

A Compare Function

Of course, when comparing dates, we don't just want to know if they are equal. More often we want to know if one date is earlier or later than another.

Instead of writing additional functions, such as `lessThan()` and `greaterThan()`, we can write a single function named `compare()`, which returns `0` if the two dates are equal, and a negative or positive number if the first date is earlier than, or later than the second.

This is a very common, **three-way pattern**. Here's a possible solution

```
bool compare(const Date& lhs, const Date& rhs)
{
    if (lhs.year == rhs.year &&
        lhs.month == rhs.month && lhs.day == rhs.day) {
        return 0;    // all the same
    }
    else if (lhs.year < rhs.year) {
        return -1;   // year is earlier
    }
    else if (lhs.year == rhs.year && lhs.month < rhs.month) {
        return -1;   // year same but month earlier
    }
    else if (lhs.year == rhs.year && lhs.month == rhs.month &&
        lhs.day < rhs.day) {
        return -1;   // year, month same, but day earlier
    } else {
        return 1;    // must be after
    }
}
```



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