

Measuring Program Running Time in C/C++

As programmer, we usually want to measure the speed of our program in time (seconds). C/C++ provides a useful function in timing. We can use the function

```
clock_t clock(void);
```

to get the CPU clock time. The idea is simple. Get the starting and the ending CPU clock time then divide by constant **CLOCKS_PER_SEC** defined in the **time.h** header file. Don't forget to put **#include <time.h>**.

Source Code "time.cpp"

```
#include <iostream>
#include <time.h>

using namespace std;

int main()
{
    clock_t start = clock();

    // do something
    //

    clock_t ends = clock();
    cout << "Running Time : "
         << (double) (ends - start) / CLOCKS_PER_SEC << endl;

    return 0;
}
```

Creating a Simple Timer Program

We can modify the program above a little bit so that we can have a timer program that measures the speed of the program. In order to create the timer, we should be able to call other program inside our program. This can be done by this useful function

```
int system(const char *cmd)
```

which is declared in **stdlib.h**. Don't forget to put **#include <stdlib.h>**.

Source Code "timer.cpp"

```
#include <iostream>
#include <time.h>
#include <stdlib.h>

using namespace std;

int main(int argc, char **argv)
{
    if (argc != 2)
    {
        // incorrect command line-argument
        cout << "Usage : timer <program_name>" << endl;
        return 1;
    }

    // start the clock
    cout << "Starting " << argv[1] << "..." << endl;
    clock_t start = clock();

    // start program
    system(argv[1]);

    // program ends and stop clock
    clock_t ends = clock();
    cout << "Running Time : "
         << (double) (ends - start) / CLOCKS_PER_SEC << endl;

    return 0;
}
```

Done by Stephanus Indra.
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