

# A brief history of C++

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# 1. C with classes

Bjarne Stroustrup

1980 or so: adding classes to C.

## 2. Query the standard

If you want to detect what language standard you are compiling with, use the `__cplusplus` macro:

Code:

```
1 cout << "C++ version: " <<  
    __cplusplus << '\n';
```

Output:

```
C++ version: 201703
```

This returns a `long int` with possible values 199711, 201103, 201402, 201703, 202002.

### 3. C++98/C++03

Of the C++03 standard we only highlight deprecated features.

- `auto_ptr` was an early attempt at smart pointers. It is deprecated, and C++17 compilers will actually issue an error on it. For current smart pointers see chapter ??.

## 4. C++11

- auto
- Range-based for.
- Lambdas. See chapter ??.
- Variadic templates.
- Smart pointers.
- Chrono.
- constexpr

## 5. C++14

C++14 can be considered a bug fix on C++11. It simplifies a number of things and makes them more elegant.

- Auto return type deduction:

```
auto f() {  
    SomeType something;  
    return something;  
}
```

- Generic lambdas. Also more sophisticated capture expressions.
- constexpr

## 6. C++17

- Optional
- Structured binding declarations as an easier way of dissecting tuples
- Init statement in conditionals
- File system

## 7. C++20

- modules
- coroutines, another form of parallelism.
- concepts
- spaceship operator
- ranges
- calendars and time zones
- text formatting
- span.
- numbers.
- Safe integer/unsigned comparison; section ??.