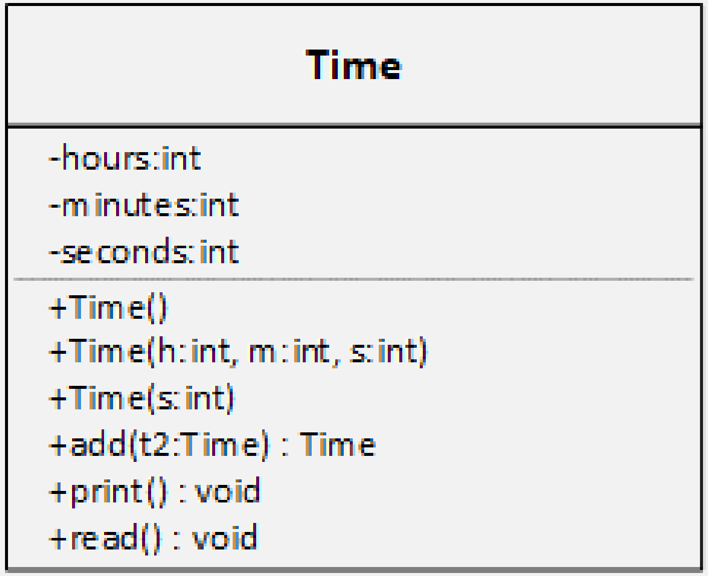
# THE `time` CLASS EXAMPLE

Converting a structure to a class

Delroy A. Brinkerhoff

# THE `Time` CLASS



**Time**

-hours:int
-minutes:int
-seconds:int

+Time()
+Time(h:int, m:int, s:int)
+Time(s:int)
+add(t2:Time) : Time
+print() : void
+read() : void

- Three private member variables
- All operations public
  - Three constructors
  - Three operations
- All operations bound to an object with the “this” pointer

# CONVERTING STRUCTURE FUNCTIONS TO MEMBER FUNCTIONS

| STRUCTURE | MEMBER |
|---|---|
| | Time() |
| Time make_time(int, int, int) | Time(int, int, int) |
| Time make_time(int) | Time(int) |
| Time add(Time, Time) | Time add(Time) |
| void print(Time&) | void print() |
| void read(Time*) | void read() |

# MEMBER INITIALIZATION
# DEFAULT CONSTRUCTORS

```
class Time
{
    private:
        int hours;
        int minutes;
        int seconds;

    public:
        Time()
            : hours(0), minutes(0), seconds(0) {}
};
```

```
class Time
{
    private:
        int hours = 0;
        int minutes = 0;
        int seconds = 0;

    public:
        Time() {}
};
```

# THE add FUNCTION

```
Time Time::add(Time t2)
{
    int i1 = hours * 3600 + minutes * 60 + seconds;
    //int i1 = this->hours * 3600 + this->minutes * 60 + this->seconds;
    int i2 = t2.hours * 3600 + t2.minutes * 60 + t2.seconds;

    return Time(i1 + i2);
}
```

# THE read FUNCTION

```
void Time::read()
{
    cout << "Please enter the hours: ";
    cin >> this->hours;

    cout << "Please enter the minutes: ";
    cin >> minutes;

    cout << "Please enter the seconds: ";
    cin >> seconds;
}
```

# CLIENT CODE

- Time t;
- t.read();
- t.print();
- Time s(1, 30, 4);
- Time u = t.add(s);