

# New Features in C++14

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- ① C++14 is a minor release.
- ② Builds up on C++11

# Return Type Deduction

- ① C++11 introduced the new keyword `auto`
- ② C++14 expands it for return types as well
- ③ Still same compile-time type safety

# Return Type Deduction

- ❶ C++11 also introduced `decltype`
- ❷ C++14 now allows for `decltype(auto)`
- ❸ Just like in C++11, `decltype` manages to maintain the references.

## 1 C++11 introduced lambda functions

```
vector<int> v = {1, 2, 3, 4, 5, 10, 15, 20, 25, 30, 35, 40, 45};  
sort(v.begin(), v.end(), [](int i, int j) -> bool {return i>j;});
```

## 2 Parameters in the lambda function can now also be auto

```
vector<int> v = {1, 2, 3, 4, 5, 10, 15, 20, 25, 30, 35, 40, 45};  
auto cmpf = [](auto i, auto j) -> auto {return i>j;};  
sort(v.begin(), v.end(), cmpf);
```

## 3 Generic lambda functions can now act as templates

# Initialized Lambda Captures

- ❶ C++11 lambdas had a capture section that would take any referenced variable
- ❷ C++14 allows for any kind of initialization on the captured members
- ❸ Useful for capture by move (`std::move`)