C++ Club UK Meeting 108

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2020-06-04

What computer and software is used by the Falcon 9

Stack Overflow

The flight software is written in C/C++ and runs in the x86 environment.

They use Chromium and JavaScript for the Dragon 2 flight interface. The actual flight computers still run on C++.

Falcon 9 and Crew Dragon launch video (YouTube)

C++20: The Unspoken Features

- Michele Caini
 - Reddit

Nifty Fold Expression Tricks

- Jonathan Müller
 - Reddit

Rvalue Ranges and Views in C++20

- Tristan Brindle
 - Reddit

Enforcing locking with C++ nonmovable types

- 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

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 repointed.

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

@walletfox

Release: spdlog V1.6.0

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

Release: Catch2 V3.0.0-preview2

• GitHub

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

Reducing {fmt} library size 4x using Bloaty McBloatface

- Viktor Zverovich
 - Reddit
- Bloaty McBloatface: A size profiler for binaries (Google)

The STL Algorithm Cheat Sheet, by Conor Hoekstra

- YouTube
- PDF
- Reddit

The "OO" Antipattern, by Arthur O'DWyer

- Article
 - Reddit

Naming Things: Implementer vs. User Names, by Jonathan Müller

- Article
 - Reddit 1
 - Reddit 2

std::polymorphic_value + Duck Typing = Type Erasure, by Jonathan Müller

- Article
 - Reddit
- polymorphic_value (GitHub)
- Better Code: Runtime Polymorphism Sean Parent

Modern C++ Template

- Filip Dutescu (GitHub)
 - Reddit

A template for modern C++ projects using CMake, clang-format and unit testing

Runtime Polymorphism with std::variant and std::visit

- · Bartek Filipek
 - Reddit

Testing C++ signal-slot libraries

• Julien Jorge

(Don't write on Medium - GD)

Quote

Titus Winters:

Software engineering is programming integrated over time.



'No Bugs' Hare @NoBugsHare

Don't code today what you can't debug tomorrow.

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