

C++ Club UK Meeting 108

Gleb Dolgich

2020-05-28

- Michele Caini
 - Reddit

- Jonathan Müller
- Reddit

- [Tristan Brindle](#)
- [Reddit](#)

- Jussi Pakkanen
- Reddit

Let's unravel the secrets behind C++17's structured bindings

- Jean Guegant
 - Reddit

Starting C++ today with a strong Java background

- **Reddit**

The C++ preprocessor doesn't understand anything about C++, and certainly not templates

- Raymond Chen
 - [Reddit](#)

How to modify a key in C++17 with `std::map::extract`

How to modify a key in C++17 with `std::map::extract`

```
std::map<int, std::string> m {  
    {1, "dog"},  
    {2, "cat"},  
    {3, "cow"}};
```

Changing a **key** of an element e.g. `{2, "cat"}` isn't trivial, as it involves changes to the internal structure of the map's self-balancing binary tree.

```
auto it = m.find(2);  
if(it != m.end()) {  
    auto s = it->second;  
    m.erase(it);  
    m.insert({7, s});  
}
```



Before C++17, we had to erase the node and insert a new one. That required an **extra allocation** and **deallocation**.

```
auto nh = m.extract(2);  
if(!nh.empty()){  
    nh.key() = 7;  
    m.insert(std::move(nh));  
}
```



C++17 introduced `extract()` which unlinks the node and returns the node handle **nh** that can modify the key. No elements are copied or moved, only internal pointers get reprinted.

More info: H.Sutter, More Exceptional C++, Item 8; P0083

@walletfox

- [GitHub](#) (Header-only, MIT, C++11)
 - [V1.6.0](#)
 - [Reddit](#)

- GitHub
 - Reddit: Catch2 now uses statically compiled library as its distribution model

Titus Winters:

Software engineering is programming integrated over time.