// =======================

// Attached: hw3

// =======================

// HW 3

// =======================

// Youssef Abdelwahab

// CS 1B

#include <iostream>

#include <iomanip>

#include <string>

using namespace std;

struct Time

{

int hours;

int minutes;

int seconds;

};

void getTime(Time& time);

bool istimevalid(Time& time);

void addonesec(Time& time, int MAX\_HOURS, int MAX\_MINS, int MAX\_SECS);

void displaytime(Time& time,int valid);

int main()

{

char loop = 'Y';

while (loop == 'y' || loop == 'Y')

{

Time time;

int MAX\_HOURS = 23;

int MAX\_MINS = 59;

int MAX\_SECS = 59;

int valid;

getTime(time);

valid = istimevalid(time);

addonesec(time, MAX\_SECS, MAX\_MINS, MAX\_SECS);

displaytime(time, valid);

cout << " " << endl;

cout << "Do it again? (Y/N)...";

cin >> loop;

}

system("pause>null");

return 0;

}

//=================================================================

//=================================================================

void getTime(Time& time)

{

cout << "Enter the time in military time, (24-hour format)" << endl;

cout << " in the following order : HH:MM:SS, (Hours, Minutes, Seconds)"<< endl;

cout << " " << endl;

cout << "Hours : ";

cin >> time.hours;

cout << " " << endl;

cout << "Minutes: ";

cin >> time.minutes;

cout << " " << endl;

cout << "Seconds: ";

cin >> time.seconds;

cout << " " << endl;

}

//=================================================================

//=================================================================

bool istimevalid(Time& time)

{

int MAX\_HOURS = 23;

int MAX\_MINS = 59;

int MAX\_SECS = 59;

if ((time.hours >= 0) && (time.hours <= MAX\_HOURS) && (time.minutes >= 0) && (time.minutes <= MAX\_MINS) && (time.minutes >= 0) && (time.minutes <= MAX\_MINS) && (time.seconds >= 0) && (time.seconds <= MAX\_SECS))

{

return true;

}

else

{

cout << "Invalid time...";

return false;

}

}

//=================================================================

//=================================================================

void addonesec(Time& time, int MAX\_HOURS, int MAX\_MINS, int MAX\_SECS)

{

time.seconds++;

if (time.seconds > MAX\_SECS)

{

time.seconds = 0;

time.minutes++;

}

if (time.minutes > MAX\_MINS)

{

time.minutes = 0;

time.hours++;

}

if (time.hours >= MAX\_HOURS)

{

time.hours = 0;

time.minutes = 0;

time.seconds = 0;

}

}

//=================================================================

//=================================================================

void displaytime(Time& time,int valid)

{

if (valid == true)

{

cout << "After adding one second the time is : ";

cout << setw(2) << time.hours << ":";

cout.fill();

cout << setw(2);

cout.fill();

cout << time.minutes << ":";

cout << setw(2);

cout.fill();

cout << time.seconds;

cout << " " << endl;

}

else

{

}

}

Text

Description automatically generated