B.4 — Introduction to C++20

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What is C++20?

In February of 2020, the <u>ISO (International Organization for Standardization)</u> approved a new version of C++, called C++20. C++20 contains the most changes to the language since C++11.

New improvements in C++20

For your interest, here's a list of the major changes that C++20 adds. Note that this list is not comprehensive, but rather intended to highlight some of the key changes of interest.

- Abbreviated function templates via auto parameters (<u>11.8 -- Function templates with multiple template types</u>)
- Chrono extensions for calendar and time zone support (no tutorial yet)
- Concepts, which allow you to put constraints on template parameters (no tutorial yet)
- Constexpr virtual functions, unions, try, catch, dynamic_cast, and typeid (no tutorial yet)
- Constinit keyword, to assert that a variable has static initialization (no tutorial yet)
- Coroutines (no tutorial yet)
- Designated initializers (<u>13.8 -- Struct aggregate initialization</u>)
- Immediate functions using the consteval keyword (<u>5.8 -- Constexpr and consteval</u> functions)
- Modules, a replacement for #include (no tutorial yet)
- Ranges (no tutorial yet)
- std::erase (no tutorial yet)
- std::make shared for arrays (no tutorial yet)
- std::map::contains() (no tutorial yet)
- std::span (no tutorial yet)
- String formatting library (no tutorial yet, see https://en.cppreference.com/w/cpp/utility/format)
- String literals as template parameters (no tutorial yet)
- Three-way comparison using the spaceship operator <=> (no tutorial yet)
- Using scoped enums (no tutorial yet)
- Views (no tutorial yet)

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