMS& t) {
59     os << fixed << setfill('0') <<
60     setw(2) << t.hour << ":" <<
61     setw(2) << t.min << ":" <<
62     setw(2) << t.sec << endl;
63     return os;
64 }
65 friend istream& operator>>(istream& is, TimeHMS& t) {
66     int total;
67     is >> total;
68     t.convert(total);
```

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C:\Users\Wuser\source\repos\Week11_Homework2\Week11_Homework2.exe
t1 : 4830
t2 :
```

```
iomanip TimeHMS.cpp - X
Week11_Homework2 TimeHMS
67     is >> total;
68     t.convert(total);
69     return is;
70 }
71 };
72
73 void main()
74 {
75     TimeHMS t1, t2, t3;
76
77     cout << "t1 : ";
78     cin >> t1;
79     cout << "t2 : ";
80     cin >> t2;
81     cout << "\n";
82     cout << "t1 = " << t1;
83     cout << "t2 = " << t2;
84     cout << "t3=t1+t2, t3 = " << t1 + t2;
85     cout << "t3=t1-t2, t3 = " << t1 - t2;
86     cout << "++t1 = " << ++t1;
87     cout << "--t1 = " << --t1;
88     cout << "t1++ = " << t1++;
89     cout << "t1-- = " << t1--;
90     cout << "\n";
91     cout << "t1[0], t1[1], t1[2] = " << t1[0] << ", " << t1[1] << ", " << t1[2] << endl;
92     cout << "\n";
93     cout << "t1[sec] = " << (int)t1 << endl;
94     cout << "t1[hour] = " << (double)t1 << endl;
95     cout << "\n";
96     cout << "2*t1 = " << 2 * t1;
97 }
```

```
Microsoft Visual Studio Debug Console
t1 : 4830
t2 : 16546

t1 = 01:20:30
t2 = 04:35:46
t3=t1+t2, t3 = 05:56:16
t3=t1-t2, t3 = -3:-15:-16
++t1 = 02:20:30
--t1 = 01:20:30
t1++ = 01:20:31
t1-- = 01:20:30

t1[0], t1[1], t1[2] = 1, 20, 30

t1[sec] = 4830
t1[hour] = 1.341667

2*t1 = 02:41:00

C:\Users\Wuser\source\repos\Week11_Homework2\Week11_Homework2.exe (proc
Press any key to close this window . . .
```