Beautiful C++: STL Algorithms

STANDARD LIBRARY PHILOSOPHY AND APPROACH

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C++ and Libraries

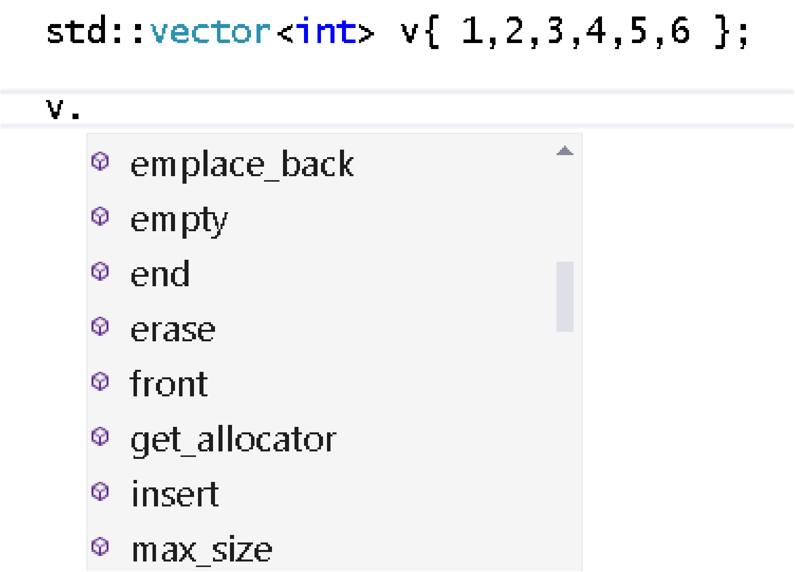
C++ Standard Library is not the biggest

It is growing

Smaller isn't non existent

Don't ignore what is there

Discoverability



```
std::vector<int> v{ 1,2,3,4,5,6 };

v.
```

Not everything is a member function

Just because you don’t see find in the list, doesn’t mean you need to code it yourself

Collections, Algorithms, Iterators

Collections

Algorithms

Iterators

Algorithms

Work on any container

No matter what it contains

Work on ranges

Typically work through iterators

Iterators provide significant functionality

Live in their own header file, <algorithm>

Headers You Should Know

<algorithm>

<vector> <array> <list> <stack> <map> <queue>

<string>

<iterator>

<utility> <tuple>

<numeric>

<complex> <cmath>

<regex> <chrono>

Do Not Write Raw Loops!

Learn to recognize standard algorithms

- Usually a giant hint in the name

You want to loop through a collection and **count** how many meet a criteria?

- count or count_if

You want to **find** the first element in a collection with a particular value?

- find or find_if

You want to create a **copy** of a collection that only has particular elements?

- copy_if

Algorithms

Counting and Finding

Sorting

Comparing and Accumulating

Generating and Manipulating Collections

Using the Power of Iterators

Unexpectedly Useful Operations

Conventions

Summary

C++ has a smaller library than some languages

It does have a library, though

The <algorithm> header is packed with great code you can use

You may never write a raw loop again