Here’s a **clear and concise comparison** of **C++11**, **C++14**, and **C++17** — what each version brought to the table:

**✅ C++11 (Major Update – “C++0x”)**

**Released:** 2011

🔥 Biggest update since C++98 – modern C++ begins here!

**⭐ Key Features:**

* **auto**: Type inference
* auto x = 5; // x is int
* **Range-based for loops**
* for (auto x : vec) { ... }
* **Lambda expressions**
* auto add = [](int a, int b) { return a + b; };
* **Smart pointers**: std::shared\_ptr, std::unique\_ptr
* **Move semantics**: std::move, move constructor/operator
* **nullptr**, enum class, static\_assert
* **Multithreading support**: std::thread, std::mutex
* **Rvalue references**: Enables move semantics
* **constexpr** functions (limited)

**✅ C++14 (Minor Update – Refinements)**

**Released:** 2014

🛠 Focused on fixing and polishing C++11

**⭐ Key Features:**

* **Generic lambdas**
* auto lambda = [](auto x, auto y) { return x + y; };
* **Return type deduction** in functions using auto
* auto add(int a, int b) { return a + b; }
* **std::make\_unique<T>()**
* **Binary literals & digit separators**
* int val = 0b1010'1101;
* **Relaxed constexpr** — more things allowed in constexpr functions
* **decltype(auto)** – deduce exact return type

**✅ C++17 (Feature-Rich Upgrade)**

**Released:** 2017

🎁 Clean, powerful additions and cleanup

**⭐ Key Features:**

* **Structured bindings**
* auto [x, y] = std::make\_pair(1, 2);
* **if constexpr** – compile-time branching
* **Inline variables** – define static const directly in header
* **std::optional, std::variant, std::any**
* **String improvements**: std::string\_view
* **Parallel algorithms**: std::for\_each(std::execution::par, ...)
* **Filesystem library**: std::filesystem
* **Template argument deduction for class templates**
* **constexpr if**, **constexpr lambdas**
* Removal of old stuff: auto\_ptr, register, etc.

**🔄 Summary Table**

| **Feature** | **C++11** | **C++14** | **C++17** |
| --- | --- | --- | --- |
| auto, lambdas | ✅ | ✅ (generic) | ✅ (constexpr) |
| std::unique\_ptr, std::move | ✅ | ✅ | ✅ |
| std::make\_unique() | ❌ | ✅ | ✅ |
| if constexpr | ❌ | ❌ | ✅ |
| Structured bindings | ❌ | ❌ | ✅ |
| std::optional, std::variant | ❌ | ❌ | ✅ |
| std::filesystem | ❌ | ❌ | ✅ |
| Parallel STL algorithms | ❌ | ❌ | ✅ |
| Generic lambdas | ❌ | ✅ | ✅ |
| constexpr functions | Limited | More powerful | Fully usable |
| std::string\_view | ❌ | ❌ | ✅ |

Let me know if you want a **C++20** comparison as well or want examples of any of the features!