

```
#include <iostream>
#include <iomanip>
#include <vector>
#include <cmath>

using namespace std;

#include "timer.h"

// prototypes
int main(int argc, char **argv);

int main(int argc, char **argv)
{
    Timer timer;
    Timer t1(timer);
    Timer t2;
    long sum=0;

    std::cout << "calling t2 = t1\n";
    t2 = t1;

    timer.start();

    // chunk of code to test
    for(int i=0; i<15000; ++i)
        for(int j=0; j<15000; ++j)
            sum += i*15000 + j;

    timer.end();
    std::cerr << " (" << timer.elapsed_s() << " s) " << std::endl;
}
```

```
#include <iostream>
#include <string>
#include <cstdlib>
#include <sys/time.h>

using namespace std;

#include "timer.h"

ostream& operator<<(ostream& s,const Timer& rhs)
{
    s << "time elapsed: " << rhs.tt << " us" << std::endl;

    return(s);
}

void Timer::start()
{
    ts = stamp_us();
}

void Timer::end()
{
    te = stamp_us();
    tt = te - ts;
}

double Timer::stamp_us()
{
    double s,us,tod;
    struct timeval tp;

    // get time of day (tod), return in microseconds

    gettimeofday(&tp,NULL);
    s = static_cast<double>(tp.tv_sec);
    us = static_cast<double>(tp.tv_usec);
    tod = s*1000000.0 + us;
    return(tod);
}
```